2012-15 Batch Syllabus

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GENERAL ENGLISH **ENG 101NA** 2012-13 onwards I DEGREE

SYLLABUS

I SEMESTER

GENERAL ENGLISH

Prose :

1. The Carjurer's revenge
2. The best investement of ever made

Poetry :

1. Ode to Autumn
2. Dover beach

Non - detailed:

1. Little girls are wiser than men (short story)
2. Merchant of venice

Grammar & Composition:

1. Tenses
2. Synonyms and Autonyms
3. Correction of sentences
4. Writing the English words from Trascription
5. Writing the correct transcription of English words
6. Stress

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking - I
   Published by
   Foundation Books Pvt. Ltd., Cambridge house, New Delhi

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SANSKRIT **SAN 101N** 2012-13 onwards I DEGREE

SYLLABUS

I SEMESTER

SANSKRIT

पद्यभागः

1. शरणागति :- वाल्मीकि रामायणे - युद्दकाण्डे 17 सर्गः
2. रघोःऔदार्यम् :- रघुवंशे - पंचमसगै 1 to 35 रलोकाः

गद्यभागः

1. मित्रसम्प्राप्ति :- विष्णुशर्मणः पंचतन्त्रे ? कथा

व्याकरणेः

शब्दाः- अजन्त पुंलिङ्ग, स्त्रीलिङ्ग, नपुसकलिङ्गाः

सन्धयः- अच्सन्धयः, हल्सन्धयः, विसर्गसन्धयरच.

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HINDI **HIN 101N** 2012-13 onwards I DEGREE

SYLLABUS

I SEMESTER

HINDI

PROSE:

1. साहित्य की महता - महावीर प्रसाद द्विवेदी
2. मित्रता - रामचन्द्र शुक्ल
3. पूस की रात - प्रेमचन्द

NON DETAILED:

1. मुक्तिधन - प्रेमचन्द
2. गूदड साई - जय शंकर प्रसाद
3. उसने कहा था - चंद्रधर शर्मा गुलेरी

GRAMMER:

1. पत्र - लेखन

(व्यक्तिगत, शिकायती पुस्तकें माँगते हए, नौकरी के लिए आवेदन पत्र)

2. सूचना के अनुसार बदलना (लिंग, वचन, वाच्य काल कारक चिन्ह)
3. संधि विच्छेद

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FOUNDATION COURSE **GSC 101N** 2012-13 onwards I DEGREE

SYLLABUS

I SEMESTER

CONTEMPORARY INDIA : ECONOMY, POLITY AND SOCIETY

UNIT - I

Basic features of Indian Economy - Agriculture Importance - Problems - Remedial -Measures.

UNIT - II

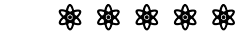
Population, Poverty, Unemployment - Causes and Consequences - Remedies

UNIT - III

Indian National Movement - Factors for the rise of Indian National Movement - Growth of National Movement from 1905 - 1919 - Gandhian Era - Legacy of Freedom Movement - Integration of native states and formation of modern India.

UNIT - IV

Basic characteristics of Indian constitution - Indian political party system - Emergence of all Indian parties - Regional parties - Coaliation politics.



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HISTORY **HIS 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

Influence of Geography on History - Survey of the Sources - Pre-historic period - Paleolithic Mesolithic and Neolithic cultures - Role of technology. Indus valley civilization - Its characteristic features - Vedic culture - Early and later Vedic periods - Post - Vedic period - Emergence of varna and caste system - Rise of new Religious Movements - Jainism and Buddhism in 6th Century B.C Impact on society and culture.

UNIT-2

A brief survey of political conditions in ancient India - Magadha, Alexander's invasion and Mauryas - Ashoka's dharma. Its nature and propagation - Mauryan Administration - Art and Architecture.

UNIT-3

Post - Mauryan period in North India - A brief political survey of Kushans, Guptas, Puswabuthi and Rajputs: Polity and Administration - Social conditions - Caste System - Position of Women - Economy - Indian Feudalism – Art Architecture - Education, Literature, Philosophy, Science and Technology.

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POLITICS **POL 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

1. Introduction: Definition, Scope and Importance of Political Science.
2. State - Nation and Civil Society
3. Sovereignty: Monism and Pluralism
4. Theories of Origin of the State: Social Contact and Evolutionary (Historical)
5. Concepts:
    a. Law: Sources of Law and Concept of Rule of Law
    b. Liberty and Equality - Their Relationship
    c. Theories and Kinds of Rights
6. Ideologies: Individualism, Fascism and Socialism

Reference Books:

1. Principles of Political science : AC Kapoor
2. Grammar of Politics : HJ Laski
3. Telugu Acadamy text book for I BA Politics
4. Political theory : Assirr vadam

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ECONOMICS **ECO 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

MICRO ECONOMICS

UNIT – I : Definitions, Adamsmith, Marashall, Robbins, Samuelson

→ Micro, Macro

UNIT – II : Demand

→ Meaning of Demand – Types of Demand Individual market demand

→ Demand function, changes in demand

→ Law of Demand

→ Elasticity of Demand

→ Methods

→ Factors influencing elasticity of Demand

UNIT – III : Utility Analysis

Types if Utility

→ Law of diminishining marginal utility

→ Law of equimarginal utility

→ Consumer surplus concepts

UNIT – IV : Indifferent curve analysis

→ Properties of IC

→ IC Map

→ Consumer surples equilibrium

→ Price, Income, Substitution effect

→ Importance of IC

UNIT – V : Production

→ Production function

→ The law of variable propositions

→ Law of Returns of scale

→ Internal External Economics

TEXT BOOKS :

1. Academy Text
2. Different publications
   → Kalayani
   → Himalaya

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SPL. ENGLISH **ENG 101SN** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

SPECIAL ENGLISH

I. History of English Language : - F.T. Wood

a) The Evolution of standard English

b) Scandinavian Element

c) Latin Element

d) French Element

e) Word Formation (or) Growth of vocabulary.

f) Semantic changes (or) change of meaning.

II. POETRY : -

a) The Lyric

b) The Sonnet

c) The Ode

d) The Ballad

e) Dramatic monologue

f) The Elegy

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FINANCIAL ACCOUNTING **COM 101N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

FINANCIAL ACCOUNTING

Chapter – 1: Introduction to Accounting

History of Accounting - Accounting theory - Definition and meaning - Book - Keeping and Accounting - Scope of Accounting - Objectives of Accounting - Basic accounting concepts, users of accounting information - Advantages and Limitations. Functions of an accountant - Double entry system - Single entry system, Classification of accounts - Accounting process. Journal - Ledger - Trial Balance

Chapter – 2 : Subsidiary Books

Introduction - Advantages of Subsidiary Books. Types of Subsidiary Books - Cash - Books

Chapter – 3 : Bank Reconciliation Statement

Cash book - pass book - need - Reasons for difference between cash book and pass book balances - Method of preparation of BRS - Favourable balance - preparation of BRS (overdrafts) preparation of BRS (from cash book and pass book directly)

Chapter – 4 : Preparation of Trial Balance, Final Statements of Accounts

Introduction - Importance of Trial Balance - Objectives - advantages - limitations - Final accounts of sole trader. Capital and Revenue expenditure - Trading Account - Manufacturing account - Profit and Loss account - Balance Sheet - Final accounts with adjustments.

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Fund. of Inform. Technology **COM 102N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT - 1

Introduction to Computers

Definition, charcteristics and limitations of computers - Elements of computers - Hard ware - CPU - Primary and Secondary Memory - Input and output devices.

UNIT - 2

Modern communications:

Communications - FAX, voice mail, and information services - Email - creation of e-mail id - group communication - Tele conferencing - video conferencing - File exchange - Band width - modem - Network topologies - Network types CAN, MAN, WAN and their architecture.

UNIT - 3

Operating Systems

Meaning, definition, functions and types of operating systems - Booting process - DOS - Internal and External commands - wild cards - Windows operating system - Desktop, start menu - Control panel, windows accessories.

UNIT - 4

M.S. Office:

Word processing - meaning and features of word processing - Advantages and applications of word processing - Parts of M.S.Word - Toolbars - creating - saving and closing a document - Opening and editing a document - moving and copying a text - Applying bullets and numbering - Insertion of objects - Date and time, Headers and Footers and Page Breaks - Spelling and Grammer checking - Mail Merge meaning - Aav - Perpox - Creating merged letters.

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BOM **COM 103N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ORGANISATION AND MANAGEMENT

UNIT - 1

Fundamental concepts:

Concepts of business, trade, Industry and commerce, Business - features of business, Trade - Classification - Aids to trade - Industry - Classification - Commerce - relationship between trade, Industry and commerce - Business organisation - concept - Functions of Business

UNIT - 2

Entrepreneur:

Meaning - Characteristics of Entrepreneurs - Types of Entrepreneurs - Functions of an Entrepreneur - Steps to start enterprise - Sources of finance - Long term, Short term.

UNIT - 3

Forms of Organization - Sole proprietorship, Partnership and Joint Hindu family:

Business organization - Forms of Business organization - Classification – Factors influencing the choice of suitable form of organisation - Sole proprietorship - Meaning - Characteristics - Advantages and disadvantages - suitability.

UNIT - 4

Partnership:

Meaning - Characterstics - Kinds of partners - Registration of partnership deed - Rights and obligations of partners - Joint Hindu Family Business - Characteristics - Advantages and limitations.

UNIT - 5

Joint stock company:

Joint stock company - Meaning - Characteristics - Advantages - Kinds of companies - Difference between private and public companies - Promotion of a company: Promotion - stages - promoters - characteristics - Company registration - Preparation of important documents - Memorandum of association - articles association - contents - prospectus - Statement in lieu of prospectus.

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Business Economics **COM 104N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

Business Economics

Module – I : Introduction

→ Economic activities

→ Distinction between economic and non - economic

→ Scope, Significance, and nature of economics

→ Micro, Macro – normative and positive economic analysis.

Module – II : Demand, Utility analysis and theory of Production

→ Meaning of the demand – Types of demand, individual, company market.

→ Industry demand, Derived demand – Demand function

→ Law of demand – Law of diminishing marginal utility – Law of equi – Marginal utility

→ Consumer's surplus – Elasticity of Demand – Factors influencing elasticity of demand.

→ Law of production – Law of variable proportion theory - Returns to scale – Internal and external economies.

→ Cost – output relations. Cost function and concepts – Law of supply.

Reference Books :

1. Academy Book
2. Micro Analysis by vaiash
3. M.L. Jhingah
4. C.P. Chopra
5. Business Economic : Kalyani Publications.
6. Business Economic : Himalaya Publications

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MATHEMATICS **MAT 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

DIFFERENTIAL EQUATIONS & SOLID GEOMETRY – 1

DIFFERENTIAL EQUATIONS

UNIT - 1

Formation of Differential equations, Differential equations of first order and first degree - Variables separable, Homogeneous differential equations, Equations reducible to homogeneous form.

(No question will be given in the examination)

Exact differential equations, integrating factors, Integrating factors of the form

(i) $\frac{1}{Mx+Ny}$ (ii) $\frac{1}{Mx-Ny}$ (iii) $\int_e f(x)dx$

(iv) $\int_e g(y)dx$ (v) $x^h y^k$

(1 short answer question, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations of first order, Bernoulli's equations, Change of variables, Total differential equations, Simultaneous total differential equations, Equations of the form $\frac{dx}{P}=\frac{dy}{Q}=\frac{dz}{R}$ (i) Method of grouping (ii) Method of multipliers, Orthogonal trajectories.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Differential equations of the first order but not of the first degree - Equations solvable for p, Equations solvable for y, Clairaut's equations and Equations reducible to Clairaut's form, Equations solvable for x.

(2 short answer questions, 2 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 4

Planes: General equation of a plane - Normal form - Transformation to the normal form - Determination of a plane under given conditions (i) Plane passing through a given point (ii) Plane passing through three given points (iii)

Plane in terms of its intercepts on the axes (intercepts form) - Angle between two planes - Perpendicular distance of a point from the given plane - Distance between parallel planes - Two sides of a plane - plane passing through the intersection two given planes - Angle bisectors of two planes - Pair of planes.
(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Lines: Equations of a line (i) General form (ii) Parametric form (iii) Symmetric form (iv) Two points form - Angle between a line and a plane. The condition that a given line may lie in a given plane - Coplanar lines. The condition that two given lines are coplanar.
(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Skew lines. The shortest distance between two skew lines. The length and equations of the line of shortest distance between two straight lines - Length of the perpendicular from a given point to a given line.

(1 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.
2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.
3. Ivan Niven, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY 101N** 2012-13 onwards I B Sc.

SYLLABUS

I SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

Unit I Vector Analysis (10):

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field. Vector integration, line, surface and volume integrals, Stoke theorem, Gauss theorem, and Greens theorem (statement only)

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Unit II Mechanics of Particles(10)

Motion of variable mass system, motion of a rocket,multi-stage rocket. Collisions in two and three dimensions, impact parameter, scattering cross-section, Rutherford scattering

Unit III Mechanics of rigid bodies(10)

Definition of Rigid body, rotational kinematic relations, equation of motion for a rotating body, angular momentum and inertial tensor. Euler's equations , precession of a top, Gyroscope.

WAVES AND OSCILLATIONS

Unit IV Fundamentals of vibrations(12)

Simple harmonic oscillator, solution of the differential equation of simple harmonic Physical characteristics of SHM, energy of a simple harmonic oscillator, combination of two mutually perpendicular simple harmonic vibrations of same frequency, Lissajous figures

Unit V Damped and forced oscillations(12)

Damped harmonic oscillator,solution of the differential equation of damped oscillator. Power dissipation, logarithmic decrement, relaxation time, quality factor, differential equation of forced oscillator and its solution, amplitude resonance, velocity resonance

Unit VI Complex vibrations(6)

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave.

Textbooks :

1. Berkeley Physics Course. Vol.1, **Mechanics** by C. Kittel, W. Knight, M.A. Ruderman - *Tata-McGraw hill Company Edition 2008*.
2. **Fundamentals of Physics**. Halliday/Resnick/Walker *Wiley India Edition 2007*.
3. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy *Orient Longman*.
4. **First Year Physics** - *Telugu Academy*.
5. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, *New Age International*.
6. **College Physics-I**. T. Bhimasankaram and G. Prasad. *Himalaya Publishing House*.
7. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. *McGraw Hill*.
8. **Waves and Oscillations**. N. Subramaniyam and Brijlal *Vikas Publishing House Private Limited*.

Reference Books :

1. **Fundamentals of Physics** by Alan Giambattista et al *Tata-McGraw Hill Company* Edition, 2008.
2. **University Physics** by Young and Freeman, *Pearson Education, Edition 2005*.
3. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman
Pearson Education Eleventh Edition.
4. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies*.
5. **Mechanics**. Hans & Puri. *TMH Publications*.
6. **Engineering Physics**. R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications*.

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CHEMISTRY **CHE 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

INORGANIC CHEMISTRY & ORGANIC CHEMISTRY

Inorganic Chemistry - I

1-P- block elements:

Group - 13: Synthesis and structure of diborane and higher boranes (B_4H_{10} and B_5H_9) boron - nitrogen compounds ($B_3N_3H_6$ and BN) - **Weightage - 15 Marks**

Group - 14: Preparation and applications of silanes and silicones, graphitic compounds. **- Weightage - 5 + 5 Marks**

Group - 15: Preparation and reations of hydrazine, hydroxylamine, phosphazenes. **- Weightage - 5 + 5 Marks**

Group - 16: Classification of oxides based on (i) Chemical behavriour and (ii) Oxygen content. **- Weightage - 5 Marks**

Group - 17: Inter halogen compounds and pseudo halogens. **- Weightage - 15 Marks**

2. Organometallic Chemistry:

Definition and classification of organometallic compounds, nomemclature, preparation, properties and applications of alkyls of 1,2 and 13 group elements. **- Weightage - 15 Marks**

Organic Chemistry - I

1. Structural theory in organic Chemistry: - Weightage - 15 + 5 Marks

Types of bond fission and organic reagents (Electrophilic, Nucleophilic and free radical reagents including neutral molecules like H_2O, NH_3 and $AlCl_3$)

Bond polarization:

Factors influencing the polarization of covalent bonds, electro nagativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance (or) mesomeric effect, application to (a) acidity of phenol and (b) acidity of carboxlic acids. Hyper conjugation and its application to stability of carbonium ions, free radicals and alkenes, carbanions, carbenes and nitrenes.

Types of organic reactions:

Addition - electrophitic - nucleophilic and free radical subsitution - electrophilic, nuleophilic and free radical. elimination - Examples (with mechanisms)

2. Alicyclic hydrocarbons (cycloalkanes) - Weightage - 15 Marks

Nomenclature, preparation by Freunds method, heating of dicarboxylic metal salts.

Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, shability of cycloalkanes - Baeyer's - Strain theory. Sachse and Mohr predictions.

Conformational structures of cyclobutane, cyclopentane, cyclohexane.

3. Benzene and its reactivity - Weightage - 15 + 5 + 5 Marks

Concept of resonance, resonance energy, heat of hydrogenation, heat of combustion of benzene, mention of c-c bond length and orbital picture of benzen.

Concept of aromaticity - aromaticity (definition), Huckel's rule - application to benzenoid (benzene, Napthalene) and non - Benzenoid compounds cyclopropeny! cation, cyclopentadienyl anion and tropylium cation.)

Reactions:

General mechanism of electrophilic substitution, mechanism of nitration. Friedel craft's alkylation and acylation. Orientation of aromatic substitution - definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and phenolic). Orientation effect of (i). Amino, methoxy and methyl groups (ii). Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups (iii) Halogens (explanation by taking mimimum of one example from each type).

4. Polynuclear hydrocarbons: - Weightage - 5 Marks

Structure of napthalene and anthracene (molecular orbita diagram and resonace energy) Any two methods of preparation of napthalene and reactivity towards electrophlic substution. Nitration and sulfonation as examples.

Additional Syllabus (Without Examination) :

Mathematical Concepts : Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation of functions like , maxima and minima. Partial differentation and reciprocity relations. Integration of some useful / relevant functions. Permulations and combinations. Factorials - Probability.

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BOTANY **BOT 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, CRYPTOGAMS

UNIT I
20 hours
Diversity of microbes.
Introduction to Microbiology

1. Viruses: structure, replication & transmission, diseases: Ex. TMV, yellow vein clearing & controlling measures.
2. Bacteria - structure, nutrition, reproduction diseases - citus canker, leaf blight of rice
3. Cyanobacteria - life history of *Oscillatoria, Nostoc, Anabaena*- Economic, importance / pathogen, symptoms and control.

UNIT - II
20 hours

4. Algae: general account, economic inportance.
5. Structure, reproduction, life history and systematic position of *Oedogonium Vaucheria, Chara, Ectocarpus & Polysiphonia.*

UNIT - III
20 hours
Fungi:

6. General characters and out lines of classification of fungi
7. Structure, reproduction and life history of *Albugo, Peziza, Puccinia Alternaria*.

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ZOOLOGY **ZOO 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

BIOLOGY OF NON CHORDATES AND CELL BIOLOGY

UNIT I
1.0 Protozoa to Cnidaria

1.1. Phylum Protozoa: General characters and outline classification up to classes.
Type study: *Paramoecium caudatum* (structure, binary fission and conjugation)
Trypanosoma gambiense (structure, life history, pathogenesis, prophylaxis)

1.2. Phylum Porifera : General characters and outline classification up to classes.
Type study: *Sycon* (external features, canal system, cells, spicules, reproduciton) Canal system in Sponges.

1.3. Phylum Cnidaria: General characters and outline classification up to classes.
Type study: *Obelia* (structure of colony, polyp, medusa and life history) Polymorphism in Cnidaria Corals and Coral reefs.

UNIT II
2.0 Platyhelminthes to Annelida

2.1.Phylum Platyhelminthes: General characters and outline classification up to classes.
Type study: *Fasciola hepatica* (structure; digestive, excretory and reproductive systems; life history and pathogenecity)

2.2 Phylum Nemathelminthes: General characters and outline classification up to classes. Type study: *Ascaris lumbricoides* (structure, reproductive system, life history and pathogenecity)

2.3. Phylum Annelida: General characters and outline classification up to classes
Type study: Leech (external features, digestive, circulatory, excretory and reproductive systems)

UNIT III
3.0. Cell Biology

3.1 Electron Mictoscopic structure of an animal cell

3.2. Structure of Plasma membrane – Fluid-Mosaic model Transport functions of plasma membrane - passive transport, active transport

UNIT IV

4.1 Structure and functions of Endoplasmic reticulum Golgi body, Ribosomes, Lysosomes and Mitochondria.

4.2. Chromosomes – Types and structure; Giant chromosomes - polytene and lamp brush chromosomes.

REFERENCE BOOKS

Biology of Invertebrates:

1. .The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. .Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. .Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. .Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. .Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. .A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. .A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. .Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

Cell Biology:

1. .Molecular Cell Biology. by Lodish, Berk, Kaiser, Scott.. Scientific American Books.
2. .Cell and Molecular Biology. by De Robertis & De Robertis : Saunders College.
3. .Cell Biology, Genetic Evolution and Ecology. by P.S.Varma and V.K. Agrawal; S.Chand and Co
4. .Molecular Biology. by Mohan P. Arora., Himalaya Publishing House Pvt.Ltd.
5. .Manual of Laboratory Experiments in Cell Biology. . Edward Gasque: (W.C. Brouh Publishers.
6. .Biomolecules. by Mohan P.Arora., Himalaya Publishing House Pvt.Ltd.
7. .Cell and Molecular Biology. .P.K.Gupta.
8. .Concepts of Cell Biology. - P.S.Verma and V.K.Agarwal
9. Biochemistry .U. Sathyanarayana and U. Chakrapani.
10. Biology .Campbell and Reece.
11. Molecular biology of the cell-Alberts et.,al
12. Cell Biology. by S.C. Rastogi
13. Cell Biology. By C.B. Powar, Himalayan Publications.

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ELECTRONICS **ELE 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

CIRCUIT ANALYSIS

UNIT - 1
30 hours

1. AC fundamentals: The sine wave - Average and RMS value - The j operator - Phasor diagrams - Power factor
2. Passive networks: Concept of voltage and current source, Kirchoff's laws - Method of mesh currents
3. Network theorems: Thevenin's norton's, superposition, max power transfer theorems

UNIT - 2
30 hours

4. Resonance: Series resonance, Parallel resonance of RLC ckts - Resonant frequency - Q-factor, Band width, selectivity.
5. RC & RL circuits: Transient and frequency response of RL and RC circuits - Types of filters: Low pass filter, high pass filter, band pass filters.

[Note: Sloving related problems in all the units]

Text Books:

1. Unified electronics vol I Agarwas & Alrarwal
2. Circuit Analysis - P. Ghanasivam - Pearson Edu.
3. Network theory - smarajit ghosh - PH1

Reference Books:

1. Circuits and Networks - A. Sudhakar & Shyammohans.
2. Electronic devices and circuit theory - R.L. Boylestad & L. Nashelsky

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COMPUTER SCIENCE **CSC 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

INFORMATION TECHNOLOGY AND MICROSOFT OFFICE

UNIT - 1

Development of computers and types; logical organization of digital computers memory: main memory, RAM, Cash, I/O units, secondary memory

Operating system: DOS commands, windows 98, 2000: working with files and folders running programs, using Recycle Bin

UNIT - 2

Ms-Office, MS-Word Basics

Headers and Footers, tables, Graphics, templates, Macros, Mail merge.

UNIT - 3

MS-Excel: work sheet, formatting, functions, charts, Graphics, worksheets as database linking.

UNIT - 4

Power Point: basics, crating Presenting, menus, toolbars, operating a presentation Creating a new slide, deleting a slide, copying a slide, slide numbering, saving closing and printing.

UNIT - 5

MS-Access: creating database, tables, queries, forms, reports, sorting, displaying and printing.

PRESCRIBED BOOK: Computers and commonsense IVth edition
AUTHOR: ROGER HUNT, JOHN SHELLY chapter (1,2,3,4,7)

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GENERAL ENGLISH **ENG 102NA** 2012-13 onwards I DEGREE

SYLLABUS

II SEMESTER

GENERAL ENGLISH

Prose :

1. I Have a Dream
2. Letter to a Teacher

Poetry :

1. Song 36 from Gitanjali
2. Telephone conversation

Non - detailed:

1. How far is the River
2. The boy comes Home

Grammar&composition:

1. Punctuation
2. Curriculum vitae
3. One word substitutes
4. Dialogue writing
5. Intonation

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking I
   Published by
   Foundation Books Pvt. Ltd., Cambridge House, New Delhi

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SANSKRIT **SAN 102N** 2012-13 onwards I DEGREE

SYLLABUS

II SEMESTER

SANSKRIT

पद्यभागः

1. अहिंसा परमो धर्म :- महाभारते आदिपर्वणि. ८ूद ११ सर्गाः
2. मातृदेशस्य औज्ज्वल्यम् :- नवविखगुणादर्शे डा.जि.यस्.आस्.कृष्णमूर्तिः

गद्यभागः

1. चिक्रोडकथा :- आन्ध्रकाव्यकथाः श्री सन्निधानं सूर्यनारायण शास्त्री.
2. कम्प्यूटर् यन्त्रम् :- डा.के.वी.रामकृष्णमाचार्यः

व्याकरण विभागः

1. धातव :- पाठयग्रन्ये निर्दिष्टाः
2. समासा :- अव्ययीभावः, तत्पुरुषः, बहुव्रीहिः, द्वन्द्वरच.

Translation

Poetry - अहिंसा परमो धर्मः

Prose - चीक्रोडकथा

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HINDI **HIN 102N** 2012-13 onwards I DEGREE

SYLLABUS

II SEMESTER

HINDI

PROSE:

1. संस्कृति और साहित्य का परस्पर संबंध - डा जी सुंदर रेड्डी
2. भारत एक है - रामधारि सिहं दिनकर.
3. हच.आई.वी/एड्स - हरि शंकर परसाई.

POETRY:

1. भूख हड्ताल - बालशैरि रेड्डी
2. मै हार गयी - मन्नू भंडारी
3. परमात्मा का कुत्ता - मोहन राकेश

GRAMMER:

1. वाक्यों में प्रयोग करना
2. वाक्य शुद्ध करना
3. विलोम शब्द
4. कार्यालय हिन्दी (English to Hindi
   Hinidi to English)

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FOUNDATION COURSE **GSC 102N** 2012-13 onwards I B.Com & I B.Sc (CSc)

SYLLABUS

II SEMESTER

FREEDOM MOVEMENT OF INDIA

Unit - I Birth of Indian National Congress in 1885 - Causes - A.O. Hume.

Unit - II National movement between 1885-1905 - Period of Moderates - Demands - Methods of Moderates - Achievements.

Unit - III Freedom movement between 1905-1919 - Partititon of Bengal in 1905 - Vandematar Movement - Surat Split of 1907 - The Terrorist Movement (1907-1914) - Home Rule League - Lucknow Pact of 1916 - Jallianwalabagh Tragedy (1919).

Unit - IV Gandhian Period (1919-1947) - Non Cooperation Movement (1920-22) - Simon Commission 1927 - Salt Satyagraham.

Unit - V Civil Disobedience Movement 1930 - Quit India Movement 1942 - Indian Independance 1947, August 15.

REFERNCE BOOK:

1. Sarojini Regani - Highlights of freedom struggle in A.P.
2. M. Venkata Rangaiah - Freedom Struggle in A.P.
3. N.G. Ranga - Fight for Freedom (New Delhi 1968)
4. T. Prakasam - Na Jeevita Yatra.
5. R.C. Mazumdar - History of Freedom Movement in India.
6. Tara Chand - History of the Freedom Movement in India.
7. Hirandrahath Mukheijee - India Struggle for Freedom.

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FOUNDATION COURSE **GSC 102N** 2012-13 onwards I B.A. & B.Sc

SYLLABUS

II SEMESTER

FUNDAMENTALS OF COMPUTERS

Unit – I

Exploring computers and their uses:

Overview: Computers in our world, the computer defined, Computers for individual users, Computers for organizations, Computers in society, Why are computers so important.

Looking inside the computer system:

Overview: Detecting the ultimate machine, the parts of a computer system, the information processing cycle, Essential computer hardware: Processing devices, memory devices, input and output devices, storage devices, system software, application software.

Unit – II

Using the keyboard and mouse:

Overview: The keyboard and mouse, the keyboard, how the computer accepts input from the keyboard, the mouse, variants of the mouse and input devices.

Printing:

Overview: Putting digital content in your hands, commonly used printers, High-quality

Printers, thermal-wax printers, Dye-sublimation printers, plotters.

Unit - III

Transforming data into information:

Overview: The difference between data and information, how computers represent data, how computers process data, machine cycles, memory, factors effecting processing speed

Types of storage devices:

Overview: An ever-growing need, Categorizing storage devices, magnetic storage devices – How data is stored on a disk, how data is organized on a magnetic disk, how the operating system finds data on a disk, Diskettes, hard disks, tape drivers, optical storage devices.

Unit - IV

Operating system basics:

Overview: The purpose of operating systems, types of operating systems, providing a user interface

Networking Basics:

Overview: Sharing data anywhere, anytime, the uses of a network, common types of Networks, hybrid networks, how networks are structured, network topologies and protocols.

Prescribed book:

Peter Norton, introduction to computers-6th edition.

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HISTORY **HIS 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

A brief political survey of south India - Sangham age - Satavahanas - Pallavas - Cholas - Chalukyas and Rashtra kutas - Kakatiyas and Vijayanagara - Polity and Administration, society, Economy art and Architecture.

UNIT-2

Invasions of Arabs, Gazanavids and Ghoris and Delhi sultanate - A brief political survey, polity and Administration under Delhi sultanate - Society composition of Rural society, Nobility - Status of women, Economic and Technological developments. Agriculture - Industry - Trade and commerce - Urbanisation, art and Architecture - Fine arts - Education and litrature.

UNIT-3

Impact of Islam on India society and culture - Bhakti and Sufi Movements - Emergence of composite culture.

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POLITICS **POL 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

1. Forms of Government:
a. Democracy: Direct and Indirect
b. Unitary and Federal
c. Parliamentary and Presidential
2. Theory of Separation of Powers
3. Organs of Government
a. Legislature: i. Unicameral and Bi-cameral
ii. Powers and Functions
b. Executive: i. Powers and Functions
c. Judiciary: i. Powers and Functions
ii. Independence of Judiciary and Judicial Review
4. Electorate and representation.

Books Recommended:

1. Principals of Political Science : Prof. A.C. Kapoor
2. Grammar of Politics : Laski H.J.
3. Substance of Politics : A. Appadorai
4. Political Theory : Ashirvadam
5. Political Theory : O P Gupta
6. Political ideologies : Baradat, Prentice Hall of India.
Their Origins and Impact

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ECONOMICS **ECO 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

MICRO ECONOMICS

I. Cost curve & revenue curves

Short term cost curve
Long term cost curve
Revenue TR, MR, AR
Supply – function, curve, exceptions

II. Markets

Perfect competition
Monopoly
Monopolistic competition
Oligopoly
i) Price rigidity
ii) Price determination

III. The Theory of distribution, Marginal productivity theory

The theory of rent, classical – neo classical theories – Modern theory of rent
The theory of wages, classical – neo classical theories
The theory of Interest, classical-neo classical theories – J.M. Keynes liquidity preference theory
The theory of profits, classical – neo classical theories

REFFERENCE BOOKS :

Micro Economic Analysis – M. L. Jhingan

TEXT BOOKS :

Micro Economics Analysis : Academy Book

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SPL. ENGLISH **ENG 102SN** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

SPECIAL ENGLISH

I. Drama :

a. Proposal - Anton Chekor

b. Mother's day - J.B. Priestley

II. Fiction

a. The Interview - Kushwant singh

b. The Gift of the Maji - O' Henry

c. The Tell – Tale heart - Edgar Allan poe.

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FINANCIAL ACCOUNTING **COM 201N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

FINANCIAL ACCOUNTING

Chapter - 1 Errors and Rectification:

Types of errors - Errors disclosed by a trial balance - errors not disclosed by a trial balance - Rectification before and after preparation of final statemets of accounts - suspense account - effect of errors on profit.

Chapter – 2 Bill of Exchange:

Definition of promissory notes and bills of exchange - Recording of transactions relating to bills - Books of drawer and acceptor - Honour and Dishonour of bills - Renewal of bills - Retiring of bills under rebate - Accommodation bills.

Chapter - 3 Consignments:

Definition and meaning - Distinction between 'Consignment' and 'sale' - Accounting treatment in the books of the consignor and consignee - Valuation of consignment stock- goods consigned at invoice price - Loss of stock (Normal and Abnormal)

Chapter - 4 Joint Venture Accounts:

Meaning and features - Accounting treatment - when one of the Co-ventures is appointed to manage the joint venture - when separate set of books are not maintained for recording joint venture transactions - when separate set of books are kept for the joint venture, memorandum joint venture account.

Chapter - 5 Depreciation - Provisions, Reserves:

Meaning of Depreciation - causes - objects for providing for depreciation - factors affecting depreciation, accounting treatment, methods of providing depreciation - straight line method - diminishing balances method - Annuity method.

Provisions and Reserves - Reserve fund - different types of provisions and Reserves.

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Fund. of Inform. Technology **COM 202N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT - 1

M.S.Excel:

Features of M.S. Excel - spread sheet / work sheet work book, cell, cell pointer, cell address etc. Parts of M.S. Excel window saving, opening and closing work book - Insertion and deletion of work sheet - Entering and Editing data in work sheet - change - Formation - Auto fill - Formulas and its advantages, Referances: Relative absolute anaminea - functions meaning and advantages of functions, different types of functions available in Excel - Templates - charts - graphs - macros - meaning and advantages of macros, creation, editing and deletion of macros - Data sorting, futening, validation, consolidation, grassing, pivot table and pivot chart reports.

UNIT - 2

M.S. Access:

Data, Information, database, file record, fields, features, advantages and limitations of M.S.Access Application of M.s. Access - parts of M.S.Access window tables, forms queuis and reports.

UNIT - 3

M.S. Power Point

Features, advantages and application of M.S.Power Point - parts of M.S. Power Point window - menus and tool bars creating present actions through auto content wizard, templetes and manually, slide show - salling, opening and closeing a presentation - Inserting, editing and deleting slides - types of slides - slide views formatting - Inserting of objects and charts in slides.

Multi Media:

Meaning, purpose, usuage and application Images, Graphics, sunday and music.

UNIT - 4

Internet & E.Commerce:

Serllices available on Internet - WWW - & Commerce - meaning advantages and limitations, applications of & commerce - trading stocks on line, ordering products journals . books etc.

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BOM **COM 203N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ORGANISATION AND MANAGEMENT

UNIT - 1

Stock Exchanges:

Stock exchange, functions and services, working of stock exchanges, role of SEBI in controlling capital market.

UNIT - 2

Management:

Management Meaning, significance management Vs administration - Functions of management - leadership- leader Vs manager - Traits of successful leaders, scientific management - features - Fayol's principles of management.

UNIT - 3

Planning:

Planning Meaning, significance, types of plans, decision making - steps in process decision making process.

UNIT - 4

Organizing:

Meaning - features - the process of organization - principles of organization - Elements of organizations - organization chart

UNIT - 5

Delegation of authority:

Meaning - Elements - principles - types - difficulties - delegation - guidelines for making delegation effects - centralization decentrailzation - meaning. Difference between delegation and decentralization.

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Business Economics **COM 204N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ECONOMICS

Market structure and pricing

® Types of competition – perfect

® competition – monopoly

® Price discrimination

® Mono polistic competition – meaning and significance of pricing

® Price determination under different competitive market conditions.

Theories of distribution and business cycles

® Marginal productivity theory of distribution

® Theories of rent, interest, wages and profits.

® Phases of Business cycles.

Theories of International Trade

® Need for international Trade

® Comparative cost theory – ohlin's theory – Rent trade policy.

® Role of W.T.O.

Reference Books :

1. M.L. Jhingan – International Economics
2. Mithani – International Trade.

Text Book :

Telugu Academy Book

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MATHEMATICS **MAT 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

DIFFERENTIAL EQUATIONS & SOLID GEOMETRY – 2

DIFFERENTIAL EQUATIONS

UNIT - 1

Higher order linear differential equations: Linear differential equations with constant coefficients, Solution of homogeneous linear differential equations of order n with constant coefficients, Solution of the non-hompgeneous linear differential equations with constant coefficients by means of polynomial operators. Methods of finding particular integral of $f(D)y=Q$ when $Q(x)$ is of the form i) be^{ax} ii) b sin ax or b cos ax
iii) bx^k and $P(D) = D - a_0$, $a_0 0$ iv) bx^k and $P(D) = a_n D^n + a_{n-1} D^{n-1} + \ldots a1D$
v) $e^{ax} V$, where V is a function of x vi) be^{ax} and $P(a)=0$ vii) xV, where V is any function x
(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations with non-constant coefficients - General solution in terms of nonsolution of the completary function, General by changing the dependentate variable, General solution by chaining independent variable, Method of variation of parameters, The cauchy - Euler equation.

System of linear differential equations - Solution of a system of linear equations with constant coefficients, An equivalent triangular system, Degenerate case :
$p_1(D)p_4(D)-p_2(D)p_3(D)=0$
(2 short answer questions, 2 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 3

Spheres: Definition and equation of the sphere - Equation of the sphere through four given points - plane sections of a sphere. Intersection of two spheres - Equation of a circle. Sphere through a given circle - Intersection of a sphere and a line. Power of a point - Tangent line and tangent plane of a sphere - plane of contact. Polar plane. Pole of plane, Conjugate points, Conjugate planes.
(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 4

Spheres: Angle of intersection of two spheres. Conditions for two spheres to be orthogonal - Radical plane. Radical line. Radical centre - Coaxial system of spheres. Simplified form of a coaxal system of spheres. Limiting points of a coaxal system of spheres.

(1 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

The cone: Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve - Enveloping cone - Quadratic cone - Equations of cones with vertex at origin and homogeneous - Condition that the general equation of the second degree should represent a cone - Condition that a cone may have three mutually perpendicular generators - Intersection of a line and a quadric cone - Tangent lines and tangent plane at a point - Condition that a plane may touch a cone - Reciprocal cones - Intersection of two cones with a common vertex - Right circular cone - Equation of the right circular cone with a given vertex, axis and semi-vertical angle.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

The cylinder: Definition of a cylinder - Equation to the cylinder whose generators intersect a given conic and are parallel to a given line - Enveloping cylinder - The right circular cylinder - Equation of the right circular cylinder with a given axis radius.

(1 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjeneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.

2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.

3. Ivan Niven, Herbert, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY 102N** 2012-13 onwards I B Sc.

SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

UNIT I Mechanics of continuous media(8)

Elastic constants of isotropic solids and their relation, Poisson's ratio and expression for Poisson's ratio in terms of

y, n and k. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, cantilever with an end load

UNIT II Central forces(12)

Central forces - definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force, gravitational field. (Definiton), motion under inverse square law, derivation of Kepler's laws,

UNIT III Special theory of relativity(10)

Galilean relativity, absolute frames, Michelson-Morley experiment, Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, mass-energy relation.

WAVES AND OSCILLATIONS

UNIT IV Vibrations of bars and pendulams12)

Longitudinal vibrations in bars- wave equation and its general solution. Special cases (i) bar fixed at both ends ii) bar fixed at the mid point, torsional pendulum - measurements of rigidity modulus (experiment), compound pendulum - measurement of g. (experiment).

UNIT V Vibrating Strings (12)

Transverse wave propagation along a stretched string, general solution of wave equation and its significance, modes of vibration of stretched string clamped at both ends, overtones.

UNIT VI Ultrasonics(6)

Ultrasonics, properties of ultrasonic waves,production of ultrasonics by piezo electric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves by Sear's method. Applications of ultrasonic waves.

Textbooks :

1. Berkeley Physics Course. Vol.1, **Mechanics** by C. Kittel, W. Knight, M.A. Ruderman - *Tata-McGraw hill Company Edition 2008*.
2. **Fundamentals of Physics**. Halliday/Resnick/Walker *Wiley India Edition 2007*.
3. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy *Orient Longman*.
4. **First Year Physics** - *Telugu Academy*.
5. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, *New Age International*.
6. **College Physics-I**. T. Bhimasankaram and G. Prasad. *Himalaya Publishing House*.
7. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. *McGraw Hill*.
8. **Waves and Oscillations**. N. Subramaniyam and Brijlal *Vikas Publishing House Private Limited*.

Reference Books :

1. **Fundamentals of Physics** by Alan Giambattista et al *Tata-McGraw Hill Company* Edition, 2008.
2. **University Physics** by Young and Freeman, *Pearson Education, Edition 2005*.
3. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman *Pearson Education Eleventh Edition*.

4. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies*.

5. **Mechanics**. Hans & Puri. *TMH Publications*.

6. **Engineering Physics**. R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications*.

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I B.Sc., Semester – II

Physics - Practicals – Syllabus

1. Determination of the Moment of Inertia of Fly Wheel
2. Determination of g and k using compound pendulum
3. Determination of the frequency of the given tuning fork using Volume Resonator
4. Determination of the Young's Modulus by Non-Uniform bending
5. Determination of the speed of waves on a stretched string using Sonometer
6. Measurement of errors – Simple Pendulum
7. Determination of the coefficient of Viscosity of water by Poiseulli's Method
8. Determination of the Monent of Inertia of a Rigid Body using Bifilar Pendulum
9. Determination of the Surface Tension of water by Capillary Rise Method.
10. Determination of the frequency of a turning fork using Melde's apparatus
11. Determination of the Rigidity Modulus of the material of a wire using Tensional Pendulum
12. Determination of the coefficient of Viscosity of a fluid using Searle's Viscometer.

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CHEMISTRY **CHE 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

PHYSICAL CHEMISTRY - I

1. Liquid state: - Weightage - 15 + 5 Marks

Intermolecular forces. Dipole - dipole ; dipole - induced dipole ; induced dipole - induced dipole (London disperssion foces) interactions. Liquid crystals, the mesomorphic state, classification of liquid crystals into Smectic and Nematic.

2. Solid state: - Weightage - 15 + 5 + 5 Marks

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Definition of lattice point, space lattice, unit cell. Bravis lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Determination of crystal structure by Bragg's method and the powder method. Indexing of planes and structure of NaCl and KCl crystals.

Defects in crystals. Stoichiometric and non-strichiometric defects. Band theory of semiconductors. Extrinsic and intrinsic semi conductors, n-type and p-type semiconductors and their applications of photo electrochemical cells.

3. Solutions: - Weightage - 15 + 5 + 5 Marks

Liquid - liquid - ideal solutions, Raoult's law. Ideally dilute solutions, Henry's law. Non - ideal solutions, vapour pressure - composition and vapour pressure - temperature curves. Azeotropes - HCl - H_2O, ethanol - water, trimethylamine – water nicotine - water systems. Effects of impurity on consulate temperature. Immiscible liquids and steam distillation.

Nernst distribution law. Calculation of the partition co-efficient. Applications of distribution law.

GENERAL CHEMISTRY - I

1. Atomic structure and elementary quantum mechanics.

- Weightage - 15 + 5 Marks

Black body radiation, plancks radiation law; photoelectric effect; Compton effect, deBroglie's hypothesis; Heisenberg's uncertainity principle; Postulates of quantum mechanics. Schrodinger wave equation; energy levels, wave functions and probability densities. Schrodinger wave equation for H-atom. Quantum numbers and their importance.

2. Chemical bonding: **- Weightage - 15 + 5 Marks**

Molecular orbital theory - LCAO method, construction of M.O diagrams for homo nuclear and hetero nuclear diatomic molecules [N_2, B_2, C_2, O_2, F_2, HCl, CO & NO]

3. Sterochemistry of carbon compounds: - Weightage - 15 + 5 + 5 Marks

Steroisomerism, steroisomers; enatiomers, diasteromers. Definition and examples. Conformational and configurational somerism. Definition, conformational somerism of ethane & n-butane.

Enantiomers : Optical activity wave nature of light, plane polarised light, interaction with molecules, optical rotation and specific rotation. Chiral molecules - definition and criteria - absence of plane, center, and S_n axis of symmetry - asymmetric and disymmetric molecules. Example of asymmetric molecules (Glyceraldehyde, lactic acid, Alanine) and disymmetric molecules [trans - 1,2 - dichloro cyclopropane]

Chiral centers: Definition - molecules with similar chiral carbons [tartaric acid], definition of mesomers. Molecules with dissimilar chiral carbons [2,3-dibromo pen-tane] Number of enantiomers & mesomers - caculations. D.L & R.S configuration for asymmetric & disymmetric molecules. Cahn - Ingold - Prelog rules. Racemic mixture, racemisation & resolution techniques.

Diasteromers: Definition - Geometrical isomerism with reference to alkenes - cis, trans & E,Z - configuration.

4. General principles of Inorganic qualitative analysis:

- Weightage 5 Marks

Solubility product, common ion effect, characteristic reactions of anions, separation of cations into groups, group reagents, testing of cations.

Additional Syllabus (Without Examination) :

Computers : General introduction to computers, different components of a computer, hardware and software, input - output devices, binary numbers and arithmatic. Introduction to computer language, programming, operating systems.

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CHEMISTRY **CHE 102P** 2012-13 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

Time : 3hr **Qualitative analysis and Inorganie preparations** Max. Marks : 70

Qualitative analysis and Inorganie preparations:

Analysis of mixtures containing two anions and two cations [of different groups] from the following.

Anions:

Sulphate, chloride, bromide, iodide, acetate, nitrate, borate, phosphate [with out inter fering]

Cations:

Lead, copper, bismuth, cadmium, iron, aluminum, zinc, managnese, nickel, cobalt, calcium, strotnium, barium, potassium, magnesium & ammonium.

Preparations:

Any three of the following Inorganic preparations

1. Ammonium choloride
2. Tetrammine copper (II) sulphate
3. Nickel dimethyl glyoxime
4. Potash alum

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BOTANY **BOT 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

BRYOPHYTES, PTERIDOPHYTES AND PALAEOBOTANY

UNIT I
25 hours
Bryophytes:
1. General characters.
2. Structure, reproduction, life history and systamatic position of *Marchantia Anthocoros & Polytrichum*. (Development details not required)
3. Evolution of sporophytes in Bryophytes.

UNIT - II
25 hours
Pteridophytes:
4. General characters.
5. Structure, reproduction, life history and systematic position of *Lycopodium, Equisetum, Marsilea.*
6. Evolution of stele.

UNIT - III
10 hours
Palaeobotany:
Introduction, types of fossils, fossilization, importance.

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BOTANY **BOT 102P** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

BOTANY PRACTICALS

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1. Gram staining of Bacteria.
2. Algae : Observation of vegetative and reproductive features of the following: *Oedogonium, Chara, Vaucheria, Ectocorpus, Polysiphonia, Nostoc Oscillatoria* and *Anabena.*
3. Fungi : Section cutting of diseased material or fructification coten and identefication of the pathogens of *Albugo, Peziza & Puccinia*
4. Bryophyta and Pteridophyta : Study of morphology and reproduction of the structures of *Marchantia, Anthoceros, Polytrichum, Lycopodium, Equisetum* and *Marselia.*
5. Anatomy: *Marchantia, Lycopodium, Marselia.*

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ZOOLOGY **ZOO 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

BIOLOGY OF NON CHORDATES AND BIOMOLECULES

UNIT I

1.0 Arthropoda and Mollusca

1.1. Phylum Arthropoda: General characters and outline classification of up to classes
Type study: *Palaemon*(external features, appendages, respiratory, circulatory and excretory systems, ommatidium, statocyst, reproductive system) *Peripatus*- characters and significance.

1.2. Phylum Mollusca: General characters and outline classification of up to classes
Type study: Foot in Mollusca, sheel in Mollusca, peral formation, Torsien in gastropoda, Veliger & Glochidium.

UNIT II

2.0. Echinodermata and Hemichordata

2.1. Phylum Echinodermata: General characters and outline classification of up to classes. Type study: Star fish (External features, water vascular system, pedicellariae, haemal and perihaemal systems and reproductive system)

2.2. General characters of Hemichordata : Structure and affinities of *Balanoglossus*

UNIT III

3.0. Biomolecules of the cell

3.1. Carbohydrates**:**
Classification of Carbohydrates - Monosaccharides, Disaceharides & polysacehacides.
Structures of Glucose and Fructose

3.2. Proteins:
Classification and structure of proteins
Amino acids: General properties, nomenclature

UNIT IV

4.0 Biomolecules of the Cell

4.1. Lipids:
Classification of lipids.

4.2. Nucleic acids:
Watson and Crick model of DNA, Chargaff.s rule.
Structure of RNA, Types of RNA - rRNA, tRNA and mRNA.

REFERENCE BOOKS

Biology of Invertebrates:

1. .The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. .Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. .Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. .Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. .Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. .A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. .A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. .Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

Cell Biology:

1. .Molecular Cell Biology. by Lodish, Berk, Kaiser, Scott.. Scientific American Books.
2. .Cell and Molecular Biology. by De Robertis & De Robertis : Saunders College.
3. .Cell Biology, Genetic Evolution and Ecology. by P.S.Varma and V.K. Agrawal; S.Chand and Co
4. .Molecular Biology. by Mohan P. Arora., Himalaya Publishing House Pvt.Ltd.
5. .Manual of Laboratory Experiments in Cell Biology. . Edward Gasque: (W.C. Brouh Publishers.
6. .Biomolecules. by Mohan P.Arora., Himalaya Publishing House Pvt.Ltd.
7. .Cell and Molecular Biology. .P.K.Gupta.
8. .Concepts of Cell Biology. - P.S.Verma and V.K.Agarwal
9. Biochemistry .U. Sathyanarayana and U. Chakrapani.
10.Biology .Campbell and Reece.
11.Molecular biology of the cell-Alberts et.,al
12. Cell Biology. by S.C. Rastogi
13. Cell Biology. By C.B. Powar, Himalayan Publications.

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ZOOLOGY PRACTICALS **ZOO 102P** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

Time : 3 hrs **BIOLOGY OF NON CHORDATES AND CELL BIOLOG** Max. Marks : 70

1. INVERTEBRATES: Observation of the following slides / specimens / models:

Protozoa - *Elphidium. Monocystis, Paramoecium* - binary fission and Conjugation.

Porifera - *Spongilla, Euspongia.*

Cnidaria - *Physalia, Velella, Corallium, Gorgonia, Aurelia, Pennatula,Obelia colony, Obelia medusa*.

Platyhelminthes - *Planaria, Larval stages of Fasciola -Miracidium, Redia, Cercaria Schistosoma haematobium*

Nemathelminthes - *Ancylostoma duodenale, Ascaris lumbricoides.*

Annelida - *Nereis, Aphrodite, Hirudo, Trochophore* larva.

Arthropoda - *Sacculina, Limulus, Julus, Scolopendra, Anopheles* mouthparts (male and female), *Peripatus.*

Mollusca - *Chiton, Unio, Teredo, Sepia, Octopus, Nautilus,Glochidium larva*.

Echinodermata - *Ophiothrix, Echinus, Clypeaster, Cucumaria,Antedon, Bipinnaria* larva.

Hemichordata - *Balanoglossus, Tornaria* larva.

2. DISSECTIONS:

Prawn : Nervous system, mounting statocyst and appendages or as an alternatively crab/Scorpion/ locust (digestive system)

Video clippings of anatomy of Leech and *Pila*

3. CELL BIOLOGY:

1. Identification of stages from prepared slides showing Mitosis and Meiosis

2. Identification of salivary gland chromosomes and polytene chromosomes (Photographs or figures).

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ELECTRONICS **ELE 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

ELECTRONIC DEVICES & CIRCUITS

UNIT - 1

30 hours

1. PN junction: Construction, working, V-1 characteristics and simple applications of
   - i. Junction diode
   - ii. Zener diode
   - iii. Tuunel diode
   - iv. Varactor diode

2. Bipolar junction transistor (BJT): PNP & NPN transistors - CB , CE, CC configuration - i/p & o/p characteristics - CE configuration as a two port ntwk, H- parameter equivalent circuits, Transistor biasing techniques - load line analysis.

3. Field effect transistor: Structure and working, characteristics of JFET, MOSFET - Depliton type, Enhancement type.

UNIT - 2

30 hours

1. Uni junction transistor: Structure and working of UJT - Characteristice. Application of UJT as a relaxation oscillator.

2. Silicon controlled rectifier (SCR): Structure and working of SCR. Two transistor representation, characteristics of SCR - Applications of SCR.

3. Photo electric devices: Structure and operation of LDR, photo voltaic cell, photo diode, photo transistor and LED.

[Note: Solving related problems in all units]

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ELECTRONICS **ELE 102P** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

Time : 3 hrs CIRCUIT ANALYSIS & ELECTRONIC DEVICES Max. Marks : 70

1. Thecehin's theorem.
2. Norton's theorem.
3. Maximum power transfer theorem.
4. Low pass filter.
5. High pass filter.
6. Zener diode V-1 characteristics.
7. Voltage regulator using zener diode.
8. BJT input and output characteristics.
9. FET - characteristics and determination of FET
10. UJT as relaxation oscillator.

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COMPUTER SCIENCE **CSC 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

PROCEDURAL ORIENTED PROGRAMMING LANGUAGE WITH 'C'

UNIT - 1

Introductory concepts
Fundamentals of 'C' language

UNIT - 2

Operators and Expressions
Data Input and Output
Preparing and running a complete C program

UNIT - 3

Control statements
Program structure
Functions
Arrays

UNIT - 4

Strings
Structures and unions
Files
Pointers

Prescribed Book:

1. Peter Norton, Introduction to Computers, Sixth edition, Tata McGraw Hill (2007)
2. Stephen G. Kochan, Programming in C, Third Edition, Perason Education (2007)

Reference Books:

1. Beyron S Gottfried, Programming with C, Second Edition, Tata McGraw Hill
2. Balaguruswamy. E, Fundamentals of Computing, TMH (2008)

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COMPUTER SCIENCE **CSC 102P** 2012-13 onwards I B.Sc

LAB CYCLE

II SEMESTER

C – PROGRAMMING

1. Program to fing the electrical bill depending upon the number of units.
2. PRogram to check whether given character is vowel or consonant.
3. Program to find the factorial of the given number.
4. Program to print the fibonocci series up to the given number.
5. Program to find whether given numbers in Armstrong or not.
6. Program to find whether a given number is prime or not.
7. Program to find the sum of individual digits of a given number.
8. Program to find sum, diff, product, and quotient of any two numbers using switch statement.
9. Program to find the sum of two matrices.
10. Program to find product of two matrices.
11. Program to find transpose of a matrix.
12. Program to read 'n' numbers and print them in descending order using bubble sort.
13. Program to search an element from a list of elements using linear search.
14. Program to search and element from a list of elements using Binary search.
15. Program to find sum of the digits using recursion.
16. Program to find length, copy, concatenate, compare, reverse of a given string using String functions.
17. Program on Nesting of Structures.
18. Program to swap two numbers using call by value mechanism without using 3rd variable.
19. Program to read n strings and print them in ascending order.
20. Program to access structure elements using pointers.

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GENERAL ENGLISH **ENG 201NA** 2013-14 onwards II DEGREE

SYLLABUS

III SEMESTER

GENERAL ENGLISH

Poetry:

1. The Solitary Reaper
2. The Road Not Taken

Prose:

1. Mr. Know All
2. A Talk on Advertisinng

Non-detailed

1. Gajar Halwa
2. My Brother, My Brother

Grammar

1. Lexical web
2. Homonyms
3. Importance of the sounds of vowels
4. Words often confused
5. Idioms
6. Correction of sentences (Articles-Concord-Tenses)
7. Stress

Prescribed Text books:

1. English for empowerment - Orient Black swan
2. Nurturing competence - Lorven publications
3. A course in listening and speaking II
   Published by
   Foundation Books Pvt. Ltd.,
   Cambridge House, New Delhi

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SANSKRIT **SAN 201N** 2013-14 onwards II DEGREE

SYLLABUS

III SEMESTER

SANSKRIT

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1. प्रतिमा गृहम् - उ अङ्कः - भास :

2. शुकनासोपदेशः - कादम्बरी कथासङ्ग्रह : बाणभट्ट : R.V. Krishnamachary

व्याकरण विभाग :

A. हलन्त शब्दा :

1. जलमुक्	2. वाक्	3. मरुत्
4. भगवत्	5. भवत्	6. पचत्
7. राजन्	8. गुणिन्	9. नामन्
10. विद्वस्	11. मनस्	12. युष्मद्
13. अस्मद्	14. श्दम् (लिङ्त्रये)	15. तद् (लिङ्त्रये)
16. यद्(लिङ्त्रये)	17. किम् (लिङ्त्रये)	18. एतद् (लिङ्त्रये)

B. अलङ्कारा :

1. उपमा	2. अनन्वयः	3. उत्प्रेक्षा	4. दीपकम्
5. अप्रस्तुत, पशंसा	6. दुष्टान्त :	7. अर्थान्तर न्यासः	8. विरोधाशासः
9. उल्लेख :	10. व्याजस्तुतिः		

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HINDI **HIN 201N** 2013-14 onwards II DEGREE

SYLLABUS

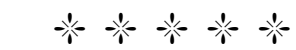
III SEMESTER

HINDI

A. OLD POETRY	:	1. Kabir Das Sakhi (1-10 Dohe)
		2. Tulasi Das Dohe
B. MODERN POETRY	:	1. Mathru Bhoomi
		2. Ashok Ki Chintha
		3. Bharath Matha
C. CHAPTERS TO BE STUDIED FROM HISTORY OF THE HINDI LITERATURE	:	1. Adikal - Chandbardaye
		2. Nirgun Bhakthi - Kabir Das
		3. Saguna Bhakthi
		a. Rama Bhakthi Sakha - Tulasi Das
		b. Krishna Bhakthi Sakha - Sura Das
D.GENERAL ESSAYS	:	1. Sahitya Aur Samaj
		2. Vidyardhi Aur Anusashan
		3. Aaj Ki Siksha Neeti
		4. Vignan Abhishap Ya Vardaan
		5. Samaj Mein Naari Ka Stan
E. TRANSLATION	:	ENGLISH to HINDI
		Sentences form prescribed text books

TEXT BOOK : KAVYA DEEP

हिन्दी साहित्य का सुबोध इतिहास - डा. गुलाबराय



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FOUNDATION COURSE **GSC 201N** 2010-11 onwards II DEGREE

SYLLABUS

III SEMESTER

UNIT - I

1. Relations between science and society - Introduction

2. Health : Vaccination, Pencillin, X-rays, Antibiotics, Vitamins, Anaesthecia, D.D.T., Insulin, Radium therapy, cortisone, antiseptics

UNIT - II

3. Agriculture : Hybridization, Green revolution, fertilizers, insecticides, pesticides

UNIT - III

4. Communications : Radio, Telephone, Television, Satellite, Computers.

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HISTORY **HIS 201N** 2013-14 onwards II B.A

SYLLABUS

III SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

Establishment of Moughal empire - Sur interregnum - Brief survey of political history upto 1707 A.D. - Polity and administration - General conditions of the Mughal period i.e., Social, Nobility - Peasantry - Artisans - Slaves - Status of Women - Economy - Agriculture Industries, Trade and Commerce, Economy and Technology Development. Religion - Hindu, Muslim relations - compsite culture - Education, literature, art, architecture and fine arts. Decline and disintegration of Moughal empire.

UNIT-2

Rise of local states - Society - Economic conditions

Bengal - Outh - Punjab - Hyderabad - Kerala - Mysure - Hyder Ali and Tippu Sultan - Raya's of South India

Nayaka's of Mathura, Tanjore - Economic conditions - Trade and commerce -

Agriculture - Society and culture - Cultural life - Education - Christian missionaries.

UNIT-3

Rise of regional powers - Marathas - Shivaji - Administration - Sikhs

UNIT-4

Advent of European powers - Portuguese, Dutch, English and French

Expansion and consolidation of British empire - Wars - Diplomacy - Policies pursued - Subsidiary Alliance - Doctrine of Lapse - Revenue settlements - Permanent - Ryotware - Mahalwari systems

UNIT-5

Anti - Colonial upsurge - Peasant and tribal revolts - 1857 revolt - Causes and results

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POLITICS **POL 201N** 2013-14 onwards II B.A

SYLLABUS

III SEMESTER

INDIAN GOVERNMENT AND POLITICS

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1. Evolution of Indian constitution - Nationalist movement and philosophical foundations
1. Salient features of Indian Constitution - Amending Procedure
2. Indian Federation - Union - State relations - Recent trends - Sarkari commission
3. Fundamental rights and Fundamental Duties - Constitutional Remedies with special references to writs - Directive principals of state policy.
4. President - Election - Powers and functions - Prime Minister - In the coalition era and council of Ministers.
5. Parliament - Composition, powers and functions.
6. Judiciary - Supreme court - Composition - Powers and functions - Judicial review and Judicial Activitism - PIL

Books Recommended :

1. Politics in India	:Rajini Kothari
2. Indian constitution	:M.V. Pylee
3. Indian constitution	:Bakshi
4. Introduction for constitution of India	:D.D. Basu
5. Indian Govt. and Politics	:K.R. Acharya
6. Telugu Academi	:Bharata Prabhutwamu - Rajikiyalu
7. Telugu Academi	:Bharata Rajayagamu

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MACRO ECONOMICS **ECO 201N** 2013-14 onwards II B.A

SYLLABUS

III SEMESTER

MACRO ECONOMICS

Module – I : NATIONAL INCOME

1. Meaning, defination and importance of macro economics
2. National income meaning, definition
3. National income : GNP, NNP, GDP, NDP, Personal Income, Disposable Income (DI), Per Capita Income (PCI), Real national income (RNI)
4. Methods of Estimation of National Income
5. Measurements of national income in India
6. Flow of national income

Module – II : THEORIES OF EMPLOYMENT

1. Classical Theory of Employment - Say's law of markets
2. Keynesian theory of employment
3. Consumption function - APC, MPC, factors influencing consumption function Investment function
4. MEC and rate and rate of interest and the concept of multiplier
5. Accelerator - Applicability of the Keynesian theory to the developing countries

Module – III : ECONOMIC SYSTEMS :

1. Capitalistic economy
2. Socialist economy
3. Mixed economy

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SPL. ENGLISH **ENG 201SN** 2013-14 onwards II B.A.

SYLLABUS

III SEMESTER

SPECIAL ENGLISH

POETRY :

1) One Day I wrote her Name - D.H. Spenser

2) The Canonization - John Donne

3) The School boy - William Blake

SHORT QUESTIONS :

a) Elizebethan poetry

b) Silver poets of the 16th century

c) Elizebethan sonnets

d) 17th century poetry

e) Cavalier or caroline poetry

f) Verse satire in the resto ration era

g) Pre - Romantic poets

ESSAY :

1) Of youth and age - Francis Bacon

2) Dream children - A Reverie - Charles lamb

SHORT QUESTIONS :

a) What is an essay ?

b) Origin of the essay

c) The Aphoristic essay

d) The critical essay

e) The periodical and social essay

f) The personal essay

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FINANCIAL ACCOUNTING **COM 301N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

FINANCIAL ACCOUNTING

UNIT - I

Hire purchase system -Features, accounting treatment in the books of hire purchaser and hire vendor - Default and repossession, installment purchase system - Difference between hire purchase system and installment purchase system. Accounting treatment in the books of purchaser and vendor.

UNIT - II

Royalties - Features - Land lord - Lease holder, sub lease - Preparation of royalty analysis table - Accounting treatment in the books of land lord and lease holder.

UNIT - III

Single entry system - Features - books and accounts maintained - Recording the transactions - Ascertainment of profit - Pure single entry system - Convertion of single entry system into double entry system.

UNIT - IV

Non profit organisations - Features of non - profit - Entities - Accounting process - Preparation of summaries - Receipts and payments account meaning and special features - Procedure for preparation - uses and limitations - Income and expenditure account - Features - Procedure for preparation - Preparation of balance sheet.

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Business Statistics **COM 302N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

BUSINESS STATISTICS

UNIT - 1

Introduction to Statistics :

Meaning, defination, importance and limitations of statistics - Collection of data - Primary and secondary data - [Sampling Random - Non - Random causes] - Schedule and Questionaire - Frequency distribution - Tabulation -

Laboratory work : Diagram and graphic presentation of data - using computers (Excel)

UNIT - 2

Measures of Central Tendency :

Defination, objectives and characteristics of measures of central tendency, types of averages: Arthimetic mean, Geomentric mean, Harmonic mean, Median, Mode, Deciles, Perceutiles, Properties of averages and their applications

Laboratory work : Calculations of average using computers.

UNIT - 3

Measures of Dispersion :

Meaning, defination, properties of dispersion - Range quartile deviation - Mean deviation - Standard deviation - co-efficient of variation

Laboratory work : Calculation of dispersion using computers.

UNIT - 4

Measures of Skewness :

Skewness defination - Karl pearson's and Bowley's measures of skewness - Normal distribution

Laboratory work : Calcualtion of skewness using computers.

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Financial Services - Banking and Insurance **COM 303N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

FINANCIAL SERVICES - BANKING AND INSURANCE

UNIT - 1

Instruction to Financial Services :

a) Meaning of financial services, structure of Indian financial system, importance of financial system for the economic development [Financial & Banking system parts]

b) Banking system : Defination of Bank, functions of commercial bank, branch banking, unit banking, correspondent banking - Group banking, deposit banking, mixed banking and investment banking, an overview of banking, banking sector reforms with special reference to prudential norms, ATMs, E-banking, credit cards, online and offshore banking etc., [working and operations]

c) Regional rural banks : Co - operative banks, NABARD, SFC, SIDBI.

UNIT - 2

a) Banker and customer defination and their relationship, types of customer and modes of operations procedure and precaution for opening an account, pass - book and its features. Types of deposits, rights, duties and obligations of the banker. [Application forms for opening accounts, cheque - books, pass - books, requisition slips for withdrawls and deposit, bank statement etc.,]

UNIT - 3

Loans and Advances :

a) Cheque, types of crossing the cheque, payment of cheque and consequencies of wrongful dishonour, collection of local and upcountry cheques, responsibility and liabilities of collecting banker and statutory protection to the collecting banker.

[crossed cheques - various modes]

UNIT - 4

Types of Loans and Advances :

Types of loans and advances, principles of sound lending policies, credit appraisals of various forms of loans and advances - modes of creating charges - lien, pledge, mortgage and hypothecation. [Documents required for sanction of loans and advances]

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Taxation **COM 304N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

TAXATION

Objective : To equip the students with the working knowledge of both direct and indirect taxes.

Unit – I

Introduction - Assessee - Assessment year - Previous year - Income - Person - Residential status and incidence of tax (problems) Agricultural income, income fully and partially exempted from income tax

Unit – II

Heads of income - Income from salaries - Allowances - Perquisites, Provident fund - Computation of income from salary (problems)

Unit – III

Income from house property - determination of annual rental value - deduction from income from house property (problems)

Unit – II

Profits and gains from business and profession - Expenses expressly allowed and dis allowed for deduction - computation of profits and gains from business and profession (problems)

Reference Books :

1. Students guide to income tax, written by singhania

2. A systamatic approach to income tax, written by Girish Ahuja & Ravi Gupta.

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MATHEMATICS **MAT 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

ABSTRACT ALGEBRA AND REAL ANALYSIS – I

ABSTRACT ALGEBRA

UNIT - 1

Groups - Binary operations, properties, definition of a group and elementary properties, finite groups and composition tables, Subgroups - algebra of subgroups, cosets, Lagrange's theorem for finite groups, order of an element in a group.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Normal subgroups - Definition, criteria for the existence of coset multiplication, necessary and sufficient conditions for a subgroup to be a normal subgroup, normalizer, centralizer, factor group. Homomorphism of groups - Definitions and elementary properties, image, kernel, fundamental theorem of homo-morphism, automorphisms.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Permutation groups - Permutation, group of permutations, cycles and cyclic notation, even and odd permutations, the alternating group, Cayley's theorem. Cyclic groups - elementary properties, subgroups of finite cyclic groups, the classification of cyclic groups.

(2 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS

UNIT - 4

Real numbers - The completeness properties of *R*, applications of the suprimum property.

(No questions is to be given in the examination)

Sequences - Sequence, method of defining sequences, range, subsequences, bounded sequences, limit of a sequence, convergent sequence, divergent sequences, algebra of convergent sequences, Cauchy's first theorem of limits, Cauchy's second theorem on limits, monotonic sequences, monotone convergence theorem, limit points of a sequence, Bolzano - Weierstrass theorem for sequences, Cauchy's general principle of convergence.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Infinite series - Series, Cauchy's general principle of convergence, geometric series, auxiliary series (p-series), comparision tests, limit comparision test, Cauchy's *n*th root test, D'Alembert's ratio test, Cauchy's condensation test, Cauchy's - Maclaurin's integral test, Alternating series, Leibnitz's test, Absolute convergent series, conditionally convergent series.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Limits and continuity - Limit of a function, Algebra of limits, one sided limits, infinite limits, standerd limits, continuity of function, algebra of continuous functions, properties of continuous functions, Borel's theorem, Bolzano's theorem, intermediate value theorem, uniform continuity, uniform conitinuity theorem.

(2 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, John Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 201N** 2013-14 onwards II B Sc.

SYLLABUS

III SEMESTER

THERMODYNAMICS AND OPTICS

PART - A
THERMODYNAMICS

Unit I

1. Kinetic Theory of Gases : Deduction of Maxwell's law of distribution of molecular speeds - Transport phenomena- Explanation, derivation of Expression for Viscosity - Derivation of expressions for thermal conduction and diffusion of gases. (5 hours)

2. Thermodynamics :

a. Heat and work - Internal energy - Indicator diagrams work done in Isothermal and adiabatic processes - First law of thermodynamics - significance and applications of first law of thermodynamics - Second law of thermodynamics, different statements - Reversible and irreversible process - Carnot's reversible heat engine - Derivation of expression for efficiency of Carnot cycle - Carnot's theorem - Thermodynamic scale of temperature (10 hours)

b. Entropy-Introduction-entropy concept-entropy measurement-derivation of expressions for change in entropy in a reversible process and in an irrevesible process - Entopy - Temperature diagram - Expression for efficiency using T-S diagram (5 hours).

3. Thermodynamic Potentials and Maxwells Equations : Thermodynamic potentials - Derivation of Max wells thermodynamic relations - Derivation of lausius - clapeyron equation using Maxwells thermodynamic relations - Two specific heats of a gas - Derivations for ratio (Cp/Cv)and difference (Cp-Cv) of two specific heats of a gas using Maxwells thermodynamic relations - Joule - Kelvin effect, Explanation - Derivation of expression for Joule - Kelvin coefficient using Maxwells thermodynamic relations. (15 hours)

PART - B
OPTICS

Unit II

4. Matrix Methods in Paraxial Optics : Introduction to Paraxial Optics - Matrix method - Effect of translation - Effect of refraction- System matrix, image plane equation of an optical system - application of matrix methods to

simple optical systems 1. a thick lens 2. thin lenses in contact 3. two thin lenses separated by distance - cardinal points of lens system- explanation (10 hours)

5. Aberrations :

a. Aberration - Monochormatic aberration - spherical aberration - Methods of minimisation of spherical aberration - Coma - Astigmatism. (3 hours)

b. Chromatic aberration - Achromatic doublet - Removal of chromatic aberration (3 hours)

6. Interference :

a. The superposition principle - coherence - Condition of Interference of light - Interference by division of wave front- Fresnel's biprism - determination of wavelength of light - determination of thickness of a transparent material using biprism. Stokes law- change of phase on reflection (5 hours)

b.Interference by division of amplitude - the cosine law in reflectd light - colours of thin films - non reflecting thin films - determination of diameter of wire using wedge method - Newton's rings-explanation - experimental determination of wavelength of monochromatic light by using Newtons rings(5 hours).

NOTE : Problems should be solved at the end of every chapter of all units.

Textbooks

1. Optics by Ajay Ghatak. The McGraw - Hill companies.

2. Optics by subramaniyam and Brijilal.S.Chand & Co.

3. Fundamentals of Physics. Halllday/Resnick/Walker.C.Wlley India Edition 2007.

4. Optics and Spectroscopy. R. Murugeshan and Kiruthiga Siva Prasath.S.Chand & Co.

5. Second Year Physics - Telugu Academy

6. Modern Physics by R.Murugeshan and Kiruthiga Siva Prasath (for statistical Mechanics) S. Chand & Co.

Reference books

1. Modern Physics by G.Aruldhas and P.Rajagopal, Eastern Economy Education.

2. Berkeley Physics Course. Volume - 5. Statistical Physics by F.Relf. The McGraw – Hill Companies.

3. An Introduction to Thermal Physics by Daniel V.Schroeder.Pearson Education Low Price Edition.

4. Thermodynamics by R.C.Srivastava, Subit K.Saha & Abhay K.Jain Eastern Economy Edition.

5. Modern Engineering Physics by A.S. Vasudeva. S. Chand & Co. Publications.

6. Feyman's Lectures on Physics Vol. 1,2,3 &4. Narosa Publications.

7. Fundamentals of Optics by Jenkins A.Francis and White E. Harvey, McGraw Hill Inc.

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CHEMISTRY **CHE 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

INORGANIC CHEMISTRY AND ORGANIC CHEMISTRY

Unit - I (Inorganic Chemistry)

I. Chemistry of d - block elements: **Weightage : 15+5+5**

Variable oxidation states - their relative stability. Discussion of oxidation states with reference to ionic and covalent nature ; acidic and basic nature; oxidising and reducing nature. Colour and spectral behaviour of transition metal ion complexes. d-d transitions and origin of the colour -explanation of absorption specturm of complex. Magnetic behaviour - Paramagnetism and diamagnetism - definition - Their microscopic origin - Relationship between magnetic moment and number of unpaired electrons.

Complex formation behaviour. Factors influencing the stability of complexes - nature of the metal ion such as charge, size and electronic configuration; nature of the ligand - basicity, tri and polydentate character; back bonding. Comparitive treatment of second and third transition series with their 3d analogues.

II. Chemistry of f - block elements: **Weightage : 15+5**

Position in the periodic table. Lanthanide contraction - its causes and consequences - anomalous behaviour of Post - Lanthanides magnetism - magnetic moment curve - anamolies and explanation. Complexation - type of donor ligand preferred. Most common coordination number. Separation of Lanthanides by ion-exchange and solvent extraction methods.

Chemistry of actinides - Actinide contraction - Comparison with Lanthanides with respect to spectral properties, magnetic behaviour, complex forming nature :

III. Theories of bonding in metals : **Weightage : 15**

Free - Electron theory - Valance bond theory - Their key postulates - Explanation of metallic properties like electrical and thermal conductivity with the help of these theories - Limitations - Band theory of metals - Formation of conduction band and valence band; explanation of properties, of conductors, semiconductors and insulators.

IV. Metal Carbonyls and related compounds : **Weightage : 5+5**

Definition : Classification with examples - Nature of M - C = O bond. EAN rule with examples - Structure and hybridization in

Unit - II (Organic Chemistry) Weightage : 15

I. Halogen Compounds :

Nucleophilic aliphatic substitution reactions - Classification into SN_1 and SN_2. Energy profile diagrams of SN_1 and SN_2 reactions. Stereo chemistry of SN_2 (Walden inversion) and SN_1 (Recemisation) reactions. Explanation of both by taking the example of optically active alkylhalide like 2 - bromobutane - Ease of hydrolysis - Comparison of allyl, benzyl, alkyl, vinyl and arylhalides. Nature of nucleophile, leaving group, solvent, SN_i and neighbouring group participation.

II. Hydrogy Compounds : **Weightage : 5+5**

Alcohols : Preparation with hydroboration reaction; Grignard synthesis of alcohols

Phenols : Preparation from diazonium salts - Aryl, sulphates - Cumene (with mechanism)

Properties of Phenols : Acidic nature of phenols - Ease of formation of alkoxide / phenoxide ions and their reaction with R - Y - Esterification by acids (with mechanism) - Dehydration of alchols - Special reactions of phenols with mechanism - Bromination - Kolbe - Schmidt reaction - Reimer - Tiemann reaction.

Poly hydroxy compounds : Pinacol - Pinacolone rearrangement

III. Carbonyl Compounds : **Weightage : 15+5+5**

Synthesis of aldehydes from acid chlorides, synthesis of ketones from nitrites and carboxylic acids.

Physical Properties : Absence of hydrogen bonding - keto - enol tautomerism, reactivity of carbonyl groups in aldehydes and ketones.

Chemical Properties : Nucleophilic addition reactions with a) b) c) d) 2, 4 - DNP with mechanism. Halogenation using

Base Catalysed Mechanism : a) Aldol b) Cannizzaro c) Perkin d) Benzoin condensation

e) Halofrom reaction f) Knoevenagel reaction

Oxidation of aldehydes : Baeyer - Villiger - Oxidation of ketones with mechanism

Reduction : Wolf - Kishner reduction. MPV reduction - Reduction with and

Analysis of aldehydes and ketones : With a) 2, 4 - DNP test b) Tollen's test c) Fehling test d) Schiff's test e) Haloform test all with equations.

IV. Active methylene Compounds : **Weightage : 15+5**

Acetoacetic esters : Preparation by claisen condensation, Keto - enol tautomerism. Acid hydrolysis and Ketonic hydrolysis. Preparation of a) monocarboxylic acids b) dicarboxylic acids. Reaction with urea.

Synthetic applications : Preparation of a) Monocarboxylic acids (Propionic acid & n-butyric acid) b) dicarboxylic acids (Succinic acid and adipic acid) c) unsaturated carboxylic acid (Crotonic acid) Reaction with Urea.

Additional syllabus (without examination)

Food Analysis : Moisture, ash, crude protein, fat, crude fibre, carbohydrates, potassium, sodium and phosphate. Food adulteration - Common adulterants in food, contamination of food stuffs. Microscopic examination of foods for adulterants. Pesticide analysis in food products. Extraction and purification of sample. HPLC. Gas chromatography for organophosphates. Thin - layer chromatography for identification of chlorinated pesticides in food products.

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BOTANY **BOT 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

GYMNOSPERMS, ANATOMY AND PALAEOBOTANY

UNIT I

GYMNOSPERMS

1. General features of Gymnosperms
2. General account of Bennettitales
3. Morphology of vegetative and reproductive parts, Anatomy of root, stem and leaf, reproduction and life cycle of *Pinus* and *Gnetum*.
4. **Palaeobotany** - Types of fossils, Process of fossilisation,

UNIT - II

PLANT ANATOMY

1. Tissues and tissue systems
2. Root - Normal secondary growth; Abnormal secondary growth;
   e.g., *Tinospora,Boerhaevia, Dracaena.*
3. Stem - Normal secondary growth; Growth rings ; Sap wood and Heart wood, Periderm.

UNIT - III

1. Leaf : Internal structure of dicot, monocot and xerophytic leaves.
2. Wood structure : Teak wood, Rose wood, Neem, Terminalia

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ZOOLOGY **ZOO 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

BIOLOGY OF CHORDATES

UNIT I

1. General organisation of chordates 2. Salient features of Urochordata
3. Structure and life history of *Herdmania*
4. Salient features of Cephalochordata
5. General characters of cyclostomes

UNIT II

1. General characters and classification of fishes upto the level of subclasses
2. *Scoliodon* - External features, respiratory system, heart and brain
3. Types of scales in fishes
4. Migration in fishes
5. General characters and classification of extant amphibians upto orders level
6. *Rana* - External features, respiratory system, heart, brain
7. Parental care in amphibians

UNIT III

1. General characters and classification of extant reptiles upto orders
2. *Calotes* - External features, respiratory system, heart, brain
3. Key for identification of poisonous snakes
4. Snake bite and first aid

UNIT IV

1. General characters and classification of Aves upto super orders
2. *Columba* - External features, feathers, respiratory system, heart, brain
3. Migration of birds 4. Flight adaptations
5. General characters and classification of mammals upto subclasses
6. Dentition in mammals

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ELECTRONICS **ELE 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

SOLID STATE ELECTRONICS CIRCUITS

UNIT - I

POWER AMPLIFIERS:

a) Rectifier : Half wave, full wave, bridge rectifiers - Efficiency, Ripple factor, regulation, Harmonic components in rectified output.

b) Filters : Choke input (Inductor) filter - shunt capacitor filter - L section and section Filters

c) Block diagram of regulated power supply, series and shunt regulated power supply. IC regulators (723, 78xx, 79xx, 317)

UNIT - II

RC Coupled Amplifiers : Analysis and frequence response of single state RC Coupled CE amplifier.

Feedback Amplifier : Positive and Negative feedback amplifiers, advantages of negative feedback (gain, bandwidth, noise, input and output impedance) & emitter follower.

Oscillators : Positive feedback amplifier - Oscillator, hartley and phase shift oscillator.

NOTE : Solving related problems in all units.

Text Books :

1. Solid state electronics unified II
2. Electronic devices and circuits - Millimans and Malkias
3. Principles of Electronics - V.K. Meheta

Reference :

1. Applied Electronics - R.S. Sedha
2. A First course in electronics - A.A. Khan & K.K. Dey
3. Micro Electronics - J. Millimans and Grabel.

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COMPUTER SCIENCE **CSC 201N** 2013-14onwards II B.Sc

SYLLABUS

III SEMESTER

OBJECT ORIENTED PROGRAMMING WITH JAVA

UNIT - I

1. Fundamentals of Object Oriented Programming
2. Java Evolution
3. Overview of Java Language 4. Constants, Variables and Data types

UNIT - II

5. Operators and Expressions
6. Decision making, Branching and Looping
7. Classes, Objects and Methods

UNIT - III

8. Arrays and Strings 9. Interfaces : Multiple Inheritance
10. Packages : Putting classes together

UNIT - IV

11. Multi Threaded Programming
12. Managing Errors and Exceptions
13. Applet Programming
14. Managing Files in Java

PRESCRIBED BOOK :

1. E. Balagurusamy, Programming with Java A primer, 3e, Tata Mc-Graw Hill Company (2008) Chapters : 1to 14, 16

REFERENCE BOOKS :

1. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline series, Tata Mc-Graw Hill (2007).
2. Timothy Budd, understanding Object Oriented Programming with Java, Pearson Education (2007).
3. Java, Java and Object Oriented Paradigm, PHI (2007)
4. Deitel & Deitel. Java TM : How to Program, 7th Edition, PHI (2008)

For Merit Students

Graphics Programming, JDBC

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GENERAL ENGLISH **ENG 202NA** 2013-14 onwards II DEGREE

SYLLABUS

IV SEMESTER

GENERAL ENGLISH

Poetry:

1. Refugee Mother and Child
2. I Will Embrace Only the Son

Prose:

1. On shaking Hands
2. No Man is an Island

Non - detailed:

1. Never - Never Nest
2. Refund

Grammar

1. Consonents and their sounds
2. Correction of Sentences (Question tags, Modals, Prepositions, Articles)
3. Curriculum Vitae
4. Letter writing
5. Stative verbs
6. Intonation

Prescribed text books :

1. English for Empowerment - Orient Black Swan
2. Nurtusing competences - Lorven Publications
3. A course in Listening and speaking II
   (Foundation Books Pvt. Ltd., Cambridge House, New Delhi)

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SANSKRIT **SAN 202N** 2013-14 onwards II DEGREE

SYLLABUS

IV SEMESTER

SANSKRIT

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1. भारत संस्कृतेः मूलम् - सुसंहतभारतम् - 6 अङ्गः - आचार्य पुल्लेल क्षीरामचन्द्र :
2. उपनिषदादेश : - बृहदारव्यकात् - दकारकथा - तैतिरीयात् - शिक्षावल्ली
3. भोजस्य सारस्वती सुषमा - भोजप्रबन्धः - बल्लाल :

I. व्याकरण विभागः

कृत्प्रत्ययान्ता :

1. कत्वा	2. ल्यप्	3. तुमुन्	4. तव्य
5. क्त	6. क्तवतु	7. शतृ	8. शानच्

II. कविकाव्यशात्रसकाराणां परिचय :

1. पाणिनि :	2. कौटिल्यः	3. भरतमुनि :	4. दण्डी
5. भारवि :	6. माघः	7. भवभूतिः	8. श्रीहर्षः
9. श्रीशङ्कराचार्य :	10. जगन्नाथपण्डितरायः		

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HINDI **HIN 202N** 2013-14 onwards II DEGREE

SYLLABUS

IV SEMESTER

HINDI

A. OLD POETRY	:	1. Raheem Dohe 2. Bihari Dohe
B. MODERN POETRY	:	1. Thodthi Pathar 2. Parichai 3. Yeh Deep Akela
C. HISTORY OF HINDI LITERATURE	:	1. Reethi Kal - Bihari 2. Adhunik kal - Premchand 3. Natak ka vikas - Jaya Sankar 4. Pragathivad - Nirala 5. Prayogavad - Agneya
D. GENERAL ESSAYS	:	1. Bharath Mein Berojgari Ki 2. Prayojan Mulak Hindi : Arth Evam Swaroop, Raja Bhasha, Rashtra Bhasha Aur Sampark Bhasha. 3. Paryavaran Pradooshan 4. Abaadi Ki Samasya 5. HIV / AIDS
E. TRANSLATION	:	English to Hindi Paragraphs from prescribed text books
TEXT BOOK	:	KAVYA DEEP

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Environmental Studies **GSC 202N** 2010-11 onwards II Degree

SYLLABUS

IV SEMESTER

ENVIRONMENTAL STUDIES

UNIT - I

1. Environmental studies - Definition - Scope and importance

2. Environmental pollution, causes, effects and control of air, water and soil pollution

3. Basic principles of ecosystem functioning - Forest ecosystem, aquatic ecosystem (Pond)

Unit - II

4. Environment and natural resources

Forest resources - Deforestation problems, Afforestation, social forestry, forest produce and tribal people.

5. Water resources - Use and over utilization of surface and ground water conservation. Rain water harvesting, watershed management.

6. Social issues - Role of an individual in conservation of nature's resources.

Unit - III

7. Environmental problem in India - Effects of human activities in the quality of life, waste land reclamation, domestic pollution.

8. Conservation of nature - Concept of Biodiversity

9. Field work :

Visit to a local area to study local environment - Plants, birds, insects

Study of simple ecosystem - Pond

Prepare a team paper based on the observations during the field work.

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HISTORY **HIS 202N** 2013-14 onwards II B.A

SYLLABUS

IV SEMESTER

UNIT – 1 : Factors for social change - Christian missionaries - Western education - Emergence of new middle class - Growth of press

UNIT – 2 : Socio - Religious reform movements - Brahma Samaj - Arya Samaj - Theosophical society - Rama Krishna Mission - Aligarh movement

UNIT – 3 : Self respect movements - Jyothiba Phule - Narayan Guru - Periyaar and B.R. Ambedkar

UNIT – 4 : Indian National movement - Factors for the growth of Nationalism - Indian National Congress - Three phases of freedom struggle - Revolutionary movement - Peasant and workers movement

UNIT – 5 : Leaders of modern India - Dadabhai Naoroji - Gopala Krishna Gokhale - Balagangadhara Tilak - Mahatma Gandi - V.D. Savarkar - Bhagat Singh - Chandrasekhara Ajad

UNIT – 6 : Emergence of communal trends - Partition of India - Integration of Princely states into Indian union.

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POLITICS **POL 202N** 2013-14 onwards II B.A

SYLLABUS

IV SEMESTER

INDIAN GOVERNMENT & POLITICS

1. Party system - National and Regional parties - INC, BJP, CPI, CPIM, BSP. TDP, TRS, DMK, TMC - Coaliation politics.
2. Election commission - Powers and functions - Recent Electrol Reforms.
3. State Govt - Governer - C.M. - Council of ministers - Powers and functions
4. Social & Economic factors in Indian politics - Language, Religion, Caste and regional identities.
5. Political corruption - Kinds of defections - Causes and remedies - Lokayuktha
6. Challenges to National integration - Communalism, Terrorism and Regionalism
7. 73, 74 Constitutional Amendments.

Books Recommended :

1. Politics in India	:	Rajini Kothari
2. Indian constitution	:	M.V. Pylee
3. Indian constitution	:	Bakshi
4. Introduction for constitution of India	:	D.D. Basu
5. Indian Govt. and Politics	:	K.R. Acharya
6. Telugu Academi - Rajikiyalu	:	Bharata Prabhutwamu
7. Telugu Academi	:	Bharata Rajayagamu

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MACRO ECONOMICS **ECO 202N** 2013-14 onwards II B.A

SYLLABUS

IV SEMESTER

MACRO ECONOMICS

Module - I

MONEY AND THEORIES OF MONEY :

1. Meaning, functions and classification of money
2. Gresham's law - RBI classification of money
3. M_1, M_2, M_3, M_4 Theories of money.
3. Fisher's quantity theory of money
4. Cambridge approach (Marshall, Pigoue, Robertsan and Keynes)

Module - II

BANKING, STOCK MARKET AND INSURANCE :

1. Functions of Commercial Banks
2. The process of Credit Creation
3. Concept of Non Banking Finance Companies (NBFCs)
4. Concept of SEBI - Stock Market
5. Meaning, functions and importance of Stock Market
6. Primary and Secondary markets, concepts a) Shares b) Debentures c) Insurance
7. Types of Insurance - Life Insurance and General Insurance
8. Functions of the Reserve Bank of India
9. Methods of Credit Control - Quantitative and Qualitative methods.

Module - III

INTERNATIONAL ECONOMICS :

1. WTO (World Trade Organisation)
2. IMF (International Monitery Fund)
3. IBRD (International Bank for Reconstruction and Development)

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SPL. ENGLISH **ENG 202SN** 2013-14 onwards II B.A.

SYLLABUS

IV SEMESTER

SPECIAL ENGLISH

NOVEL :

1) Pride and Prejudice - Jane Austen

SHORT QUESTIONS :

a) The origin of the novel

b) The structure of the novel

c) Purpose and teaching of the novel

d) The Eighteenth century novel

e) The Ninteenth century novel

DRAMA :

1) Othello

SHORT QUESTIONS :

a) Religious plays

b) The moralities

c) Comedy of manners

d) Shakespeare as a dramatist

e) The heroic tragedy

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FINANCIAL ACCOUNTING **COM 401N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

FINANCIAL ACCOUNTING

Unit – I : Partnership accounts - Features, deed, types of partners - Fixed and fluetuating capital methods, appropriations of profits - Admission of a new partner - treatment of goodwill - Revaluation of assets and liabilities, adjustments of capitals - Retirement of a partner - death of a partner.

Unit – II : Dissolution of firms - Mode of settlement of accounts. When one partner insolvent - Garner Vs Murry.

Unit – III : Features, classification of shares and debentures - Issue of shares - Minimum subscription - Issue at premium and discount - Call in arrears - Call in advances - Over subscription - Fore feature and reissue of shares.

Unit – IV : Redemption of debentures, various methods of redemption of debentures.

Final accounts of Joint stock companies.

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Business Statistics **COM 402N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

BUSINESS STATISTICS

UNIT - V

Types of correlation : Meaning, defination and use of correlation - Types of correlation - Karl Pearson's correlation co-efficient - spearman's rank correlation - Probable error

Lab work : Calculation of correlation by using computers.

UNIT - VI

Regression Analysis : Meaning and utility of Regression analysis, comparison between correlation and regression - Regression equations - Interpretation of regression co-efficient

Lab work : Calculation of regression by using computers.

UNIT - VII

Analysis of time series : Meaning and utility of time series analysis - Components of time series, measurement of trend and seasonal variations - Utility of decomposition of time series - Decentralization of data - Calculating of trend and seasonal variation using computers.

Lab work : Computing second Degree parabola trend and seasonal variations by using computers.

UNIT - VIII

Index numbers : Meaning, defination and importance of index numbers - Methods of construction of Index numbers - Price index numbers - Quantity index numbers - Tests of Adequacy of index numbers - Deflating index numbers - Cost of index numbers - Limitation of index numbers

Lab work : Calculation of index numbers using computers.

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Financial Services - Banking and Insurance **COM 403N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

FINANCIAL SERVICES - BANKING AND INSURANCE

UNIT - I

Financial Markets : Indian money market - Characteristics, structure composition [call and notice money market, treasure bills market, CDs, CPs, short - term bill market, mmmFs and DFHI] problems and reforms in Indian money markets [CDs, CPs, treasury bills]

UNIT - II

Financial Services: Indian capital market - composition growth of primary and secondary markets, differences between primary and secondary markets, capital market reforms and NBFCs in capital markets, Stock - Exchange, NSE, OTCEL, online trading and Role of SEBI.

UNIT - III

Types of insurance and its regulations:

a) Definition, meaning of insurance and reinsurance, principles of insurance, kinds of insurance, advantages of insurance, globalization of insurance and insurance sector reforms in India.

b) Life Insurance : Practical aspects of life insurance, procedure for issuing of life insurance policies, issue of duplicate policies, nomination, surrender value,

policy loans, assignment, revivals and claim settlement [formats of types of insurance]

UNIT - IV

Non - Life insurance: Types of products and scope of fire insurance, marine insurance, health insurance, social insurance and rural insurance, regulation of insurance in India - Insurance act 1938 and IRDA 1999. [formats of non - life insurance]

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Taxation **COM 404N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

TAXATION

Objective : To equip the students with the working knowledge of both direct and indirect taxes.

UNIT – I : Capital gains - long term and short term capital gains - Cost of acquisition - Cost of improvement - Cost inflation index - Sale consideration - Deductions under sec.54 (problems)

UNIT – II : Income from other sources - Tax laibility of dividend, interest, rent and casual income etc., - Deductions under sec.57 (problems)

UNIT – III : Clubbing of income, set off and carry forward of losses (Problems) deductions to be made in computation of total income (sec.80)

UNIT – IV : Assessment of an individual and computation of tax liability of an individual only - Rates of income tax - Education less - Surcharge (problems)

UNIT – V : Wealth tax act 1957 - Charge of wealth tax - Valuation date - Location of assets - Assets - Meaning - Deemed assets - Exempted assets - Net wealth - computation of net wealth - Valuation of assets - Return of wealth and procedure of assessment - Time limit for completion of assessment (problems).

Reference Books :

1. Direct taxes - Law and practice - Vinod K. Singhavia (Tax Mann)

2. Systems approach to income tax - Ahuja and Ravi Gupta.

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MATHEMATICS **MAT 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

ABSTRACT ALGEBRA AND REAL ANALYSIS – 2

ABSTRACT ALGEBRA

UNIT - 1

Rings - Defination and basic properties, commutative ring, ring with unity, Boolean ring, division ring, field, subring, subfield. Integral domains - divisors of zero, integral domain, characteristic of a ring.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Ideals - Left, right and two sided ideals, algebra of ideals, principal ideal, principal ideal ring, maximal ideals, prime ideals, quotient ring. Homomorphism of rings - definition and elementary properties, range and kernal of a homomorphism, fundamental theorem of homomorphisms.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Polynomial rings - Polynomials in an indeterminate, polynomial ring, the evaluation of homomorphisms, division algorithm for polynomials, polynomial equation, irreducible polynomials, Eisenstein theorem, ideal structure of a polynomial ring, unique facterisation in a polynomial ring. Euclidean ring and examples.

(2 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS

UNIT - 4

Differentiation - Derivative of a function, algebra of derivable functions, increasing and decreasing functions, Darboux's theorem, Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, L 'Hospital's rules, Taylor's generalized mean value theorem, Maclaurin's theorem, expansions of some basic functions.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Riemann integration - Partitions, Riemann sums, lower and upper Riemann integrals, Riemann integral, a necessary and sufficent condition for R-integrable, some classes integrable functions, algebra of integrable functions, fundamental theorem of integral calculus.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Riemann integration - Integral as the limit of a sum, first mean value theorem of integral calculus, Bonnet's mean value theorem of integral calculus, second mean value theorem of integral calculus, integration by substitution, integration by parts.

(1 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, Hohn Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 202N** 2013-14 onwards II B Sc.

SYLLABUS

IV SEMESTER

THERMODYNAMICS AND OPTICS

PART - A
THERMODYNAMICS

UNIT I

1. Low Temperature Physics :

Liquefaction of gases using Joule - Kelvin effect - Porous plug experiment - Distinction between: Joules expansion, Adiabatic expansion and Joule, Thomson's expansion - Expression for Joule Thomson cooling - Adiabatic demagnetization - Derivation of expression for fall in temperature - Liquefaction of Helium by Kaptizas method - principle of Refrigeration - Refregerant - Vapour Comperssion type. (8 hours).

2. Quantum theory of Radiation :

a. Classical theory of radiation: Introduction - Black body - Fery's black body - Distribution of energy in the spectrum of a black body(Lummer and Pringheim Experiment) - Statements of Wien's displacement law, Wien's law, Raleigh - Jeans law (3 hours)

b. Quantum theory of radiation: Introduction- Planck's law - Plank's Hypothesis- Derivation of Plank's Radiation law- deduction of Wien's law, Releigh Jeans law, Wiens displacement law from Planck's law. Pyrometers- Types of pyrometers - Disappearing filament optical pyrometer - determination of solar constant - Amstangstroms pyroheliometer- Temperature of Sun. (7 hours).

3. Statistical Thermodynamics :

Introduction to statistical mechanics - Statistical equilibrium - Probability, theorems in statistical thermodynamics - Maxwell - Boltzmann distribution law (Statement and expression only) - Application to ideal gas. Quantum Statistics - Phase space, Fermi - Dirac distribution law (Statement and expression only) - Application to electron gas, Bose - Einstein distribution law (Statement and expression only) - Application to photon gas - Comparsion of three statistics (7hours).

PART - B
OPTICS

UNIT - II

4. Diffraction :

Fraunhofer diffraction, Fraunhofer diffraction due to a single slit and double slit. The diffraction grating - Normal incidence - determination of wavelength of light - Fresnel diffraction - Fresnel half period zones - Zone plate - comparison of zone plate with convex lens (10 hours).

5. Polrization and Double Refraction :

Polarised light, Brewsters law - Malus law - Phenomenon of double refraction in calcilte - Construction and working of Nicol prism- applications of Nicol prism - Quarter & Half wave plate - Statement of optical activity (10 hours).

6. Lasers fiber optics and Holography :

Spontaneous, stimulated emission - Laser principle - Population inversion - Einstein coefficents - Types of lasers, He - Ne and Ruby lasers and the application of lasers. Introduction, Principle of Optical fiber - types of optical fibre, rays - Fiber materials - Basic principles of holography - Gabor Hologram and its limitations, Holography applications. (8 hours)

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II B.Sc., Semester – IV

SECOND YEAR PHYSICS PRATICALS

1. Co - efficient of thermal conductivity of a bad conductor by Lee's method.
2. Heating efficiency of electrical kettle with varying voltages.
3. Thickness of a wire - wedge method.
4. Determination of wavelength of light - Biprism.
5. Determination of radius of curvature of a given convex lens - Newtons' rings.
6. Resolving power of grating.
7. Study of optical rotation - polarimeter.
8. Dispersive power of a prism
9. Determination of wavelength of light using diffraction grating minimum deviation method.
10. Wavelength of light using diffraction grating - normal incidence method.
11. Resolving power of a telescope.
12. Refractive index of a liquid and glass (Boys method).
13. Pulfrich refractometer - determination of refractive index of liquid
14. Wavelength of Laser light using diffraction grating.

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CHEMISTRY **CHE 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

UNIT - I

PHYSICAL CHEMISTRY

1. Phase Rule : Concept of phase, component, degrees of freedom. Phase equilibrium of one component : Water system. Phase equilibrium of two component system solid - liquid equilibrium. Simple eutectic diagram of Pb-Ag system, desilverization of lead. Solid solutions - Compound with congruent melting point - Mg-Zn system, Compound with incongruent melting point - NaCl Water system. Freezing mixtures. **Weightage : 15+5**

2. Thermodynamics : The first law of thermodynamics - Statement definition of internal energy and enthalpy. Heat capacities and their relationship. Joules law - Joule Thompson coffient calculation of W, q dv and dH for the expansion of perfect gas under isothermal and adiabetic conditions for reversible process. State function - Kirchhoff's equation.

Second law of thermodynamics. Different statement of the law Carnot cycle and its efficiency Carnot theorem. **Weightage : 15+5+5**

3. Electro Chemistry : Debye - Huckel - Onsager equation for strong electrolytes (elementary treatment only). Definition of transport number, its determination by Hittorf's method. Application of conductivity its measurements - determination of dissociation constant (ka) of an acid, determination of solubility product of a sparingly soluble salt, conductometric titrations. Types of reversible electrodes - Hydrogen electrode.

Weightage : 15+5+5

UNIT - II

GENERAL CHEMISTRY

1. Molecular symmetry : Concept of symmetry in chemistry - symmetry elements. Rotational axes. Planes of symmetry and types of planes. Improper

rotational axis of symmetres. Inversion centre, identity element. The symmetry operations of a molecule form a group. Flow chart for the identification of molecular point group. **Weightage : 5**

2. Theory of Quantitative analysis :

a) Principles of Volumetric analysis : Theories of acid - base, red - ox, complexometric, iodometric and precipitation titrations, choice of indicators for these titrations.

b) Principles of Gravimetric analysis : Precipitation, coagulation, peptization, coprecipitation, Post precipitation, digestion, filtration and washing of precipitate, drying and ignition precipitation from homogeneous solutions, requirements for gravimetric analysis. **Weightage : 15+5**

3. Evaluation of Data : Theory of errors, ideas of significant figures and its importance, accuracy - Methods of expressing precission - Standard deviation and confidence limit. **Weightage : 15**

4. Introductory treatment to :

a) Pericyclic reactions : Definition of Pericyclic reactions as concerted reactions. Definition of HOMO and LUMO orbitals in the ground state and exited state with examples (ethane, 1, 3 - but diene and 1, 3, 5 hexa triene) Frontier molecular orbital theory and overlapping of HOMO and LUMO orbitals during pericyclic reactions symmetry consideration. Types of pericyclic reactions - Thermal and photo chemical - Electrocyclic reactions disrotatory and conrotary overlap - Cyclo addition and sigma tropic reaction - Supra and antera overlap with one examples. **Weightage : 15**

b) Synthetic Strategies : Terminology - Disconnection (dix), Symbol, Synthon, Synthetic Equivalent (SE), Functional Group Inter Conversion (FGI), Linear, Convergent and Combinatorial syntheseis. Target molecule (TM). Retro synthesis of the following molecules.

1) Acetophenone
2) Cyclohexene
3) Phenylethyl bromide. **Weightage : 5**

c) Asymmetric synthesis (Chiral) : Definition, enantiometric excess, streospecific reaction - dehalogination of 1, 2 - dibromide by I - Stereo selective reaction - Definitions - Example - Acid catalysed dehydration of 1 - phenyelpropanol. **Weightage : 5+5**

Additional syllabus (without examination)

Origin of waste water, types, water pollutants and their effects. Sources of water pollution - Domestic, industrial, agricultural soil and radioactive waste as sources of pollution. Objectives of anlysis - Parameter for analysis - Colour, turbidity, total solids, conductivity, aciditity, alkalinity, hardness, chloride, sulphate, floride, silica, phosphates and different forms of nitrogen. Heavy metal pollution - Public health significane of cadmium, chromium, copper, lead, zinc, manganese, mercury and arsenic. General survey of instrumental technique for the analysis of heavy metals in aqueous systems. Measurements of DO, BOD and COD. Pesticides as water pollutants and analysis. Water pollution laws and standards.

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CHEMISTRY **CHE 202P** 2013-14 onwards II B.Sc

PRACTICAL SYLLABUS

IV SEMESTER

Time : 3hrs **Inorganic Chemistry** Max. Marks : 70

Titrimetric Analysis :

1. Determination of carbonate and bicarbonate in a mixture
2. Determination of Fe (II) using as the standard solution
3. Determination of Fe (II) using with oxalic acid as primary standard.
4. Determination of Cu (II) using with as primary standard.
5. Determination of Zinc using EDTA
6. Determination of Magnesium using EDTA
7. Determination of hardness of water
8. Determination of Zinc by ferrocyanide
9. Estimnation of acetic acid in commercial vinegar
10. Estimation of antacid in the tablets
11. Estimation of Nickel using EDTA
12. Estimation of Calcium in chalk

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BOTANY **BOT 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

Plant Ecology - Bio Diversity - Bio Technology - Horticulutre and Tissue Culture

UNIT - I

Plant Ecology & Environment :

1. Atmosphere, light, temperature, soil and biota

2. Population ecology : Growth curves, ecotypes, ecads.

UNIT - II

Plant Ecology & Biodiversity :

3. Community Ecology : Community characterstics, frequency, density, cover, life forms,biological spectrum and Ecological succession - Hydrosere, xerosere.

4. Vegetation types of India - Biodiversity, forests and grass lands.

UNIT - III

Biotechnology - Tissue culture, Horticulture :

5. Concept and methods of r-DNA technology and its application in agriculture, medicine and industry, somatic hybridization, cybrids.

6. History and development in plant tissue culture, methods of culture of shoot tip, anther, ovary and embryo, their importance.

7. Horticulture - Definition and brief history of Horticulture

Methods - Cutting, grafting, layering

Plants propogated by seperation

Plants propogated by division

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BOTANY **BOT 202P** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

BOTANY PRACTICALS

1. Slide preparation of pinus stem, needle
2. Slide preparation of tinospora root, boerhaevia stem, dracaena stem and xerophytic leaf, dicot and monocot leaf
3. Ecology experiments
4. Spotors identification
5. Record
6. Viva – voce

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ZOOLOGY **ZOO 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

EMBROLOGY, ECOLOGY AND ZOOGEOGRAPHY

UNIT - I

1. Gametogenesis
2. Fertilisation
3. Types of Eggs
4. Types of cleavages
5. Cell lineage in *Planocera*

UNIT - II

1. Development of frog upto gastrulation and formation of primary germ layers.
2. Foetal membranes of chick - Formation and functions
3. Placenta - Development, types and functions

UNIT - III

1. Biogeochemical cycles - Nitrogen cycle, Carbon cycle, Phosphorus cycle
2. Habitat & Ecological niche.
3. Community interactions - competition, predation, mutualism, commensalism and parasitism.
4. Ecological succession - Primary and secondary succession - seral stages, climax community with examples.

UNIT - IV

1. Population - Growth curves, population density, dispersal
2. Growth of human population and its control
3. Population regulating mechanisms - biotic & abiotic
4. Zoogeography - Fauna of Oriental region, Australian region, Ethiopian region

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ZOOLOGY PRACTICALS **ZOO 202P** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

Time : 3 hrs **BIOLOGY OF CHORDATES, EMBRYOLOGY & ECOLOGY** Max. Marks : 70

I. Dissections **:** Fish : 5th and 7th cranial nerves, 9th and 10th cranial nerves.Video clippings of anatomy of *Calotes*

II. Osteology **:** Girdles and limb bones of frog, lizard, bird and rabbit

III. Embryology **:** Study of sperms, TS of testis and TS of ovary of frog / mammal Different stages of cleavages (2, 4, 8, cell stages) Chick embryos wm 24 hrs, 33 hrs, 48 hrs

IV. Museum specimens : All important representatives of Prochordata, Cyclostomata and vertebrates.

V. Ecology **:** Determination of pH, Estimation of dissolved oxygen at different temperatures, Estimation of salinity, Estimation of total alkalinity.

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ELECTRONICS **ELE 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

OPRATIONAL AMPLIFIER AND COMMUNICATION

UNIT - 1

Operational Amplifiers : Block diagram of Op - Amp, Op - Amp parameters, common mode rejection ratio (CMRR), slew rate, virtual ground, inverting and non inverting - amplifiers

Applications of Op-Amps : Summing amplifiers, voltage regulator, logarithmic amplifier, sine wave generator and square wave generator.

UNIT - 2

Communications : Need for modulation, types of modulation amplitude, frequency & phase modulation, amplitude modulation - side bands, modulation index, square law diode modulation, demodulation and detection.

Frequency modulation - Simple frequency modulator, ratio detection of FM waves, advantages of frequency modulation and super hetrodyne receiver.

Note : Sloving related problems in all units

Text Books :

1. Operational amplifier and linear integrated circuit - Ramakanth.A.Gayakward
2. Electronic communication - D. Roddy & J. Coolean.

Reference Books :

1. Electronic communication system - George Kennedy
2. Operational amplifier and linear integrated circuit - K. Lal Kishore.
3. Electronic devices and circuits - Millman and Halkias - Tata MC Graw Hill (TMH)
4. Micro electronics - J. Millman and A.Grabel - TMH
5. Operational Amplifiers and linear integrated circuits - Ramakant A. Gayakward - Prentice Hall of India (PHI)
6. Operational Amplifiers and linear integrated circuits - K. Lalkishore - Pearson education
7. Analog electronics - L.K. Maheswari and M.M.S Anand - PHI

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ELECTRONICS **ELE 202P** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

Time : 3 hrs ANALOG CIRCUITS AND COMMUNICATIONS LAB Max. Marks : 70

1. Inverting and non inverting Op-Amp

2. Op-Amp as a wien bridge oscillator

3. Op-Amp as a integrator and differentiator

4. Emitter follower

5. Astable multivibrator using Op-Amp

6. Voltage regulator using Op-Amp

7. Regulator power supply 723, 78xx, 317

8. Monostable multivibrator using Op-Amp

9. AM modulator and demodulator

10. FM modulator

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COMPUTER SCIENCE **CSC 202N** 2013-14onwards II B.Sc

SYLLABUS

IV SEMESTER

DATA STRUCTURES IN JAVA

UNIT – I :

1. Introduction and overview
2. String Processing

UNIT – II :

3. Stacks
4. Queues

UNIT – III :

5. Linked Lists
6. Sorting Methods

UNIT – IV :

7. Searching methods
8. Trees

Prescribed Text Book :

1. Robert Lafore, Data Structures and Algorithms in Java, Second Edition, Pearson Education (2008)

Reference Book :

1. Adam Drozdek, Data Structures and Algorithms in Java, Second Edition, Cengage Learning (2008)

2. John R. Hubbard, Anita Hurry, Data Structures with Java, Pearson Edition

3. Samatha, Classic Data Structures, PHI (2005)

For Merit Students Only

Graphs and their representations

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COMPUTER SCIENCE **CSC 202P** 2013-14 onwards II B.Sc

LAB CYCLE

III AND IV SEMESTERS

Java Lab Cycle :

1. Write a Java Program to determine the sum of the following harmonic series for a given value of 'n'. 1+1/2+1/3+..._1/n

2. Write a program to perform the following operations on strings through interactive input.

   a. Sort given strings in alphabetical order.

   b. Check whether one string is sub string of another string or not.

   c. Convert the strings to uppercase.

3. Write a program to identify a duplicate value in a vector.

4. Create two threads such that one of the thread print even no's and another prints odd no's up to a given range.

5. Define an exception called "Marks out of Bound" Exception, that is thrown if the entered marks are greater than 100.

6. Create a package called "Arithmetic" that contains methods to deal with all arithemtic operations. Also, write a program to use the package.

7. Write an Applet program to design a simple calculator.

8. Write a program to read a text and count all the occurrences of a given word. Also, display their positions.

9. Illustrate the method overriding in Java

10. Write a program to fill elements into a list. Also, copy them in reverse order into another list.

11. Write an interactive program to accept name of a person and validate it. If the name contains any numeric value throw an exception "InvalidName".

12. Create an anonymous array in Java

13. Write an applet program to insert the text at the specified position.

14. Prompt for the cost price and selling price of an article and display the profit (or) loss percentage.

15. Create a font animation application that charges the colors of text as and when prompted.

Data Structures Lab Cycle :

16. Program to create, insert, delete and display operation on single linked list ?

17. Program to create, insert, delete and display operation on double linked list ?

18. Program to create, insert, delete and display operations on circular single linked list ?

19. Program to split a single linked list

20. Program to reverse a single linked list

21. Program to implement Insetion Sort

22. Program to implement PUSH and POP operations on Stack using array method.

23. Program to implement PUSH and POP operations on Stack using linked list method.

24. Program to implement insert and delete operations on Queue using array method.

25. Program to implement insert and delete operations on Queue using linked list method.

26. Program to implement insert and delete operations on Priority queue ?

27. Program to implement insert and delete operations on Double Ended Queue ?

28. Program to evaluage postfix expression by using Stack ?

29. Program to construct Binary Search Tree and implement tree traversing Techniques.

30. Program to delete a leaf node from binary search tree.

31. Program to implement Selection Sort.

32. Program to implement Bubble Sort.

33. Program to implement Operations on Circular Queue.

34. Program to implement Quick Sort.

35. Program to find number of leaf nodes and non leaf nodes in Binary Search Tree.

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HISTORY **HIS 301N** 2014-15 onwards III B.A

SYLLABUS

V SEMESTER

HISTORY OF MODERN WORLD (1453 - 1848)

UNIT - I

Characteristics, features of renaissance - Significance of reformation and counter reformation movements in Europe - Geographical discoveries.

UNIT - II

Rise of colonialism, Mercantilism and commercial revolution - Emergence of modern world economy.

UNIT - III

Age of revolutions - Glorious revolution (1688) - American revolution (1776) - French revolution (1789) - Napoleon Bonaparte - Achievements and down fall - Vienna congress - 1830, 1848 French revolutions.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Chainese civilization - Shintoisam - Buddisam
2) Boxer revolution

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HISTORY **HIS 401N** 2014-15 onwards III B.A

SYLLABUS

V SEMESTER

HISTORY AND CULTURE OF ANDHRA PRADESH - SYLLABUS

(FROM SATAVAHANAS TO 1857)

UNIT - I

Influence of Geographical features on history, sources - Growth and spread of Jainism and Buddhism and their contribution to Art and Architecture.

UNIT - II

The Qutub Shahis - A brief survey of Political History - Society, Economy and Culture. The Asaf Jahis - A brief survey of their political History - Society, Economy and Culture - Salarjung Reforms.

UNIT - III

Andhra under Colonial rule : Coming of European merchant companies - Conquest of Andhra by the British - Early uprising - Administration.

UNIT - IV

Land revenue settlements - Agrarian conditions - Famines - Impact of Industrial Revolutions on Andhra Economy - Sir Thomas Munroe - Impact of 1857 Revolt in Andhra.

Andhra under British rule - Madras native association - 1879 - Rampa rebellion - Rekapalli rebellion

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Buddhist sites in Andhra Pradesh

2) Kakatiya's Architecture

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POLITICS **POL 301N** 2014-15 onwards III B.A

SYLLABUS

V SEMESTER

POLITICAL THOUGHT

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1. Introduction to the study of Political Thought.

2. Ancient Greek Political Thought - Plato and Aristotle.

3. Machiavelli

4. Hobbes, Locke and Rousseau

5. Bentham and J.S. Mill

*** Human Rights (For Academically Bright Students)**

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POLITICS **POL 401N** 2014-15 onwards III B.A

SYLLABUS

V SEMESTER

PRINCIPALS OF PUBLIC ADMINISTRATION

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1. Meaning, Scope and Importance of Public Administration - Relation with Political Science, Sociology and Economics.

2. Public administration and Private administration, differences and similarities - The importance of Public administration in developing Nations.

3. E. Goverance : a) CARD b) E - SEVA c) SMART. Admn

4. a) Classical approach - Luther Gulick and Lyndal Urwick
   b) Human relations approach - Elton Mayo
   c) Ecological approach - F.W. Riggs
   d) Socio - Pyschological approach - MC Gregor and Abharam Maslow
5. Line and Staff agencies.

*** RTI Act 2005 (For Academically Bright Students)**

Books Recommended :

1. Public administration theory & practice - Mohit Bhattacharya
2. Public administration theory & practice - Awasthi and Maheshwari
3. New Horizons of Public administration - Prof. Mohit Bhattacharya
4. Public administration theory & practice - M.P. Sarma
5. Prabhutva Palana Shastram - Telugu Academy

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ECONOMICS **ECO 301N** 2014-15 onwards III B.A

SYLLABUS

V SEMESTER

Module- 1

Meaning of economic growth and development measures of Economic development - GNP, PQL and HDI factors influencing economic development - Blanced and unbalanced growth - Choice of Techniques - Labour intensive and capital intensive technique - Sustainable development.

Module- 2

Basic features, Basic demographic futures, size and growth of population - Age and sex composition rural and urban population - Occupational distribution. Population policy - Poverty, income inequalities and unemployment causes and consequences - Current five year plan - Objectives. New economic reforms - Libarlization, privatization and globalization in India - Andhra Pradesh economy

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ECONOMICS **ECO 401N** 2014-15 onwards III B.A

SYLLABUS

V SEMESTER

Module - I : Public Finance and Taxation

Meaning and scope of public finance - Distinction between public and private finance - Principle of maximum social advantage - Public good V/s private goods - Sources of public revenue - a) Taxes b) Administrative revenues c) Commercial revenues d) Gifts and grants e) Deficit finance - Canons of the taxation - Impact, shifting and incidence of taxation - Effects of the taxation - The concept of VAT.

Module - II : Public Expenditure and Public Debt

Meaning and classification of public expenditure - Reasons for the growth of public expenditure - Wagnar's law effects of public expenditure on production - Public debt - Classification of public debt - Govt. subsidies in India.

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SPL. ENGLISH **ENG 301NS** 2011-12 onwards III B.A.,

SYLLABUS

V SEMESTER

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1. Drama: Samson Agonistes (Detailed)

2. Fiction: The Financial Expert (Non Detailed)

Further Reading (Advanced Reading) :

1. Dr. Faustus - Marlowe

2. Duchess of Malfi - Webster

3. Coolie - Mulk Raj Anand

4. Kanthapura - Raja Rao

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SPL. ENGLISH **ENG 401NS** 2011-12 onwards III B.A.,

SYLLABUS

V SEMESTER

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1. History of English language:

1. Origin of language
2. Indo European family of language
3. Grimm's law
4. Verner's law

2. History of literature:

1. Age of Chaucer
2. Age of Shakespeare
3. Age of Milton
4. Age of Dryden
5. Age of Pope and Johnson
6. Age of wordsworth
7. Age of Tennyson
8. Age of Hardy
9. Modern age.

3. Figures of speech:

1. Simile
2. Metaphor
3. Metonymy
4. Synecdoche
5. Pessonification
6. Apostrophe
7. Climax
8. Bathos and anticlimax
9. Hyperbole or Exaggeration
10. Pun

Further Reading (Advanced Reading) :

1. A History of the English language - Albert G. Baugh

2. Modern Applied Linguistics (An Introduction) - N. Krishnaswamy

3. A Glossory of Litery Terms - M.H. Abraham

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BUSINESS LAWS **COM 501N** 2014-15 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

CONTRACT ACT

a) Defination - Essentials of a valid contact, types of contracts

b) Offer and acceptance - Essentials of valid offer and acceptance and revocation of offer and acceptance

c) Consideration - Essentials of valid consideration

d) Capacity of contract. Special rules and regarding minor

e) Consent - Free consent, coercion, undue influence, fraud, misrepresentation and mistake

UNIT - II

DISCHARE OF A CONTRACT

a) Illegal and immoral agreements - Agreements opposed to public policy

b) Various modes of discharge of contract, remedies for breach of contracts.

UNIT - III

SPECIAL CONTRACTS

a) Contract of indemnity and guarantee, rights and liabilities of security, Discharge of security

b) Bailment contracts, agency contracts, creation and termination of agency, various modes types of agents, rights and duties of agents and principal.

UNIT - IV

SALE OF GOODS ACT

a) Contract of sale, difference between sale and agreement to sell

b) Rights of unpaid seller

c) Conditions and warranties - Meaning - Express and implied conditions and warranties

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AUDITING **COM 502N** 2014-15 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION TO AUDITING

Auditing : Meaning - Defination - Evolution - Objectives - (a) Primary objectives (b) Secondary objectives - Importance

UNIT - II

TYPES OF AUDIT

Based on ownership : Proprietorship, partnership, companies, trusts, co - operative societies - Government Departments.

Based on Time : Interim, final, continuous

Based on objectives : Independent, financial, internal, cost, tax, Government secretarial

UNIT - III & IV

PLANNING OF AUDIT AND CONTROL

Auditor : Qualifications and disqualifications - Qualities - Appointment and re - appointment - Remuneration - Removal - Rights - Duties - Liabilities.

UNIT - IV : Audit planning - Engagement letter - Audit programme - Audit note book - Audit papers - Audit work book. Audit contents - Audit markings - Internal check - Internal control (sales, purchase - Fixed assets - Cash book - Pay roll) - Accounting and controls and sampling in Audit.

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A M A **COM 503N** 2014-15 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

Introduction - Limitations of Financial Accounting - Emergence of Management Accounting - Definition and scope - Role of Management Accountant - Controller - Functions - Managerial services - Management information system (theory).

UNIT - II : BUDGETORY CONTROL

Budgets - Meaning - Budgetory control - Objectives, advantages, limitations - Essentials of budgets and budgetory control - Types of budgets - Sales budgets, cash budget - Flexible budgets (problems).

UNIT - III : WORKING CAPITAL

Management of working capital - importance - Factors influencing working capital requirement (problems).

UNIT - IV

Funds flow statement - Meaning, importance - Statement showing changes in working capital - funds from operations, - preparation of funds flow statement (problems).

UNIT - V : CASH FLOW STATEMENT

Cash flow statement - Meaning - Importance, differences between funds flow statement and cash flow statement - Cash from operations - Preparation of cash flow statement (problems).

Reference Books:

1. Management accounting - Man, Mohan and Goyal
2. Advanced management accounting - Sarma and gupta

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C M A **COM 504N** 2014-15 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION

Nature and scope of Cost Accounting and Management Accounting - Limitations of Financial Accounting - Objectives of Cost Accounting - Cost Accounting Vs. Financial Accounting - Cost Accounting Vs. Management Accounting - Advantages and limitations of Cost Accounting - Installation of Costing System (theory only).

UNIT - II

ELEMENTS OF COST

Elements of cost - Classification of cost - Problems on cost sheet and tenders (problems).

UNIT - III

MATERIALS

Direct and indirect material, material control - Functions of the purchase department - Stock levels - EOQ - Methods of material issues - FIFO, LIFO, Base stock method, Simple average, Weighted average methods (problems).

UNIT - IV

LABOUR

Direct and indirect lalour - Time keeping and time booking - Methods of wage payments - Time wage, piece wage, Halsey, Rowan, Taylor's differential piece rate - Merrieck method (problems).

UNIT - V

OVER HEADS - MEANING

Different methods of classification - Allocation and apportionment of over heads - Machine hour rate - Primary distibution and secondary distibution - Different methods (problems).

Reference Books :

1) Cost Accountancy - Jain and Narang
2) Cost Accounting - Dutt
3) Cost Accounting - Maheswari

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C A **COM 505N** 2014-15 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

Accounting Standards : International and Indian Accounting Standard - Importance and need for Accounting Standards (theory only).

UNIT - II

Valuation of Shares : Necessity for valuation of shares, methods of valuation of shares. Net assets method, yield method (or) market value method, earning capacity method, Duel method. (Excluding problems with valuation of good will)

UNIT - III

Valuation of Goodwill : Needs and methods - Normal profit method, super profits method, capitalization method.

UNIT - IV

Issue of Bonus shares : Criteria of issue for bouns shares. Accounting treatment.

UNIT - V

Amalgamation, absorption and Internal reconstruciton : Amalgamation - In the nature of merger and purchase - Calculation of purchase consideration - Treatment in the books of transferor and transferee.

Internal reconstruction - Accounting treatment - Preparation of final statement after reconstruction.

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A C A **COM 506N** 2014-15 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I : The accounts of holding companies - I

The nature of holding companies - Legal requirements for a holding company - Scheudule VI of the comapnies Act and subsidiary companies - Preparation of consolidated balance sheet - Cancellation of investement account - Minority interest (including problems).

UNIT - II : The accounts of holding companies - II

Cost of acquiring control or good will - Capital reserve - Preference share capital in subsidary companies - Debentures in subsidiary companies - Preacquisition profits / losses - Inter company transactions - Unrealised profit on stock - Revaluation of assets - Bonus shares - Treatment of dividend received from subsidiary company (including problems related to single subsidiary company)

UNIT - III : Accounts of electrical companies - I (Double - Accounting system)

Meaning of Double - Account system - Revenue account and net revenue account - Capital account (receipts and expenditure on capital account) and general balance sheet (including problems)

UNIT - IV : Accounts of electricity companies - II

Replacement of an asset. Important provisions of Indian Electricity Act 1910. Electricity Supply Act 1948 and the company Act 1956. Formats of relevant accounts - Calculation of reasonable return and disposal surplus. Preparation of net revenue account and balance sheet (including problems).

V.S.R. & N.V.R. COLLEGE , TENALI

AUTONOMOUS

NAAC B++

B.Sc. MATHEMATICS - FIFTH SEMESTER

SYLLABUS (With effect from the academic year 2011-2012)

LINEAR ALGEBRA

MAT 301

VECTOR SPACES

UNIT - 1

Vector space, general properties of vector spaces, vector subspaces, algebra of subspaces, subspace generated by subspace, linear combination of vectors, linear span, linear sum of two subspaces, linear dependence and linear independence of vectors.

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - 2

Basis of a vector space, finite dimensional vector spaces, existence of basis theorem, invariance theorem, dimension, basis extension theorem, coordinates, change of basis, dimension of a subspace, quotient space, dimension of quotient space, direct sum of subspaces, dimension of direct sum.

(2 short answer questions, 2 long answer questions will be given in the examination)

LINEAR TRANSFORMATIONS

UNIT - 3

Linear transformations - Linear transformation, linear operator, some particular transformations, properties of linear transformations, determination of linear transformation, range of a linear transformation, null space of a linear transformation, rank-nullity theorem, linear transformations of vectors, addition and scalar multiplication of linear transformations, product of linear transformations.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 4

Singular and non singular linear transformations, invertible linear transformation, fundamental theorem of linear transformations, matrix representation of linear transformations.

(2 short answer questions, 2 long answer questions will be given in the examination)

INNER PRODUCT SPACES

UNIT - 5

Introduction, inner product space, norm of a vector, Schwarz's inequality, special cases of Schwarz's inequality, triangle inequality, normed vector space, parallelogram law.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Orthogonality, orthogonal set, orthonormal set, Bessel's inequality, another form of Bessel's inequality, complete orthonormal set, Parsvel's identity, orthonormal basis, Gram-Schmidt orthogonalisation process, orthogonal complement.

(2 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. III, DEEPTI PUBLICATIONS, Tenali.

REFERENCE BOOKS

1) J.N. Sharma and A.R. Vasista, Linear Algebra, Krishna Prakashan Mandir, Meerut - 250002.

2) V. Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. III, S Chand & Co.

3) Kenneth Hoffman and Ray Kunze, Linear Algebra, Pearson Education, New Delhi.

4) Stephen H. Friedberg, Linear Algebra, Prentice Hall of India Pvt. Ltd.,

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AUTONOMOUS NAAC B++

B.Sc. MATHEMATICS - FIFTH SEMESTER

SYLLABUS (With effect from the academic year 2011-2012)

MODERN APPLIED ALGEBRA **MAT 401**

UNIT - 1

Sets and functions - Sets, subsets, boolean algebra of sets, functions, inverses, functions on a set S to S

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - 2

Sets and functions - Sums, products and powers, Peano axioms, Finite induction.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Binary relations - Binary relation, graph, relation tables, relation matrices, algebra of relations, partial orderings, equivalence relations and partitions.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 4

Finite state machines - Finite state machine, completely specified machine, state diagram, state table, covering and equivalence, equivalent states, minimization procedure.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Programming languages ALGOL - Introduction, Arithmetic expressions, identifiers, assignment statements, arrays, for statements, block structures in ALGOL.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Boolean algebras - Introduction, order, boolean polynomials, block diagrams for gating networks, connections with logic.

(2 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, MODERN APPLIED ALGEBRA, DEEPTI PUBLICATIONS, Tenali.

REFERENCE BOOK

G. Birkhoff and T.C. Bartee "Modern Applied Algebra", Mc. Graw - Hill Book Company, New York, 1970.

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PHYSICS **PHY 301N** 2014-15 onwards III B.Sc.,

SYLLABUS

V SEMESTER

ELECTRICITY, MAGNETISM AND ELECTRO MAGNETISM

UNIT - I :

ELECTROSTATICS

1. Gauss law and its applications : Gauss law statement, Electric field due to uniformly charged sphere, an infinite sheet of charge conducting plane, Mechanical force on a charged conductor.

Electric potential definition, Relation between electric intensity and electric Potential, Equipotential surfaces, Potential due to charged sphere and electric dipole.

2. Capacitance: Capacity definition, Capacity of spherical capacitor, Cylindrical condenser, Capacity of parallel plate condenser with and without dielectric between the plates, Electric energy stored in a charged condenser, Force between plates of condenser, Altracted disc electrometer construction and working to determine potential difference.

UNIT - II :

DIELECTRICS AND MAGNETISM

1. Dielectrics: Atomic view of dielectrics, Gauss's law in dielectrics, definitions of Electric displacement and electric polarization, Relation between **D**, **E** and **P**, Relation between dielectric constant and susceptibility, Boundary conditions.

2. Magnetism and electromagnetic induction: Magnetic shell, Field due magnetic shell, Potential due to magnetic shell, Equivalence of electric circuit

and magnetic shell, Biot savart's law, calculation of **B** due to long straight wire, a Circular current loop. Faraday's laws -Lenz's law, Expression for induced EMF, Self and Mutual Inductance (Statements), coefficient of coupling (Statement), Calculation of self inductance of a long solenoid, Energy stored in magnetic field.

Reference Books:

1. Electricity Berkeley Physics series
2. Electricity and Magnetism Brijlal and Subrammanayam
3. Physics, Vol-II Halliday and Resnik
4. Unified Physics Vol-III Jai Prakash & Co

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PHYSICS **PHY 401N** 2011-12 onwards III B.Sc.,

SYLLABUS

V SEMESTER

MODERN PHYSICS

UNIT - I : SPECTROSCOPY

1. Atomic physics : Spectra of Hydrogen, drawbacks of Bohr's atomic model, spector of Alkali atoms, Spectral terms, Selection Rules, L-S and J-J Couplings. Zeeman effect, Paschen back effect (basic idea).

X - Ray spectra : Week spectra, Continuous spectrum and its dependence on voltage, Duane Hunt's law, Properties of X-rays, Practical applications of X-rays. Mosley's law, its importance, Derivation on the basis of Bohr's theory of atom.

2. Molecular physics:

Raman effect : Characteristics of Raman Effect, Experimental Study of Raman effect, Stokes and anti-Stokes lines, Quantum theory of Raman Effect, Applications of Raman effect.

Spectroscopic Techniques : Single beam spectrophotometer, Double beam spectrophotometer.

UNIT - II : QUANTUM THEORY

1. Photoelectric effect : Photoelectric effect, Experimental study of photoelectric effect, characteristics of photoelectrons, Fundamental laws of photoelectric emission, Einstein's photo-electric equation and Millikan's experimental verification.

2. Matter waves and wave particle duality : De Broglie's hypothesis for matter waves: wavelength of matter waves. Properties of matter waves, Expression for group velocity, Relation between group velocity and wave velocity. Davission and Germer's electron diffraction experiment,G.P. Thomson experiment.

Uncertainty principle : Heisenberg's uncertainty principle, Relation for p and x its extension to energy and time. Experimental illustration of Consequence of uncertainty relation.

Principle : Gamma ray microscope, Diffraction at a single slit, Particle in a box.

Reference Books:

1. Introduction of Atomic Spectra H.F.White
2. Spectroscopy Straughen and Walker
3. Physics of Atom Wher and Richards
4. Elements of Modern Physics Patil
5. Introduction to Modern Physics H.S.Mani and G.K.Mehta
6. Prospective of Modern Physics A.Beiser
7. Unified Physics Vol-IV Jai Prakash & Co

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CHEMISTRY **CHE 301N** 2014-15 onwards III B.Sc.,

SYLLABUS

V SEMESTER

ORGANIC AND PHYSICAL CHEMISTRY

Unit - 1 (Organic Chemistry)

1. Nitrogen Compounds **Weightage : 15 marks = 1, 5 marks = 2**

Amines (Aliphatic and Aromatic) : Nomenclature, classification into 1^0,2^0,3^0 amines and quarternary ammonium compounds. Preparative methods - 1. Hoffman's bromamide reaction (mechanism) 2. Reduction of Amides and Schmidt reaction. Physical properties and basic character - Comparative basic strength of Ammonia, methyl amine, dimethyl amine, trimethyl amine and aniline - Comparative basic strength of aniline, N - methyl aniline and N, N - dimethyl aniline, steric effects and substituent effects. Chemical properties : a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation e) Reaction with Nitrous acid of 1^0,2^0,3^0 (Aliphatic and aromatic amines). Electrophilic

substitutions of Aromatic amines - Bromination and its applications and Nitration and its applications. Diazotization, Diazonium salts - Preparation and its applications.

2. Heterocyclic Compounds **Weightage : 15 marks = 1, 5 marks = 2**

Introduction and Defination : Simple 5 membered ring compounds with one hetero atom Ex. Furan, Thiophene and Phyrrole. Aromatic character - 6 - Electron system (four - electrons from two double bonds and a pair of non - bonded electrons from the hetero atom). Resonance structures : Indicating electron surplus carbons and electron deficient hetero atom. Explanation of feebly acidic character of pyrrole, electrophillic substitution at 2 or 5 position,

halogenation, nitration and sulphonation under mild conditions. Reactivity of furan as 1, 3 - diene, Diels alder reaction (one example). Sulphonation of thiophene preparation of furan, pyrrole and thiophene from 1, 4 - Dicarbonyl compounds only, Paul - Knorr synthesis, structure of pyridine, Basicity - Aromaticity - Comparision with pyrrole - One method of preparation and properties - Reactivity towards Nucleophilic substitution reaction - Chichibabin reaction.

3. Carbohydrates **Weightage : 15 marks = 2, 5 marks = 3**

Monosaccharides: All discussion to be confined to (+) glucose as an example of aldo hexoses and (-) fructose as example of ketohexoses. Chemical properties and structural elucidation : Evidences for straight chain pentahydroxy aldehyde structure (Acetylation, reduction to n- hexane, cyanohydrin formation, reduction of Tollen's and Fehling's reagents and oxidation to gluconic and saccharic acids). Number of optically active isomers possible for the structure, configuration of glucose based on D-glycerlaldehyde as primary standard (no proof for configuration is required). Evidence for cyclic structure of glucose (Some negative aldehydes tests and mutarotation). Cyclic structure of glucose. Determination of cyclic structure (Pyranose structure, anomeric carbon and anomers). Proof for the ring size (methylation, hydrolysis and oxidation reactions). Different ways of writing pyranose structure (Haworth formula and chair conformational formula). Structure of fructose : Evidence of 2 - Ketohexose structure (formation of penta acetate, formation of cyanohydrin its hydrolysis and reduction by HI to give 2 - Carboxy n-hexane).

Same osazone fromation from glucose and fructose. Hydrogen bonding in osazones, cyclic structure for fructose (Furanose structure and Haworth formula).

Interconversion of Monosaccharides : Aldopentose to aldo hexose - eg : Arabinose to D - Glucose, D- Mannose (Kiliani - Fischer method). Epimers, Epimerisation - Lobry de Bruyn van Ekenstein rearrangement. Aldohexose to Aldopentose eg: D- glucose to D - Arabinose by Ruff's degradation. Aldohexose (+ glucose) to ketohexose (- fructose), and Ketohexose (fructose) to aldohexose (Glucose).

4. Amino acids and proteins **Weightage : 15 marks = 1, 5 marks = 1**

Introduction: Definition of amino acids, Classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Essential and non essential amino acids with examples. Methods of synthesis : General methods of

synthesis of alpha amino acids (specific examples - Glycine, Alanine, Valine and Leucene) by following methods : a) From halogenated carboxylic acid b) Malonic ester synthesis c) strecker's synthesis. Physical properties : Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point. Chemical properties : General reactions due to amino and carboxyl groups - Structure and nomenclature of peptides and proteins.

Unit - 2 (Physical Chemistry) **Weightage : 15 marks = 1, 5 marks = 2**

Photochemistry : Differences between thermal and photochemical processes. Laws of photochemistry - Grothus - Drapper's law and Strak - Einstein's law of photochemical equivalence. Quantum yield. Photochemical reactions of hydrogen - chlorine, hydrogen - bromine reactions. Jablonski diagram depicting various processes occuring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing). Photosensitized reactions - Energy transfer process (simple example).

Additional Syllabus

Mass Spectroscopy : Basic Prinicipals - Molecular ion / parent ion, fragment ions / daughter ions. Theory - Formation of parent ions. Representation of mass spectrum. Identification of parent ion, (M+1), (M+2), base peaks (relative and abundance 100%). Determination of molecular formula - Mass spectra of ethyl benzene, acetophenone, n - butyl amine and l - propanol.

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CHEMISTRY **CHE 401N** 2014-15 onwards III B.Sc.,

SYLLABUS

V SEMESTER

CHEMISTRY AND INDUSTRY

UNIT - I : Drugs **Weightage : 15 marks = 3, 5 marks = 4**

1. Introduction : Drug, disease (definition), Historical evolution, Sources - Plants, Animal synthetic, Biotechnology and human gene therapy.

2. Terminology : Pharmacy, Pharmacology, Pharmacophore, Pharmaco dynamics, Pharmaco kinetics (ADME, Receptors - brief treatment) Metabolities and Antimetabolities.

3. Nomenclature : Chemical name, Generic name and Trade names with examples.

4. Classification : Classification based on structures and therapeutic activity with one example each.

5. Synthesis : Synthesis and therapeutic activity of the following drugs., L - Dopa, Chloroquin, Omeprazole, Albuterol and Ciprofloxacin.

6. Drug Development : Pencillin, Separation and Isolation, structures of different pencillins.

7. HIV - AIDS : Immunity - Prevention of AIDS. Drugs available - Examples with structures : PIS : Indinavir (Crixivan), Nelfinavir (Viracept), NNRTIS : Efavirenz (Susrtiva), Nevirapine (Viramune) NRTIs : Abacavir (Ziagen), Lamivudine (Epivir, 3TC) Zidovudine (Retravir, AZT, ZDV).

8. Preparation, properties, biological activity and side effects : Eg. Paracetamol, Sulpha methoxazole (Tablets)

9 Formulations :

i. Need of conversion of drugs into medicine. Additives and their role (brief account only)

ii. Different types of formulations.

UNIT - II : Pesticides **Weightage : 15 marks = 1, 5 marks = 2**

1. Introduction to Pesticides - Types - Insecticides, Fungicides, Herbicides, Weedicides, Rodenticides, plant growth regulators, Pheremones and Hormones. Brief discussion with examples, structure and uses.

2. Synthesis and present status of the following.

DDT, BHC, Malathion, Parathion, Endrin, Baygon, 2, 4 - D and Endo - Sulphon.

UNIT - III : Green Chemistry **Weightage : 15 marks = 1, 5 marks = 3**

Introduction : Definition of green chemistry, need of green chemistry, basic principles of green chemistry.

Green synthesis : Evaluation of the type of the reaction

i) Rearrangements (100% atom economy)

ii) Addition reaction (100% atom economy), Pericyclic reactions (no byproduct)

a) Selection of Solvent :

i) Aqueous phase reactions

ii) Reactions in ionic liquids

iii) Solid supported synthesis

iv) Solvent free reactions (solid phase reactions)

b) Green catalysts :

i) Phase transfer catalysts (PTC)

ii) Biocatalysts

c) Microwave and ultrasound assisted green synthesis :

i) Aldol condensation

ii) Cannizzaro reaction

iii) Diels - Alder reaction

iv) Strecker synthesis

v) Willaimson synthesis

vi) Dieckmann condensation

UNIT - IV : Material Science **Weightage : 15 marks = 1, 5 marks = 1**

Super conductivity, characteristics of super conductors, Meissner effect, types of super conductors and applications.

Nano materials : Synthetic techniques, bottom - up - sol - gel method, top - down - electro deposition method. Properties and applications of nano -

materials. Composites - Definition, general characteristics, particle reinforce and fiber reinforce and composites and their applications.

Additional Syllabus

Chemo informatics : Introduction - The domain of Chemistry - A Chemist's fundamental questions - The scope of Chemo informatics - Learning in Chemo informatics - Major tasks - Representation of the objects - Data - Learning - History of Chemo informatics - Structure data basis - Quantitative structural activative relationships - Molecular modeling - Structure elucidation - Chemical rections and synthetic design - Teaching Chemo informatics.

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BOTANY **BOT 301N** 2011-12 onwards III B.Sc

SYLLABUS

V SEMESTER

TAXONOMY, ECONOMIC BOTANY, MEDICINAL BOTANY

UNIT-I

1. Taxomy of Angiosperms- History Principles and types of classification.
2. Benthem and Hooker , Englar and Prantle systems of classifications.
3. A brief account of current concepts of Taxonomy,cytotaxonomy and anatomy in relation to taxonomy.

UNIT-II

4. Polypetalae families Annonaceae, Rutaceae, Caesalpinaceae, Cucurbitaceae, Umbelliferae, Amaranthaceae, Euphorbiaceae.

UNIT-III

5. Food plants ; Rice, Maize, Sugarcane.
6. Fibers ; Cotton
7. Vegetable oils : Ground nut, coconut.
8. Wood yielding plants : Teak, Sandal wood.
9. Spices : General account of Turmeric, Zinger, Piper.
10. Beverages : Tea, Coffee.
11. Rubber yielding plants : Rubber.
12. Medicinal Plants: General account of Datura, Vinca, Ocimum, Emblica, Rauwolfia, carum carvi. Medical systems : Ayurveda, Homeopathy and Naturopathy.

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BOTANY **BOT 401N** 2011-12 onwards III B.Sc

SYLLABUS

V SEMESTER

PLANT PHYSIOLOGY & GENETICS

UNIT - 1

1. Plant water relations; Importance of water to plant life, diffusion, imbibition, osmosis, plasmolysis. Absorption of water, Ascent of sap, Transpiration and factors affecting stomatal movement.
2. Transport of organic substances; structure of phloem, mechanism of phloem transport, source, sink relationship, factors affecting translocation.
3. Photosynthesis ; Chloroplast structure, pigments, action spectra and Emerson's experiments, i.e red drop and enhancement effects, photophosphorylation, Calvin cycle, c4 cycle, CAM path way, photorespiration.

UNIT - 2

4. Mendalian inheritance, laws of segregation and independent assortment, back cross, test cross.
5. Gene inter actions; incomplete dominance, epistasis, complementary genes, duplicate genes.
6. Linkage,crossing over

UNIT - 3

7. Structure of gene.
8. Chromosomal mutations - structural and numerical, point mutations, induced mutations.

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ZOOLOGY **ZOO 301N** 2014-15 onwards III B.Sc

SYLLABUS

V SEMESTER

ANIMAL PHYSIOLOGY

Unit - I

1.1. PHYSIOLOGY OF DIGESTION :

1.1.1. Types of digestion – Extra and Intracellular

1.1.2. Digestion of carbohydrates, proteins, lipids and cellulose

1.1.3. Gastrointestinal hormones – Control of digestion

1. 2. PHYSIOLOGY OF RESPIRATION :

1.2.1. Types of respiration – External and Internal

1.2.2. Structure of mammalian lungs and gaseous exchange

1.2.3. Transport of oxygen – Formation of oxyhemoglobin and affinity of hemoglobin for oxygen, and oxygen - haemoglobin dissociation curves.

1.2.4. Transport of carbondioxide – Chloride shift – Bohr's effect

Unit - II

2.1. PHYSIOLOGY OF CIRCULATION :

2.1.1. Open and closed circulation

2.1.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle myogenic and neurogenic hearts

2.1.3. Regulation of heart rate – Tachycardia and Bradycardia

2.2. PHYSIOLOGY OF EXCRETION :

2.2.1. Definition of excretion

2.2.2. Forms of Nitrogenous waste materials and classification of animals on the basis of excretory products

2.2.3. Gross organization of mammalian excretory system and structure of kidney

2.2.4. Structure of nephron and formation of urine - Counter - current mechanism

Unit - III

3.1. PHYSIOLOGY OF MUSCLE CONTRACTION :

3.1.1. Ultra-structure of skeletal muscle

3.1.2. Sliding filament mechanism of muscle contraction

3.1.3. Chemical changes during muscle contraction – Role of calcium, ATP utilization and its replenishment

3.2. PHYSIOLOGY OF NERVE IMPULSE :

3.2.1. Structure of nerve cell

3.2.2. Nature of nerve impulse – Resting potential and action potential, properties of nerve impulse, threshold value, refractory period, all or none response.

3.2.3. Structure of synapse – Mechanism of synaptic transmission – Electrical and chemical transmissions

Unit - IV

4.1. PHYSIOLOGY OF ENDOCRINE SYSTEM :

4.1.1. Pituitary gland and its hormones

4.1.2. Hormones of pineal gland, thyroid, parathyroid, thymus, adrenal and pancreas

4.1.3. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in humans

4.2. PHYSIOLOGY OF HOMEOSTASIS :

4.2.1. Concept of homeostasis and its basic working mechanism

4.2.2. Mechanism of homeostasis – Giving three illustrations viz., hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals, and temperature regulation in man.

FOR GIFTED STUDENTS ONLY

1. Keymograph operation
2. Demonstration of blood circulation (e.g., frog)
3. Effect of hormones on reproduction in man

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ZOOLOGY **ZOO 401N** 2014-15 onwards III B.Sc

SYLLABUS

V SEMESTER

AQUACULTURE

Unit – I : Introduction

1. Scope and definition of aquaculture
2. Categories of aquaculture
3. Types of fisheries

Unit – II : Seed collection, production and transport

1. Collection from natural resources
2. Production by induceed breeding (Indian major carps only)
3. Bandh breeding
4. Hatchery design and management
5. Seed transport

Unit – III : Management of fish ponds and fish nitrution

1. Nursery pond management
2. Stocking pond management
3. Nutritional requirements
4. Supplementary feeding

Unit – IV : Fish pathology

1. Viral diseases
2. Bacterial diseases
3. Fungal diseases
4. Parasitic diseases

Unit – V : Harvesting

1. Fishing gear
2. Fishing craft

Unit – VI : Post harvesting technology

1. Reasons for fish decay
2. Need for preservation
3. Methods of preservation

Unit – VII : Fish byproducts

1. Fish manure
2. Isinglass
3. Fish glue
4. Fish oils
5. Fish skin and fins
6. Artificial pearls

FOR GIFTED STUDENTS ONLY

FIELD STUDY

1. Visit to fish breeding centre
2. Visit to culture ponds
3. Visit to shrimp hatchery

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ELECTRONICS **ELE 301N** 2011-12 onwards III B.Sc

SYLLABUS

V SEMESTER

DIGITAL ELECTRONICS

UNIT - I

Introduction to number systems, logic gates OR, AND, NOT, X - OR, NAND, NOR gates -Truth tables - Positive and negative logic - Logic families and their characterstics - RTL, DTL, ECL, TTL and CMOS - Universal building blocks NAND and NOR gates.

Laws of boolean algebra Demorgan's theorems - Boolean identities - Simplification of boolean expressions - Karnaugh maps (upto 4 varibles) - Sum of products (SOP) and product of sums (POS) (Prime implicants not need)

UNIT - II

Combinational circuits : Multiplexer and De - Multiplexer - Decoder - Encoder, Half adder, Full adder and parallel adder circuits.

Sequential circuits : Flip flops - RS, D, JK, T and JK master slave (working and truth tables) - Semiconductor memories - Organization - Synchronous and Asynchronous binary counters, up / down counters - Decade conter (7490) - Working, truth tables and timing diagrams.

Text Books :

1) Digital principles and applications - Malvino & Leach - TMH
2) Fundamentals of digital circuits - Anand Kumar - PHI

Reference Books :

1) Digital electronic principles and integrated circuits - Mani - Willey India
2) Digital Fundamentals - F. Loyd & Jain - Pearson Education
3) Modern Digital Electronics - R.P. Jain - TMH
4) Digital Electronics - Gothman

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ELECTRONICS **ELE 401N** 2011-12 onwards III B.Sc

SYLLABUS

V SEMESTER

MICRO PROCESSOR

UNIT – I : Introduction to micro computer and micro processor : Organisation of a micro computer - Tole of micro processor in micro computer - Intel 8085 micro processor - Central Processing Unit CPU - Arithmetic and Logic Unit ALU - Timing and control unit - Register organisation - Address, data and control buses - Pin configuration of 8085 and its description. Timing diagrams - Instruction cycle, machine cycle, fetch and execute cycles.

Instruction set of 8085, instruction and data formats - Classification of instructions - Addressing modes. Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division. Finding the largest and smallest in a data array. Programming examples using stacks and subroutines.

UNIT - II

Interfacing peripherals applications : Programmable peripheral interface (8255) - Applications of 8255 - Stepper motor control - Seven segment LED.

Micro processor applications : A/D converters - Types of A/D converts successive approximation and dual slope integration type A/Ds - Interfacing of ADC 0804 IC - Types of D/A - Resister Network - R - 2R ladder network - DAC - 08 and their interfacing to the micro processor.

Text Books :

1) Fundamentals of micro processor and micro controllers - B.ram - Dhanpet Rai & sons.

2) Micro processor architecture and programming - Ramesh S. Goanter - Penram.

Reference Books :

1) Introduction to micro processor - Aditya P. Mathur - TMH.

2) Micro processor and micro controllers hardware and interfacing - Mathivannan - PHI

3) Advanced micro processor and peripherals, architecture, programming and interface - A.K. Ray and K.N. Bhurchandi - TMH.

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III B.Sc.(Computer Science): V Semester : Paper 301N

Title: Database Management Systems - Syllabus

UNIT – 1:

1. **Database systems :** Introducing the database and DBMS, why the database is important, historical roots : Files and file systems, problems with file systems data management, database systems.
2. **Data Models :** The important of data models, data model basic building blocks, business rules, the evaluation of data models, degree of data abstraction.
3. **The Relational Database Model :** A logical view of data, keys, integrity rules, relational set operators, the data dictionary and the system catalog, relationships with in the relational database, data redundancy revisited, indexes, codd's relational database rules.

UNIT – 2 :

4. **Entity relationship model :** The ER model, developing ER diagram, Database design challenges : Conflicting goals.
5. **Advanced Data Modeling :** The extended entity relationship model, entity clustering, entity integrity : Selecting primary keys, design cases : Learning flexible database design.
6. **Normalization of database tables :** Database tables and normalization, the need for normalization, the normalization process, improving the design, surrogate key considerations, high level normal forms, normalization and database design, denormalization.

UNIT – 3 :

7. **Introduction to SQL :** Data definition command, data manipulation commands, select queries, advanced data definition commands, advanced select queries, virtual tables, joining database tables.

8. **Advanced SQL :** Relational set operators, SQL join operators, sub queries and correlated queries, SQL functions, oracle sequences, updatable views and procedural SQL.
9. **Database design :** The information system, the systems development life cycle, the database life cycle, database design strategies, centralized Vs decentralized design.

UNIT – 4 :

10. **Transaction management and concurrency control :** What is transaction, concurrency control, concurrency control with locking methods, concurrency control with time stamping methods, concurrency control with optimistic methods, database recovery management.
11. **Distributed database management systems :** The evolution of distributed database management systems, DDBMS advantages and disadvantages, distribution processing and distribution database, characteristics of distributed database management systems, DDBMS components, levels of data and process distribution, distributed database transparency features, distributed transparency, transaction transparency, performance transparency and query optimization, distributed database design, client server Vs DDBMS.
12. **The data ware house :** The need for the data analysis, decision support systems, the data ware house, online analytical processing, star schemas, data mining, SQL extension for OLAP.
13. **Database Administration :** Data as a corporate asset, the need for and role of databases in an organization, the evolution of the database administration function, the database environment's human component, database administration tools.

EXTRA:

Storing data : Memory hierarchy, RAID, disk space management.

Prescribed Text Book

1. Peter Rob, Carlos Coronel, Database systems design, implementation and management, Seventh Edition, Thomson (2007)

REFERENCE BOOKS :

1. Elimasri / Navathe, Fundamentals of Database systems, Fifth Edition, Pearson Addison Wesley (2007)

2. Raman A Mata – Toledo / Panline K Cushman, Database management systems, Schaum's outlibe series, Tata McGraw Hill (2007)

3. C.J. Date, A. Kannan, S. Swamynathan, An introduction to Database systems, Eight Edition, Pearson Education (2006)

4. Michel Kifer, Arthur Bernstein, Philip M. Lewis, Prabin K. Pani Graphi, Database systems : An application oriented approach, Second Edition, Pearson education (2008)

5. Atul Kahate, Introduction to Database management systems, Pearson education (2006)

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III B.Sc.(Computer Science): V Semester : Paper 401N

Title: Computer System Architecture

Unit-I

Digital Logic Circuits: Digital Computer Logic Gate, Boolean Algebra, Maps Simplification, Combinational Circuits, Flip Flops, Sequential Circuits Digital Components: Integrated Circuits, Decoders, Multiplexes, Registers, Shift Registers, Binary Counter, Memory Unit

Data Representation: Divide Layer, Complement, Fixed Point Representation, floating Point Representation, Binary codes, Error Codes.

Unit-II

Register Transfers and Macro Operations: Register Transfer Language, register Transfer, Bus and Memory Transfer, arithmetic Micro operations, Logic Micro operations, Shift Micro operations, Arithmetic Logic Shift Unit.

Basic Computer Organization Design: Instruction Codes, Computer Register, Computer Instructions, Tuning & Control, Instruction Cycle, Memory Reference Instructions, Input-Output Interrupt.

Unit-III

Micro Programmed Control: Control Memory, Address Sequencing, Micro program Example, Design of Control Unit.

CPU: General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, data Transfer and Manipulation, Program Control.

Unit-IV

Computer Arithmetic: Addition and Subtraction, Multiplication Algorithms, Division Algorithms, Floating Point Arithmetic Operations, decimal Arithmetic Unit, Decimal Arithmetic Operations.

Input-Output Organization: Peripheral Devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfers, Priority Interrupt.

Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Associate Memory, Cache Memory.

EXTRA:

Multiprocessors : Characteristics of Multiprocessors, Inter connection structures – Time shared common bus, Multiport memory.

Text Book:

1. M.Morris Mano: Computer System Architecture, 3rd Edition PHI

(Chapters: 1,2,3,4,5,7,8,9,10,11,12)

Reference Book:

1. John P. hyes, Computer Architecture and Organization, 2nd Edition.

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HISTORY **HIS 302N** 2014-15 onwards III B.A

SYLLABUS

VI SEMESTER

HISTORY OF MODERN WORLD (1815 - 1945 AD)

UNIT - I

Industrial revolution and rise of capitalism - Unification movements in Germany and Italy. Meizi restoration and modernisation of Japan.

UNIT - II

World between 1914 - 1945 - Rivalry among colonial powers - Imperialist hegemony - Asia after 1850 - Uropeon countries imperialism in Asia - fareast - Japan - Cheina - America opendoor policy Causes and consequences of first world war - World between the World Wars - League of nations, Fascism in Italy, Nazism in Germany, Militarism in Japan - Communist movements in Russia and China.

UNIT - III

Causes and consequences of Second World War - UNO

UNIT - IV

Post Second World War developments - Cold War - Rise of the third block.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Nationalism - Nationalist movements in Asia and Africa
2) 1911 - China revolution
3) Globalisation

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HISTORY **HIS 402N** 2014-15 onwards III B.A

SYLLABUS

VI SEMESTER

HISTORY AND CULTURE OF ANDHRA PRADESH SYLLABUS FROM 1870 TO 1956

UNIT - I

Social Reform and Literary Movements : Veeresalingam, Raghupathi Venkata Ratnam Naidu, Gurajada Appa Rao, Kommarraju Venkata Lakshmana Rao, Non Brahmin, Adi Andhra, Dalit, Self respect movements - New literary movements - Gurram Jashua, Boyi Bhimanna, Viswanath Satyannarayana, Rayaprolu Subba Rao, Sri Sri

UNIT - II

Freedom movement in Andhra : Vandemataram, Home rule, Non co - operation, Alluri Sitrarama Raju - Rampa Rebellion 1922 - 24 - Civil disobedience and Quit India Movements - Women participation in freedom movement. Revolutionary Associations in Andhra.

Political consciousness in Telangana : Nizam Andhra Mahasabha, Hyderabad state Congress, Razakars, Police Action and Accession of Telengana into Indian union.

UNIT - III

Leftist movements in Andhra and Telangana : Peasant armed struggel - Tribal uprisings - Komaram Bhimu - Bhoodan movement.

UNIT - IV

Movement for Seperate Andhra State : Andhra Mahila sabha - Sree Bagh Pact - Martyrdom of Potti Sreeramulu - Formation of Andhra State, 1953 - Visalandhra

movement - State's re - organisation commission - Gentlemen's agreement - Formation of Andhra Pradesh in 1956.

History after formation of Andhra Pradesh - 1969 Jai Telengana movement - 1972 Jai Andhra movement.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Separate Andhra movement
2) Separate Telangana movement
3) Sri Krishna Report

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POLITICS **POL 302N** 2014-15 onwards III B.A

SYLLABUS

VI SEMESTER

POLITICAL THOUGHT

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1. Western Political Thought : Hegal, T.H. Green and Karl Marx
2. Ancient Indian Political Thought
   a) Sources of Ancient Indian Political Thought
   b) Manu - Varna Dharma and Danda Nethi
   c) Kautilya

జీడ్ఞూబహ్మూ – బహోఱ్ఞూమ్మూ,ాళీూబిజ్ర బాగీశ్థిూ–ష్లీ, ద్ధిళిఅనజిూ,్ఞహోళ్ళీ–్వళ బాగీశ్థిూ–్వూ, గ్పీ ూబిజప్పబ, ద్ధిళ్టి

నగ్పీ్ఞ ఈూ–్వ,చబఇనజి, ద్ధ్వాళీ,ాహోఅఈూచ్చ స్బల్లళ్టీఇ్ళీద్ధళీ.

3. Modern Indian Political Thought

a) Gandhi	-	Ahimsa and Satyagraha
b) Nehru	-	Democratic Socialism
c) Dr B.R. Ambedkar	-	Anhilation of Caste
d) MN Roy	-	Radical Humanism
e) J.P.	-	Total Revolution

*** Anti caste or self respect movements in India (A brief study)**
(For Academically Bright Students)

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POLITICS **POL 402N** 2014-15 onwards III B.A

SYLLABUS

VI SEMESTER

PRINCIPALS OF PUBLIC ADMINISTRATION

1. Principles of Organisation - Hierarchy, Span of control, Co-ordination, unity of command, Delegation of authority, Centralisation and Decentralisation.

2. Decision Making Theory - Herbert A. Simon

3. Financial Administration - Budget - Principles - Budgetary process - Comptroller and Auditor General.

4. Public Relations - Meaning and Importance

*** Women Empowerment (For Academically Bright Students)**

Books Recommended :

1. Prof. Mohit Bhattacharya	:	Public Administration, Theory & Practice
2. Chitra Ramachandram	:	Indian Public Administration
3. R.K. Arora	:	Indian Administration
4. Bharatadesa Palana	:	Telugu Academy

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ECONOMICS **ECO 302N** 2014-15 onwards III B.A

SYLLABUS

VI SEMESTER

Module - I :

Indian agriculture - Industry and service sector - Nature and importance - Trends in agriculture and productivity - Factors determining productivity rural and credit, micro finance and self help groups (SHGS) - Agricultural price policy and food security.

Structure and growth of Indian industry - Industrial policies - 1948, 1956, 1991 growth and problems of small scale industries - FEMA - Disinvestment policy, Direct foreign investement, growing, importance of service sector in India.

Module - II : A.P. State Economy

GSDP - Sectoral of contribution and trends - Population trends - Dconographic dividend - Agricultural sector - Land use - Croping pattern - SEZ ;

Module - III : Planning - Objectives and Development

Books References :

1. G.M. Meier - Leading issues in Economic development
2. Reserve Bank of India - Hand Book of statistics on Indian Economy
3. Dhingra - Indian Economy
4. Datta and Sanbaram - Indian Economy
5. M.P. Todaro - Economic development
6. Telugu Academy pulications
7. Yojana

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ECONOMICS **ECO 402N** 2014-15 onwards III B.A

SYLLABUS

VI SEMESTER

Module - I :

Theories of International Trade - Inter - Regional and International trade - Importance of International trade - Theories of International trade - Theory of absolute advantage theory - Comparative cost theory - Hecksher and Ohilin theory - Terms of trade

Module - II : Protection and balance of payments - Forign trade in India

Tariffs - Meaning and defination of tariffs - Tariffs and their effects - Balance of payments - Disequilibrium in balance of payments - Measures to correct disequilibrium - Recent exim policy - WTO Impact trade in Agriculture products in India.

Books for reference:

1. B.P. Tyagi - Public Finance
2. H.T. Bhatia - Public Finance
3. J. Baghawathi - International Trade
4. C.D. Kindle Barger - International Economics
5. Telugu Academy publications
6. Yojana

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SPL. ENGLISH **ENG 302NS** 2014-15 onwards III B.A.,

SYLLABUS

VI SEMESTER

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1. Drama: A Mid summer Nights Dream. (Detailed)
2. Drama: The Apple Cart. (Non - Detailed)

Further Reading (Advanced Reading) :

1. Hamlet - William Shakespeare
2. Henry IV - Part II - William Shakespeare
3. Pygmalion - G.B. Shaw
4. Murder in the Cathedral - T.S. Eliot

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VI SEMESTER

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1. History of English Language :

1. Characteristics of old English
2. Characteristics of middle English.
3. Characteristics of modern English.
4. American English.
5. Indian words in English.
6. English as an international language.

2. History of literature : (Contribution of authors)

1. Chaucer
2. Spenser
3. Marlowe
4. Alexander pope
5. John keats
6. Charles Dickens
7. Mathew Arnold
8. T.S. Eliot.

3. Figures of speech :

1. Oxymoron
2. Litotes or understatement
3. Zeugma
4. Epigram
5. Irony
6. Antithesis
7. Paradox
8. Onomatopoeia
9. Alliteration
10. Euphemism

Further Reading (Advanced Reading) :

1. A background to the study of English literature - Birjadish Prasad

2. A History of English literature - Arthur Compton Rickett

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BUSINESS LAWS **COM 601N** 2014-15 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

COMPANY ACT - 1956

a) Management of companies - Directors - Qualifications, disqualifications, appointment - Removal, rights and duties.

b) Company meetings and resolutions

c) Various kinds of winding up of a company

d) Doctrine of ultravires - Doctrine of indoor management

UNIT - II

CONSUMER PROTECTION ACT - 1986

a) Defination of the term consumer, unfair trade practices, restrictive trade practices and compeainant - Rights of consumer

UNIT - III

ESSENTIAL COMMODITIES ACT - 1955

a) Defination - Objectives - Powers to control production - Supply - Distribution - Penalities for violation.

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AUDITING **COM 602N** 2014-15 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

VOUCHING

Meaning - Vouching of cash and trading transcations - Investigation, verification and valuation of assets and liabilities.

UNIT - II

AUDIT OF FINANCIAL STATEMENTS

Receipts - Payments - Sales - Purchases - Fixed assets - Investements - Personal Ledger - Inventories - Capital and reserves - Other assets - Other liabilities.

UNIT - III

AUDIT OF INSTITUTIONS

Partnership - Manufacturing and other companies - Non - trading concerns.

UNIT - IV

INVESTIGATION AND AUDIT REPORT

INVESTIGATION : Meaning - Pre - requisites - Difference between investigation and auditing.

AUDIT REPORT : Contents - Preparation of audit report - Qualified report

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A M A **COM 603N** 2014-15 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

CAPITAL BUDGETING

Capital Budgeting - Meaning - Need - Different methods - Traditional methods - Pay back method - Average rate of return - Time adjusted methods - Net present values method - Profitability index method - Internal rate of return (problems).

UNIT - II

MARGINAL COSTING - I

Marginal costing - Meaning - Advantages - Limitations - Absorption costing Vs. Marginal costing - Product mix - Make or buy decision - Techniques for decision making (problems)

UNIT - III

MARGINAL COSTING - II

Break - Even - Analysis - Break - Even - Chart - Meaning - Assumption - Advantages - Limitations - Calculation of Break - Even - Point - Margin of safety - Cost - Profit volume - Ratio (P.V.Ratio) (problems)

UNIT - IV

STANDARD COSTING

Standard costing - Meaning - Advantages - Limitations - Variances - Material variances - Labour variances (problems)

Reference Books :

1. Cost and Management Accounting - Jain and Narang
2. Management Accounting - Sarma and Gupta
3. Management Accounting - Maheswari and Gupta

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C M A **COM 604N** 2014-15 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

CONTRACT COSTING AND JOB COSTING

Features - Costing process, work certified - Work uncertified - Completed conctracts - Incomplete contracts - Calculation of profit or loss.

UNIT - II

PROCESS COSTING

Features - Treatment of normal and abnormal losses - Preparation of process cost accounts - (excluding equivalent products and inter process profits) (problems).

UNIT - III

FINANCIAL STATEMENTS

Features - Limitations - Need - Meaning - Objectives - Financial statements - Preparation - Different methods (problems)

UNIT - IV

RATIO ANALYSIS

Meaning - Advantages - Limitations - Calculation of profit and loss A/c. ratios - Balance sheet ratios - Combined ratios - Interpretation of ratios - Preparation of Financial

Accounts with the help of ratios (problems).

REFERENCE BOOKS

1) Cost and Management Accounting - Jain and Narang

2) Management Accounting - Sarma and Gupta

3) Cost Accounting - Maheswari

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C A **COM 605N** 2014-15 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

BANK ACCOUNTS

Books and registers to be maintained by banks - Slip system of posting - Rebate on bills discounted - Shedules of advances - Non performing assets - Legal provisions relating to preparation of final accounts.

UNIT - II

ACCOUNTS OF INSURANCE COMPANIES

Life insurance companies - Preparation of revenue account, Profit and Loss account, Balance sheet and Valuation balance sheet.

UNIT - III

FIRE CLAIMS

Accounting treatment, calculation of loss of stock, average clause.

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A C A **COM 606N** 2014-15 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I : Accounting for price level changes (Inflation Accounting)

Introduction, limitations of historical accouting, methods of accounting for price level changes, current cost accounting - Methods. Preparation of income statement, cost balance sheet under CCA / CCB (including problems).

UNIT - II : Human Resource Accounting

Definition, objectives, approaches, assumptions, advantages, limitations of H.R.A. H.R.A. in India, Human Resource Cost Accounting, historical cost accounting, replacement, cost method, opportunity cost method (theory only).

UNIT - III : Social Responsibility Accounting

Meaning, nature of social responsibility, need, objectives, accounting concept and objectives of social responsibility, indicators of social performance (theory only).

UNIT - IV : Liquidation of companies

Scope, contributory, preferential payments, preference dividend, statement of affairs and deficiency / surplus account. Liquidator's final statement of account. Liquidator's remuneration (including problems).

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Autonomous **NAAC B**

III B.Sc. VI SEM - MATHEMATICS : SYLLABUS (MAT 302N)

(With effect from the academic year 2014-2015)

MATRIX ALGEBRA AND VECTOR CALCULUS

MATRIX ALGEBRA

UNIT-1

Rank of a matrix – Rank of a matrix, elementary transformations, elementary matrix, equivalence of matrix, reduction to normal form, row and column equivalence of matrices, rank of a product of matrices, inverse of a matrix by using elementary transformations.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-2

Linear equations – System of linear equations, system of homogeneous linear equations, linearly independent solutions of homogeneous linear equations, condition for consistency for a system of nonhomogeneous linear equations, condition for a system of *n* equations in *n* unknowns to have a solution, methods of solving equations.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-3

Eigen values and Eigen vectors – Eigen values, Eigen vectors, properties of eigen values, nature of characteristic roots, relations between characteristic roots characteristic vectors, Cayley-Hamilton theorem.

(**2 short answer question, 2 long answer questions will be given in the examination)**

VECTOR CALCULUS

UNIT-4

Vector functions – Vector function of a scalar variable, derivative of a vector function.

Differential operators – Point functions, limit, continuity, directional derivative, gradient, level surface, angle between two surfaces, divergence, solenoid, curl, irrotational, differential operators, second order differential operators.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-5

Vector integration – Integration of vector function, line integral, surface integral, volume integral and problems on these integrals.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-6

Integral transformations – Gauss's divergence theorem, some deductions of Gauss's divergence theorem, Green's theorem in a plane, Green's identities, Stooke's theorem and problems on these theorems.

(**2 short answer question, 2 long answer questions will be given in the examination)**

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B. Sc. Mathematics, Vol. III, DEEPTI PUBLICATIONSTenali.

REFERENCE BOOK

1. A. R. Vasista, Matrices, Krishna PrakashanMandir, Meerut-250002.
2. V. VenkateswaraRao and others, A text book of B. Sc. Mathematics, Vol. III, S Chand & Co.
3. Shanti Narayana, Matrices, S. Chand & Co., New Delhi.
4. Shanti Narayana and P. K. Mittal, Text Book Vector Analysis, S. Chand & Co., New Delhi.
5. S. C. Mallik and SavithaArora, Mathematical Analysis, Wiley Estern Ltd.,

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Autonomous **NAAC B**

III B.Sc. V SEM - MATHEMATICS : SYLLABUS (MAT 402N)

(With effect from the academic year 2014-2015)

NUMERICAL ANALYSIS

UNIT-1

Finite differences : Finite differences, difference operators – Algebraic properties of $\Delta, E,$ Symbolic relations and separation of symbols, Differences of a polynomial, Fundamental theorem of difference calculus – One or more missing terms – Factorial notation – Methods of representing a polynomial a factorial notation, Differences of zero.

(**3 short answer question, 2 long answer questions will be given in the examination)**

UNIT-2

Interpolation with equal intervals : Derivation of Newton Gregory formula for forward and backward interpolation and problems on them.

(**1 short answer question, 2 long answer questions will be given in the examination)**

UNIT-3

Central difference interpolation formula : Gauss's forward formula for equal intervals – Gauss's backward formula – Gauss's third formula – Stirling's formula – Bessel's formula – Everett's formula and problems on the above formulae.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-4

Interpolation with unequal intervals : Divided differences – Newton's formula – Lagrange's formula – Relation between divided differences and ordinary differences – problems on Lagrange and Newton's formula.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-5

Numerical differentiation : Derivatives using forward difference formula – Derivatives using backward difference formula – Derivatives using central difference formula – Maxima and minima of a tabulated function.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-6

Numerical integration : The Trapezoidal rule – Simpson's 1/3 rule – Simpson's 3/8 rule – Weddle's rule – Romberg's integration.

(**2 short answer question, 2 long answer questions will be given in the examination)**

PRESCRIBED BOOK

Dr. A. Anjaneyulu, MODERN APPLIED ALGEBRA, DEEPTI PUBLICATIONS, Tenali.

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PHYSICS **PHY 302N** 2012-15 III B.Sc.,

SYLLABUS

VI SEMESTER

ELECTRICITY, ELECTROMAGNETIC WAVES AND ELECTRONICS

UNIT - III : Electricity, Electromagnetic Waves and Electronics

1. Varying currents and alternating currents : CR circuit, LR circuit, Growth and decay of currents, LCR circuit - Critical damping (qualitative).

Relation between current and voltage in pure R, C and L Circuits, Vector diagrams,

L C R series and parallel circuits, Power factor, Q -factor.

2. Maxwell's equations and electromagnetic waves : Basic laws in integral form, Derivation of Maxwell's equations in differential form, Maxwell's wave equation of Plane electromagnetic waves, Production of electromagnetic waves (Hertz experiment), Poynting theorem.

UNIT-IV : Electronics

1. Semiconductors : PNP and NPN transistors, definations of CB,CE,CC configurations, input and output characteristics of NPN transistor with commen emitter configuration, hybrid parameters (definations), Transistor as an amplifier, RC Coupled amplifier (qualitative), Phase shift oscillator (qualitative).

2. Digital principles : Binary arithmetics, Logic gates using discrete components, Truth tables, Half and full adders, De Morgan's theorems: Statement and Proof.

Reference Books :

1. Electricity and electronics Tayal
2. Electricity and Magnetism Brijlal and Subrammanayam
3. Electricity and Magnetism V.M.Smith
4. Digital Electronics Malvino

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PHYSICS **PHY 302NP** 2014-17 III B.Sc.,

SYLLABUS

VI SEMESTER

PRACTICALS

LIST OF EXPERIMENTS

1. Carey Foster's Bridge- comparison of resistance
2. Internal resistance of a cell by potentiometer
3. Figure of merit of a moving coil galvanometer
4. Voltage sensitivity of a moving coil galvanometer
5. LCR Circuit series resonance, Q-factor
6. LCR parallel resonance - Q-factor
7. Power factor of an A.C. Circuit - LR circuit
8. Determination of A.C Frequency- sonometer
9. Characteristics of junction diode
10. Characteristics of Transistor
11. Characteristics of Zener diode
12. Verification of Kirchhoff's laws
13. Variation of magnetic field along the axis of a circular coil carrying current - Stevart Gee's apparatus.

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PHYSICS **PHY 402N** 2014-17 III B.Sc.,

SYLLABUS

VI SEMESTER

MODERN PHYSICS

UNIT - III : Quantum mechanics and nuclear physics

1. Quantum mechanics : Physical interpretation of wave function(), Schrödinger Time independent wave equation, Schrödinger Time dependent wave equation, Solution of Schrodinger Time dependent wave equation, Postulates of wave mechanics, Free particle, Energy levels of a particle in one-dimensional box.

2. Nuclear physics : Structure of nuclei: Basic properties of nucleus: mass, charge, radius, density, spin(I), Magnetic dipole moment(ì), Electric quadrupole moment(Q), Binding energy, p-p and n-p scattering ,general concepts of nuclear forces. Range of alpha particle and experimental measurement, Geiger's law,Geiger - Nuttal law, alpha decay, Gamow's explanation of alpha decay.

Nuclear detectors : Working of GM Counter, Proportional counter, Wilson Cloud chamber.

UNIT - IV : Nuclear reactions and solid state physics

1. Nuclear reactions : Kinds of nuclear reactions, Conservation laws in nuclear reactions, Compound nucleus, Direct reactions.

2. Solid state physics : Bragg's law, Bragg's X-Ray Spectrometer, Crystallography by Laue method. Crystallography by powder diffraction method. Magnetic properties of materials: Dia, Para and Ferro magnetic materials, Weiss theory of ferromagnetism-ideas of magnetic domains, anti-ferromagnetism and ferrites.

Superconductivity : Superconductivity, its properties and uses. Type - I, and Type - II super conductors.

Reference Books :

1. Quantum Mechanics Mathaws and Venkatesan
2. Introduction to Quantum Mechanics Pauling and Wilson
3. Introduction to Solid state Physics Kittel
4. Elements of Modern Physics Patil

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PHYSICS **PHY 402NP** 2014-17 III B.Sc.,

SYLLABUS

VI SEMESTER

PRACTICALS

LIST OF EXPERIMENTS

1. Energy gap of semiconductor using a junction diode
2. Temperature characteristics of Themistor
3. RC-Coupled amplifier
4. Logic gates AND, OR, NOT, X-OR gates
5. Verification of Truth tables for half and full adders
6. Verification of De Morgan theorem
7. Phase shift oscillator
8. Network theorems
9. R C Circuit (Frequency Response)
10. C R Circuit - Time constant
11. Characteristics of Electric bulb
12. Bridge rectifier
13. Full wave rectifier with filters
14. Hartmann's formula - Grating
15. Solar cell - V, I characteristics

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CHEMISTRY **CHE 302N** 2014-15 onwards III B.Sc.,

SYLLABUS

VI SEMESTER

INORGANIC AND PHYSICAL CHEMISTRY

UNIT - I

1. Co-ordination chemistry **Weightage : 15 marks = 2, 5 marks = 3**

IUPAC nomenclature, bonding theories - Review of Werner's theory and Sidgwick's concept of co-ordination, valence bond theory, geometries of co-ordination numbers 4 (Tetrahedral and square planar) and 6 (Octahedral) and its limitations ; crystal filed theory - splitting of d - orbitals in octahedral, tetrahedral and squareplanar complexes - Low spin and high spin complexes - Factors affecting crystal field splitting energy, merits and demerits of crystal field theory. Isomerism in coordination compounds - Structural isomerism and stereo isomerism - Stereochemistry of complexes with 4 and 6 coordination numbers.

2. Spectral and magnetic properties of metal complexes

Weightage : 5 marks = 2

Electronic absorption spectrum of $[Ti(H_2O)_6]^{3+}$ ion. Types of magnetic behaviour, spin only formula, calculation of magnetic moments, experimental determination of magnetic susceptibility - Gouy method.

3. Stability of metal complexes **Weightage : 15 marks = 1, 5 marks = 1**

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

4. Hard and soft acids bases (HSAB) **Weightage : 5 marks = 3**

Classification, Pearson's concept of hardness and softness, application of HSAB principles - Stability of compounds / complexes, predicting the feasibility of a reaction.

UNIT - II

1. Chemical kinetics **Weightage : 15 marks = 1, 5 marks = 2**

Rate of reaction, factors influencing the rate of a reaction - Concentration, temperature, pressure, solvent, light, catalyst. Experimental methods to determine the rate of reaction. Definition of order and molecularity. Derivation

of rate constants for first, second, third and zero order reactions and examples. Derivation for time of half change. Methods to determine the order of reactions. Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy. Theories of reaction rates - Collision theory - Derivation of rate constant for bimolecular reaction. The transition state theory (elementary treatment).

2. Catalysis **Weightage : 15 marks = 2, 5 marks = 1**

Homogenious and heterogeinous catalysis, caparision with examples. Kinitics of specific acidscatalysid rections, inversion of cane sugar, kinitics of specific base catalysed conversion of acetone to di acetone alcohol. Acid and Base catalysed reactins - hydrolysis of esters, mutarotation of glucose. Catalytic activity at he surfaces. Mechanisms of heterogeneous catalysis. Lang muir - Hinsheiwood mechanism.

Enzyme catalysis: Classification, characteristics of enzyme catalysis - kinitics of enzyme catalysed reactions - nichaelis menten law, significance of nichaelis constant (km) and maximum velocity (v max). Factors affecting enzyme catalysis - effect of temperature, PH concentration and inhibitior atalytic effiency - mechanism of oxidation of ethanol by alcohol dehydrogenace.

Additional Syllabus

Bioinorganic Chemistry :

Metals in medicine : Introduction and overview - Metal deficiency and disease - Toxic effects of metals - Survey of metals used for diagnosis and chemotherapy - Platinum anticancer drugs - A case study.

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CHEMISTRY **CHE 302NP** 2014-15 onwards III B.Sc

PRACTICALS

VI SEMESTER

ORGANIC CHEMISTRY

1. Synthesis of Organic compounds :

   i) Aromatic electrophilic substitution.

   Nitration : Preparation of nitro benzene and p - Nitro acetanilide

   Halogenation : Preparation of p - bromo acetanilide - Preparation of 2, 4, 6 - Tribromo phenol

   ii) Diazotization and coupling : Preparation of pheyl azo - Napthol

   iii) Oxidation : Preparation of benzoic acid from benzyl chloride

   iv) Reduction : Preparation of m - nitro aniline from m - Dinitro benzene

   v) Acetylation of salicyclic acid

2. Organic qualitative analysis : Identification of an organic compound through the functional group analysis (Acetic acid, Oxalic acid, Succinic acid, Benzoic acid Cinnamic acid, Pthalic acid, Salicylic acid, Phenol, Alpha Napthol, Beta Napthol, Resorcinol, Acetaldehyde, Benzaldehyde, Acetone, Ethyl methyl ketone, Acetophenone, Benzophenone, Glucose, Fructose, Aniline, Urea, Benzamide)

3. Demonstration experiments :

   i) Preparation of TLC plates

   ii) Verification of the purity of the samples (compounds) by TLC

   iii) Compound obtained by the benzoylation of aniline

   iv) 2, 4 - Dinitro phenyl hydrazone of acetone.

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CHEMISTRY **CHE 402N** 2014-15 onwards III B.Sc.,

SYLLABUS

VI SEMESTER

CHEMISTRY AND INDUSTRY

UNIT - I : Chromatography **Weightage : 15 marks = 1, 5 marks = 3**

Classification of chromatography methods, principles of differential migration adsorption phenomenon, nature of adsorbents, solvent systems, R_f values, factors effecting R_f values.

a. Paper chromatography : Principles, R_f values, experimental procedures, choice of paper and solvent systems, developments of chromatogram - ascending, desscending and radial. Two dimensional chromatography, applications.

b. Thin layer chromatography (TLC) : Advantages, principles, factors effecting R_f values. Experimental procedures. Adsorbents and solvents. Preparation of plates. Development of the chromatogram. Detection of the spots. Applications.

c. Column chromatography : Principles, experimental procedures, stationary and mobile phases, separation technique. Applications.

d. High performance liquid chromatography (HPLC) : Principles and applications.

e. Gas liquid chromatography (GLC) : Principles and applications.

UNIT - II : Spectrophotometry **Weightage : 15 marks = 1, 5 marks = 2**

General features of absorption - Spectroscopy, Beer - Lambert's law and its limitations, transmittance, absorbance and molar absorptivity. Single and double beam spectrophotometers. Application of Beer - Lambert law for quantitative analysis of

i) Chromium in
ii) Manganese in manganous sulphate
iii) Iron (III) with thiocyanate.

UNIT - III : Molecular Spectorscopy

Weightage : 15 marks = 2, 5 marks = 4

1. Electronic Spectroscopy : Interaction of electromagnetic radiation with molecules and types of molecular spectra. Potential energy curves for bonding

and antibonding molecular orbitals. Energy levels of molecules . Selection rules for electronic spectra. Types of electronic transistions in molecules effect of conjugation. Concept of chromophore.

2. Infra red spectroscopy : Energy levels of simple harmonic oscillator, molecular vibration spectrum, selection rules. Determination of force constant. Qualitative relation of force constant to bond energies. An harmonic motion of real molecules and energy levels. Modes of vibrations in polyatomic molecules. Characteristic absorption bands of various functional groups. Finger print nature of infrared spectrum.

3. Raman spectroscopy : Concept of polarizability, selection rules, pure rotational and pure vibrational Raman spectra of diatomic molecules.

4. Proton magnetic resonance spectroscopy ($_1$H - NMR) : Principles of nuclear magnetic resonance, equivalent and non - equivalent protons, position of signals. Chemical shift, NMR splitting of signals - Spin - Spin coupling, coupling constants. Applications of NMR spectra with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1, 1, 2 - tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT - IV : Macro molecules **Weightage : 15 marks = 2, 5 marks = 3**

Classification of polymers, chemistry of polymerization, chain polymerization, step polymerization, coordination polymerization - Molecular weight of polymers of number average and weight average molecular wieghts, degree of polymerization, determination of molecular weight of polymers by viscometry, osmometry and light scattering methods. Kinetics of free radical polymerization, derivation of rate law. Preparation and industrial applications of polyethylene, PVC, Teflon, polyacrylonitrile, terelene and nylon - 66. Introduction to biodegradability.

Additional Syllabus

Introduction to Bioorganic Chemistry : Basic considerations - Proximity effects in organic Chemistry. Molecular adaptations - Molecular recognition and the supra molecular level.

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CHEMISTRY **CHE 402NP** 2014-15 onwards III B.Sc

PRACTICALS

VI SEMESTER

PHYSICAL CHEMISTRY

1. Chemical kinetics :

i) Determination of specific reaction rate of the hydrolysis of methyl acetate catalyzed by hydrogen ion at room temperature.

ii) Determination of rate of decomposition of hydrogen peroxide.

2. Distribution law :

i) Determination of distribution coefficient of iodine between water and carbon tetrachloride.

ii) Determination of molecular status and partition coefficient of benzoic acid in toluene and water.

3. Electro chemistry :

i) Determination of concentration of HCl conductometrically using standard NaOH solution.

ii) Determination of concentration of acetic acid conductometrically using standard NaOH solution.

iii) Determination of redox potentials of Fe^{2+} / Fe^{3+} by potentiometric titration of ferrous ammonium sulphate Vs. potassium dichromate.

4. pH metry :

i) Preparation of phosphate buffer solutions

ii) pH metric titration of weak acid (acetic acid) with strong base NaOH and calculation of dissociation constant.

5. Colorimetry :

i) Verification of Beer - Lambert law for and determination of concentration of the given solution.

ii) Verification of Beer - Lambert law for and determination of concentration of the given solution.

6. Project work : Collection of spectral data of a minimum of six compounds belonging to different functional groups (other than those included in the syllabus) and submission of the report. IR Spectra of ethyl alcohol, acetaldehyde, acetic acid and ethyl acetate. PMR spectra of ethyl bromide, acetaldehyde, toluene, acetophenone. Mass spectra of Ethyl benzene, acetophenone, n - Butyl amine, l - propanol.

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BOTANY **BOT 302N** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

TAXONOMY, EMBRYOLOGY AND PALYNOLOGY

UNIT - I

1. Rubiaceae, Asteraceae, Sapotaceae, Asclepiadaceae, Acanthaceae, Lamiaceae, Orchidaceae, Poaceae.

UNIT - II

2. General account of palynology and its importance with special reference to the pollengrains of Hibiscus Acacia and grass

3. Microsporogenesis.

4. Megasporogenesis,types of embryosacs and development of monosporic, bisporic and tetrasporic types.

UNIT - III

5. Endosperm; types and development.

6. Embryogeny; development of dicot and monocot embryos.
   Polyembryony

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BOTANY **BOT 302NP** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

1. Technical description and identification of the plants of the following families

Annonaceae, Rutaceae, Caesalapinaceae, Cucurbitaceae, Umbelliferae, Rubiaceae, Asteraceae, Sapotaceae, Asclepiadaceae, Lamiaceae, Amaranthaceae, Euphorbiaceae, Poaceae.

2. Utilization of plants

Botanical name, family, morphology of useful product, uses of the plants included in theory syllabus.

3. Palynology

Study of pollen grains of *Hibiscus*, *Acacia* and grass.

4. Embryology - slides

T.S. of anther showing archesporial cells
T.S. of anther showing pollen tetrads
T.S. of anther showing pollen grains
Dicot embryo
Monocot embryo
Orthotropous ovule
Anatropous ovule
Compylotropous ovule

BOT 302N P

Botany Practical - III: Scheme of valuation

A.

15M

Twig with medium sized flowers

8M

Technical description

½M

Diagram of Twig

1M

Diagram of L.S. flower

½M

Floral diagram

2M

Floral Formula

½M

Display of T.S. Ovary

1M

Display of L.S. flower

1½M

B&C

12M

Twigs from the Families included in the syllabus

Assignment... 5M

6M

Name of the family... 1M

6M

D

8M

Embryology Slide

Diagram

4M

Notes

3M

Identification

1M

E, F & G 3 x 3M

9M

Utilization of plants

Botanical name

1M

Family

1M

Morphology of useful product

1M

H & I 2 x 3M
6M
Herbarium sheets
2M
Botanical name
1½M
Family
1½M
Viva Voce
10M
Examiners should ask five simple questions pertaining to the syllabus
Record
10M
Herbarium
3M
Field Trip Diary
2M

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BOTANY **BOT 402N** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

PLANT PHYSIOLOGY, SEED TECHNOLOGY AND CELL BIOLOGY

UNIT - 1

1.Respiration : Aerobic and Anaerobic respiration, glycolysis, Kreb's cycle, electron transport system, factors affecting respiration.

2. Nitrogen metabolism : Protein synthesis.

UNIT - II

3. Growth and Development : Deffinition,development kinetics of growth.

4. Plant growth hormones : History and discovery of plant hormones. Auxins, Gibberlins, Cytokinins, Absessic acid and Ethylene - Mechanism of action.

5.Seed Technology : Seed dormancy, seed viability, seed germination, physiological aspects of germination.

UNIT - III

6. Structure and functions of cell organelles - Ultra structure of cell membrane, ultra structure of Nucleus.

7. Chromosome structure and organization, types of chromosomes, functions of chromosomes.

8. DNA structure, replication of DNA, genetic code.

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BOTANY **BOT 402NP** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

PLANT PHYSIOLOGY

Major Experiments

1. Measurement of osmotic potential by incipient plasmolysis method.
2. Differental transpiration by cobalt chloride method.
3. Seperation of chloroplast pigments by paper chromatography.
4. Effect of quality of light and concentration of CO_2 on the rate of photosynthsis.
5. Hydrolysis of starch - amylase activity
6. Titrable acidity - estimation of acids in lemon or tamarind leaves.
7. Effect of temperature on membrane integrity - beet root slices.

Minor Experiments

1. Demonstration of transport of water through xylem
2. Demonstration of imbibition
3. Demonstration of osmosis by egg membrane.
4. Potato osmoscope
5. Phototropism
6. Arc Auxanometer.

Cell Biology

Study of mitosis in root tips of onion.

Genetics

1. Problems on Mendelism
2. Problems on Linkage
3. Problems on Genetic Interactions.

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ZOOLOGY **ZOO 302N** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

GENETICS, ANIMAL BIOTECHNOLOGY AND ORGANIC EVOLUTION

Unit - I

1.0. Genetics :

1.1. Genetic interactions – Incomplete dominance, co-dominance and epistasis

1.2. Identification of DNA as the genetic material – Griffith's experiment and hershey- Chase experiment

1.3. Human karyo typing, barr bodies, Lyon's hypothesis and amniocentesis

1.4. Chromosomal disorders – Autosomal and Allosomal

Unit - II

2.0. Animal Biotechnology :

2.1. Scope of biotechnology, cloning, vectors - Characters of vectors, plasmids

2.2. Gene cloning- Enzymatic cleavage of DNA, restriction endonucleases and ligation

2.3. Transgenesis and production of transgenic animals (Fish and Goat)

2.4. Application of stem cell technology in cell based therapy (Diabetes and Parkinson's disease)

Unit III

3.0. Organic Evolution :

3.1. Genetic basis of evolution, gene pool, gene frequencies, Hardy - Weinberg's law, forces of destabilization - natural selection, genetic drift, mutations, isolation and migration

3.2. Speciation – Allopatric and sympatric

FOR GIFTED STUDENTS ONLY

1. Protein synthesis
2. Human genome project 3. Cloning

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ZOOLOGY **ZOO 302NP** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

Animal Physiology :

1.0. Identification of organic substances - Carbohydrates, proteins and lipids

2.0. Unit oxygen consumption in an aquatic animal (fish or crab) – Demonstration only

3.0. Qualitative analysis of ammonia, urea and uric acid

4.0. Demonstration of salivary amylase

Genetics :

5.0. ABO blood group identification

6.0. Problems based on blood grouping

7.0. Karyo typing of human chromosomes (Human karyo typing figure on paper should be cut into different sets of chromosomes and students are asked to arrange in an order and comment on the idiogram)

8.0. Identification of genetic syndromes given on charts or photographs

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ZOOLOGY **ZOO 402N** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

CLINICAL SCIENCE

Unit - I

1.0. Hematology :

1.1. Blood composition and functions
1.2. Blood groups (ABO, Rh & MN) and transfusion problems
1.3. Blood diseases – Anaemia, leukemia, leucocystosis and leucopaenia
1.4. Biopsy and Autopsy - Clinical importance only
1.5. Cholesterol and its significance in cardio vascular problems
1.6. Blood sugar levels and diabetes

Unit - II

2.0. Immunology :

2.1. Types of immunity - Innate and acquired
2.2. Antigens - Haptenes and epitopes and their properties
2.3. Ig G - Structure and biological properties
2.4. Hypersensitivity - Immediate and delayed

Unit - III

3.0. Important Human Parasites :

3.1. Blood parasites - Structure, life cycle and clinical significance of *Plasmodium*

3.2. Intestinal parasites – Structure, life cycle and clinical significance of *Entamoeba hystolytica, Taenia solium, Ancylostoma duodenale* and *Enterobius vermicularis*

FOR GIFTED STUDENTS ONLY

BIOMEDICAL TECHNOLOGY

1. Diagnostic imaging	-	X - Ray CAT Scan MRI Scan
2. Monitoring bodies vital functions	-	ECG EEG ELISA

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ZOOLOGY **ZOO 402NP** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

Aquaculture & Fisheries :

1.0 . Identification of important freshwater and marine edible fishes (Any five)

2.0. Identification of important edible prawn / crab / lobster / oyster (Any five)

Field Work :

Filed work is compulsory. Field trip to local fisheries / aquaculture unit is to be conducted and certified felid note book should be submitted at the time of practical examination. Five marks are allotted for the certified field record.

Clinical Science :

3.0. Identification of the following protozoan parasites :

3.1. *Entamoeba hystolitica*

3.2. *Giardia intestinalis*

3.3. *Plasmodium* - any two stages

4.0. Identification of the following helminth parasites :

4.1. *Taenia solium* – Entire, scolex and matured proglottid

4.2. *Enterobius vermicularis*

4.3. *Ancylostoma duodenale* – Male and female

5.0. Blood cell counting (RBC & WBC)

6.0. Estimation of hemoglobin (Sahli's method)

Animal Biotechnology :

7.0. Identification of vectors (Charts or photographs)

8.0. Identification of genetic disorders (Charts or photographs)

9.0. Identification of transgenic animals (Charts or photographs)

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ELECTRONICS **ELE 302N** 2014-15 onwards III B.Sc

SYLLABUS

VI SEMESTER

INTRODUCTION TO MICRO CONTROLLERS

UNIT - I

MCS - 51 Micro controller architecture

Difference between micro processor and micro controller - Advantages and disadvantages of M.C. block diagram of 8051 micro controller, description of functional units - Memory organisation - Program memory and data memory - Pin configuration - Comparative study of various MC.

UNIT - II

Instruction set and overview

Instruction set - Addressing modes - Classification of instructions - I/O ports, timers / counter, serial communication - Communication modes.

Text Books :

1) The 8051 micro controller and embedded systems - Mohammad Ali Mazidi and J.G. Mazid.

2) Programming and customizing 8051 micro controller - Myke Predko.

3) The 8051 micro controller : Architecture, programming and applications - Kenneth J. Ayala.

4) Design with micro controller - John B. Peatman.

Reference Books :

1) Fundamentals of micro controllers and applications in embedded systems - Ramesh Gaonkar

2) The micro controller idea - Jan Axelson

3) 8051 micro controller and embedded systems - Rajiv Kapadia.

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ELECTRONICS **ELE 302NP** 2014-15 onwards III B.Sc

PRACTICLES

VI SEMESTER

DIGITAL ELECTRONICS

A. Digital Experiments :

1) Verification of truth tables of OR, AND, NOT, NAND, NOR and EX - OR gates (by using 7400 - series).

2) Construction of gates using NAND, NOR gates.

3) Verification of Demorgan's theorem.

4) Construction of half and full address and verifying their truth tables.

5) Operation and verifying truth tables of flip - flops - RS, D and JK using ICs.

6) Operation and verifying truth tables of flip - flops - RS, D and JK using kit.

7) Construction of decade counter (7490)

8) Construction of ripple counter

B. Simulation experiments using appropriate electronic circuit simulation :

1) 4 - bit parallel adder using combinational circuits

2) Decade counter using JK flip flops

3) Up / down counter using JK flip flops

4) Up / down counter using 7493

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SYLLABUS

VI SEMESTER

EMBEDDED SYSTEMS PROGRAMMING AND APPLICATIONS

UNIT - I

Programming : Interrups - Programming examples, logic control, square wave generation and time delay generation.

Assembly language programming tools, software development tools - Hardware development tools and systems and tools.

UNIT - II

Micro controller interfacing and applications.

Simple keyboard interfacing, 7 - segment display, LED, LCD, stepper motor, ADC and DAC.

Text Books :

1) The 8051 micro controller and embedded systems - Mohammad Ali Mazidi and J.G. Mazid.

2) Programming and customizing 8051 micro controller - Myke Predko.

3) The 8051 micro controller : Architecture, programming and applications - Kenneth J. Ayala.

4) Design with micro controller - John B. Peatman.

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ELECTRONICS **ELE 402NP** 2014-15 onwards III B.Sc

PRACTICLES

VI SEMESTER

MICRO PROCESSOR AND MICRO CONTROLLER LAB

A. Micro processor :

1) Binary addition and subtraction (8 - bit and 16 - bit)
2) Multiplication and division
3) Picking up largest / smallest number
4) Arranging - ascending / descending order.
5) Decimal addition (DAA) and subtraction

B. Micro processor (hardware) :

1) Interfacing R - 2R ladder network (DAC) (4 bits) to generate wave forms
2) Interfacing a seven segment display.

C. Micro controller experiments using 8051 kit :

1) Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2) Division of two numbers using DIV command (later using counter method for repeated subtraction)
3) Pick the smallest number among a given set of numbers
4) Pick the largest number among a given set of numbers
5) Generate a specified time delay

D. Using Keil software :

1) Pick the largest number among a given set of numbers
2) Pick the smallest number among a given set of numbers
3) Arrange a given set of numbers in ascending order
4) Arrange a given set of numbers in decending order
5) Generate a rectangular wave form at specified port terminal

E. Micro controller (Interfacing) :

1) Interface a ADC and a temperature sensor to measure a temperature
2) Flash a LED connected at a specified output port terminal

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III B.Sc.(Computer Science): VI Semester : Paper 302N

Title: Operating Systems - Syllabus

Unit – 1: OS Fundamentals and Structure of OS.

Introduction – What operating systems do – Computer – System organization – Computer system architecture – Operating system structure – Operating system operations : Process management – Memory management, storage management, protection and security – Distribution systems – Computing environments.

System structures – Operating system services – User operating system interface – System calls – Types of system calls – System programs – Operating system structure – System boot. Process concept – Process scheduling – Operations on processes – Inter process communication – Examples of IPC systems – Communication in client server systems.

Unit – 2 : Multithreading and process synchronization.

Multithreaded programming – Multithreading models – Thread libraries – Threading issues – Operating system examples. Process scheduling – Basic concepts – Scheduling criteria – Scheduling algorithms – Multiple process scheduling – Thread scheduling – Operating system examples. Process synchronization – The critical section problem – Peter's solution – Synchronization hardware – Semaphores – Classic problems of synchronization – Monitors – Synchronization examples. Deadlocks – System model – Deadlock characterization – Methods for handling deadlocks – Deadlock prevention – Deadlock avoidance – Deadlock detection – Recovery from deadlock.

Unit – 3 : Memory management strategies.

Memory: Management strategies – Swapping – Contiguous memory allocation – Paging – Structure of the page table – Segmentation. Virtual – Memory management – Demand paying – Page replacement. File system – File concept – Access methods – Directory structure – Protection.

Unit – 4 : File systems and I / O management.

Implementing file systems – File system structure - File system implementation – Directory implementation – Allocation methods – Free space management – Efficiency and performance – Recovery. Secondary storage structure – Overview of mass – Storage structure – Disk structure – Disk attachment – Disk scheduling – Disk management – Swap space management – RAID structure. I / O systems – Overview – I / O hardware – Application I / O interface – Kernel I / O subsystem – Transforming I / O requests to hardware operations.

FOR MERIT STUDENTS :

Security: - The security problem, User authentication, Program threats

Prescribed Text Book:

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating system principles, Seventh Edition, Wiley India Edition (2007)
   Chapters (1 to 13, 19, 21)

Reference Book:

1. William Stallings, Operating systems Internals and design principles, Fifth Edition, Pearson education (2007).
2. Andrew S Tanenbaum, Modern operating systems, Second Edition, Pearson Education.
3. Archer Harris J, Operating systems, Schaum outline series, Tata McGraw Hill (2006).
4. Davis and Raj Kumar, Operating systems A systematic view, Sixth Edition, Pearson Education (2007).
5. Bhatt, Introduction to operating systems: Concept and practice, Second Edition, PHI (2008).
6. Stallings, Operating systems – Internals and Design principles, Fifth Edition, PHI (2007).

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III B.Sc. - Computer Science: VI Semester : Practical III CSC 302NP

Title: DBMS

Lab session – 1:

1. Create table called employee

Column name	type	size
Emp no	numeric	4
Emp name	alphabets	10
Job	alphabets	9
Hire date	date	
Salary	Numeric	7.2

2. Display the structure of the Employee table.
3. Insert the values into the table employee.
4. Increases the size of E name to 20 characters in the Employee table.
5. To change the name of the Employee to Emp.
6. To list all the records form the table employee.
7. To conform all the transactions permanently in the table from employee.
8. To delete the records from the table Employee who's job is clerk.
9. Write a query display all the different job types in employee.
10. To modify the salary column in the employee table to add Rs. 1000/- for each employee.

Lab session – II

11. To display all the database tables available in the current year.
12. Undo the delete from the table emp.
13. Write a querry to display the records for the employee table whose salary is greater than 3000/-
14. Write a query to find out the employee names there employee no is 1,2 & 4
15. Write a query find the Employee who are getting salary between Rs. 5000 to 9000.

16. Write a query to display all the Employee names which have ‘re’ or ‘aj’.
17. Write a query to display the department name in ascending order.
18. Create a table Emp Dup which contains the name, Job, salary of Employee table.
19. Display the employee names in lower case.
20. To display the Emp names & their salary increase 20% and Empressed as a whole number.

Lab session – III

21. Assuming the date of Apprised date is one year after the hire date (Add Months) order the output of Assending order from Apprised date.
22. Display the time of the day (HH:MI:SS)
23. Construct Rama Rao + Krishna Rao = Rama krishna
24. Find the greatest salary and commission in the in the dept no.
25. Calculate the no.of Employees in the dept no. 10.
26. Show the average salary for each department having more than three employess.
27. Write a query to display the no. of people with the same job.
28. Create an Index on Emp of Emp or table.
29. Write a query to display the employee names location and D.No. the employees whose salary is grater than 1500.
30. Find the job that was filled in the first half of 1983 and the same job that was filled during the same period 1984.

Lab lesson: IV

31. Display all the employees who earn more than the lowest salary in dept no. 30
32. Display the e name, job from employees whose salary greater than the highest salary in sales dept.
33. Create a view which contains e name, job and salary of all clerks.
34. Create a snapshot which contains.
35. Create a sequence to generate the even no’s below 2000.
36. Write a query to print the clusters in the current user.
37. Write a query to print the sequence in the current user.
38. Find all the employees who earn maximum salary.
39. Find all the employees who earn lowest salary in each department.
40. Display the dept no. which have the an average salary greater than the dept no = 30

Reports:

1. Generate the reports using SQL * plus commands for company reports produced by the personal department.
2. Generate the report using to SQL * plus commands for ABC international company configuration report.

Programs:

1. Write a program to read the three subjects marks calculated total & average marks of the student.
2. Write a program to display the first 10 no's in reverse order.
3. Write a program to reverse a given string.
4. Write a PL, SQL., program to find the given no's prime or not.

Triggers:

1. Create a Trigger to modify the record into the upper case before going to insert the record into the table customer.
2. Insert the values into the trigger.
3. Drop the Trigger.

Functions:

1. Create a function to calculate the amount as per the given quantity and rate
2. Calling calc amount function in PLSQL Block

Procedures:

1. Create a procedure to find the area of the circle.
2. Creating procedure with out argument's
3. Calling show – msg in PL/SQL Block.

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III B.Sc.(Computer Science): VI Semester : Paper 402N

Title: Web Technologies - Syllabus

Unit: I

Introduction: HTML, XML and the World Wide Web.

HTML: Basic HTML, The Document body, Text, Hyperlinks, Adding more formatting, Lists, Tables, Using colors and images, Images.

More HTML: Multimedia objects, Frames, Forms – towards interactivity, The HTML document head in detail, XHTML – An evolutionary markup.

Cascading style sheets: Introduction, Using styles: Simple examples, Defining your own styles, Properties and values in styles, Style sheets – A worked example, Formatting blocks of information, Layers.

Unit: II

An introduction to Java Script: What is dynamic HTML, Java Script, JavaScript - the basics, Variables String manipulation, Mathematical functions, Statements, Operators, Arrays and Functions.

Objects in Java Script: Data and objects in Java Script, Regular expressions, Exception Handling, Built in objects, Events.

Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, writing to a different frame, Rollover buttons, Moving images.

Unit: III

Programming in Perl Script : Why Perl ?, On-Line Document, The Basic Perl Program, Scalars, Arrays, Control Structures

Active Server Pages and Java: Active Server Pages, Java.

XML: Defining Data for Web applications: Basic XML, Document type definition, XML schema, Document Object Model, Presenting XML.

Unit: IV

Good Design: Structure, Tables versus Frames, Accessibility, Internationalization, Exercises.

Useful Software: Web browsers, Perl, Web servers, mod_perl, Databases, Accessing your ISP, Exercises.

Protocols: Protocols, IP and TCP, Hyper Text Transfer Protocol, Common Gateway interface, The Document Object Model, Introducing the Document Object Model, Exercises.

Case Study : The plan, the data.

FOR MERIT STUDENTS :
CGI scripting : Introduction to CGI, developing CGI applications.

Prescribed Text Book:

1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007).

Reference Book:

1. Paul S. Wang Sanda S. Katila, An Introduction to Web Design Plus Programming, Thomson (2007).
2. Robert W. Sebesta, Programming the World Wide Web, Third Edition, Pearson Education (2007).

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III B.Sc. - Computer Science: VI Semester: Practical IV CSC 402NP

Title: Web Technologies Lab – Lab cycle

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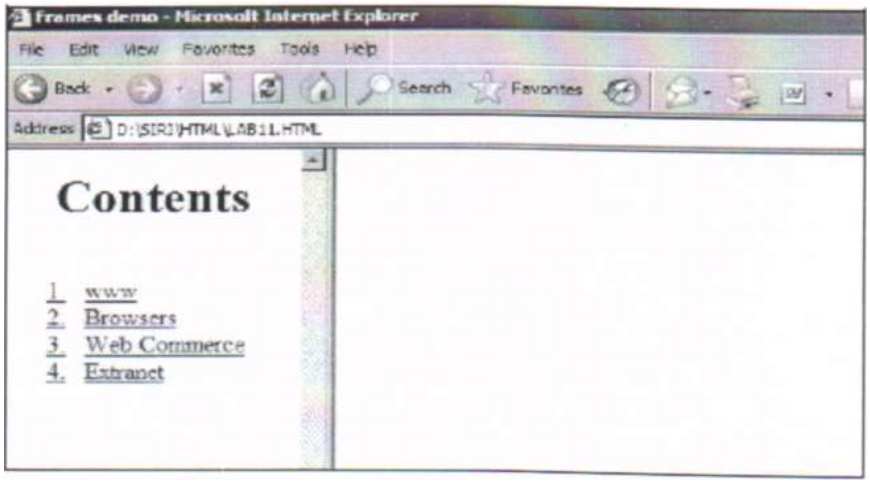
1. Write a HTML program illustrating text formatting
2. Illustrate font variations in your HTML code
3. Prepare a sample code to illustrate links between different sections of the page
4. Create a simple HTML program to illustrate three types of lists
5. Embed a real player in your web page
6. Embed a calendar object in your web page
7. Create an applet that accepts two numbers and perform all the arithmetic operations on them
8. Create nested table to store your curriculum
9. Create a form that accepts the information from the subscriber of a mailing system
10. Design the page as follows:

11. Illustrate the horizontal rulers in your page

12. Create a help file as follows:



13. Write a Java Script to accept the first, middle and last names of the user and print the name

14. Evaluate the following:

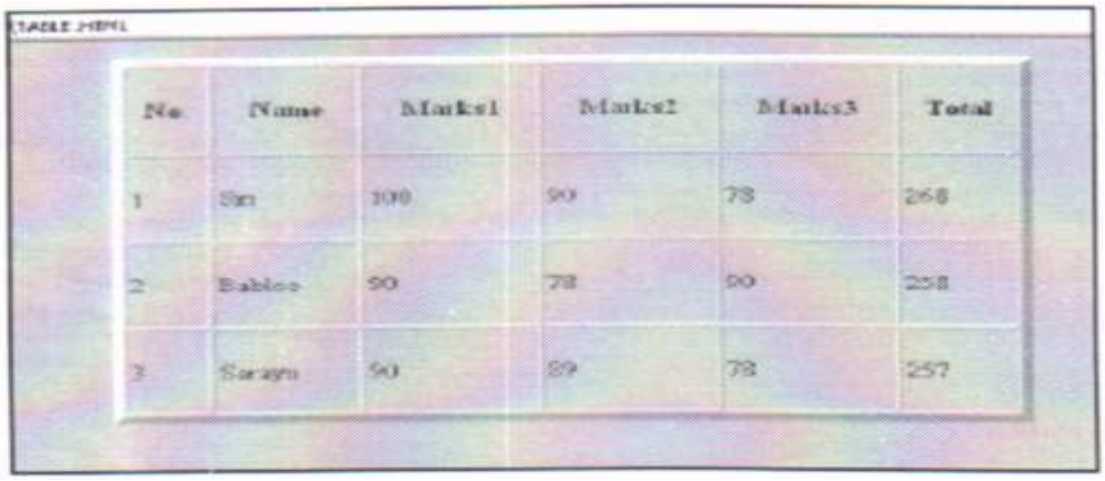
a) “10” + “90”

b) (10<8)>10:8

c) J=(i++)+(--i)+(++i)+(i++)where i = 2

15. Write a script to wish the user “Good Morning” at different hours of the day

16. Write a script to read information of ‘n’ students from the user and store them into the table as follows:



17. Write a DHTML program to give different colors for different heading tags

18. Using DHTML, invert the behavior of <h1> to <h6> tags

19. Create an inline style sheet for your web page

20. Create an external style sheet for creating a font family

21. Illustrate the creation of embedded style sheet

22. Illustrate the procedure of creating user – defined classes

23. Write an ASP script to send the information accepted from the user and send it to a CGI script

24. Write an ASP script to update the student information with some number ‘n’ in the table

25. Delete the desired student’s record from the table using the ASP script.

2013-16 Batch Syllabus

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GENERAL ENGLISH **ENG 101NA** 2012-13 onwards I DEGREE

SYLLABUS

I SEMESTER

GENERAL ENGLISH

Prose :

1. The Carjurer's revenge
2. The best investement of ever made

Poetry :

1. Ode to Autumn
2. Dover beach

Non - detailed:

1. Little girls are wiser than men (short story)
2. Merchant of venice

Grammar & Composition:

1. Tenses
2. Synonyms and Autonyms
3. Correction of sentences
4. Writing the English words from Trascription
5. Writing the correct transcription of English words
6. Stress

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking - I
   Published by
   Foundation Books Pvt. Ltd., Cambridge house, New Delhi

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HINDI **HIN 101N** 2012-13 onwards I DEGREE

SYLLABUS

I SEMESTER

HINDI

PROSE:

1. साहित्य की महता - महावीर प्रसाद द्विवेदी
2. मित्रता - रामचन्द्र शुक्ल
3. पूस की रात - प्रेमचन्द

NON DETAILED:

1. मुक्तिधन - प्रेमचन्द
2. गूदड साई - जय शंकर प्रसाद
3. उसने कहा था - चंद्रधर शर्मा गुलेरी

GRAMMER:

1. पत्र - लेखन
(व्यक्तिगत, शिकायती पुस्तकें माँगते हए, नौकरी के लिए आवेदन पत्र)
2. सूचना के अनुसार बदलना (लिंग, वचन, वाच्य काल कारक चिन्ह)
3. संधि विच्छेद

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FOUNDATION COURSE **GSC 101N** 2013-14 onwards I DEGREE

SYLLABUS

I SEMESTER

ENVIRONMENTAL STUDIES

UNIT - I

Environmental studies - Introduction - Definitions, scope and importance of the study of environmental studies.

UNIT - II

Basic principles of Ecosystem - Functioning - Concept of Ecosystem - Structure and functions of Ecosystem - Types of Ecosystem : Forest Ecosystem - Desert Ecosystem

UNIT - III

Environment and natural resources :-

Forest resources - Deforestation - Mining and Dams and their effects on forests and tribal people.

Water resources - Use and over utilisation of surface and ground water, floods, droughts, conflicts over water, Dams - Benefits and costs, water logging and salinity.

Mineral resources - Use and over exploitation, effects of extracting and using mineral resources

Food resources - World food problems - Effects of modern agriculture, fertiliser and pesticide problems

Energy resources - Renewable and non renewable energy sources

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HISTORY **HIS 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

Influence of Geography on History - Survey of the Sources - Pre-historic period - Paleolithic Mesolithic and Neolithic cultures - Role of technology. Indus valley civilization - Its characteristic features - Vedic culture - Early and later Vedic periods - Post - Vedic period - Emergence of varna and caste system - Rise of new Religious Movements - Jainism and Buddhism in 6th Century B.C Impact on society and culture.

UNIT-2

A brief survey of political conditions in ancient India - Magadha, Alexander's invasion and Mauryas - Ashoka's dharma. Its nature and propagation - Mauryan Administration - Art and Architecture.

UNIT-3

Post - Mauryan period in North India - A brief political survey of Kushans, Guptas, Puswabuthi and Rajputs: Polity and Administration - Social conditions - Caste System - Position of Women - Economy - Indian Feudalism – Art Architecture - Education, Literature, Philosophy, Science and Technology.

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POLITICS **POL 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

1. Introduction: Definition, Scope and Importance of Political Science.
2. State - Nation and Civil Society
3. Sovereignty: Monism and Pluralism
4. Theories of Origin of the State: Social Contact and Evolutionary (Historical)
5. Concepts:
    a. Law: Sources of Law and Concept of Rule of Law
    b. Liberty and Equality - Their Relationship
    c. Theories and Kinds of Rights
6. Ideologies: Individualism, Fascism and Socialism

Reference Books:

1. Principles of Political science : AC Kapoor
2. Grammar of Politics : HJ Laski
3. Telugu Acadamy text book for I BA Politics
4. Political theory : Assirr vadam

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ECONOMICS **ECO 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

MICRO ECONOMICS

UNIT – I : Definitions, Adamsmith, Marashall, Robbins, Samuelson

→ Micro, Macro

UNIT – II : Demand

→ Meaning of Demand – Types of Demand Individual market demand

→ Demand function, changes in demand

→ Law of Demand

→ Elasticity of Demand

→ Methods

→ Factors influencing elasticity of Demand

UNIT – III : Utility Analysis

Types if Utility

→ Law of diminishining marginal utility

→ Law of equimarginal utility

→ Consumer surplus concepts

UNIT – IV : Indifferent curve analysis

→ Properties of IC

→ IC Map

→ Consumer surples equilibrium

→ Price, Income, Substitution effect

→ Importance of IC

UNIT – V : Production

→ Production function

→ The law of variable propositions

→ Law of Returns of scale

→ Internal External Economics

TEXT BOOKS :

1. Academy Text
2. Different publications
   → Kalayani
   → Himalaya

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SPL. ENGLISH **ENG 101SN** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

SPECIAL ENGLISH

I. History of English Language : - F.T. Wood

a) The Evolution of standard English

b) Scandinavian Element

c) Latin Element

d) French Element

e) Word Formation (or) Growth of vocabulary.

f) Semantic changes (or) change of meaning.

II. POETRY : -

a) The Lyric

b) The Sonnet

c) The Ode

d) The Ballad

e) Dramatic monologue

f) The Elegy

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FINANCIAL ACCOUNTING **COM 101N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

FINANCIAL ACCOUNTING

Chapter – 1: Introduction to Accounting

History of Accounting - Accounting theory - Definition and meaning - Book - Keeping and Accounting - Scope of Accounting - Objectives of Accounting - Basic accounting concepts, users of accounting information - Advantages and Limitations. Functions of an accountant - Double entry system - Single entry system, Classification of accounts - Accounting process. Journal - Ledger - Trial Balance

Chapter – 2 : Subsidiary Books

Introduction - Advantages of Subsidiary Books. Types of Subsidiary Books - Cash - Books

Chapter – 3 : Bank Reconciliation Statement

Cash book - pass book - need - Reasons for difference between cash book and pass book balances - Method of preparation of BRS - Favourable balance - preparation of BRS (overdrafts) preparation of BRS (from cash book and pass book directly)

Chapter – 4 : Preparation of Trial Balance, Final Statements of Accounts

Introduction - Importance of Trial Balance - Objectives - advantages - limitations - Final accounts of sole trader. Capital and Revenue expenditure - Trading Account - Manufacturing account - Profit and Loss account - Balance Sheet - Final accounts with adjustments.

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Fund. of Inform. Technology **COM 102N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT - 1

Introduction to Computers

Definition, charcteristics and limitations of computers - Elements of computers - Hard ware - CPU - Primary and Secondary Memory - Input and output devices.

UNIT - 2

Modern communications:

Communications - FAX, voice mail, and information services - Email - creation of e-mail id - group communication - Tele conferencing - video conferencing - File exchange - Band width - modem - Network topologies - Network types CAN, MAN, WAN and their architecture.

UNIT - 3

Operating Systems

Meaning, definition, functions and types of operating systems - Booting process - DOS - Internal and External commands - wild cards - Windows operating system - Desktop, start menu - Control panel, windows accessories.

UNIT - 4

M.S. Office:

Word processing - meaning and features of word processing - Advantages and applications of word processing - Parts of M.S.Word - Toolbars - creating - saving and closing a document - Opening and editing a document - moving and copying a text - Applying bullets and numbering - Insertion of objects - Date and time, Headers and Footers and Page Breaks - Spelling and Grammer checking - Mail Merge meaning - Aav - Perpox - Creating merged letters.

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BOM **COM 103N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ORGANISATION AND MANAGEMENT

UNIT - 1

Fundamental concepts:

Concepts of business, trade, Industry and commerce, Business - features of business, Trade - Classification - Aids to trade - Industry - Classification - Commerce - relationship between trade, Industry and commerce - Business organisation - concept - Functions of Business

UNIT - 2

Entrepreneur:

Meaning - Characteristics of Entrepreneurs - Types of Entrepreneurs - Functions of an Entrepreneur - Steps to start enterprise - Sources of finance - Long term, Short term.

UNIT - 3

Forms of Organization - Sole proprietorship, Partnership and Joint Hindu family:

Business organization - Forms of Business organization - Classification – Factors influencing the choice of suitable form of organisation - Sole proprietorship - Meaning - Characteristics - Advantages and disadvantages - suitability.

UNIT - 4

Partnership:

Meaning - Characterstics - Kinds of partners - Registration of partnership deed - Rights and obligations of partners - Joint Hindu Family Business - Characteristics - Advantages and limitations.

UNIT - 5

Joint stock company:

Joint stock company - Meaning - Characteristics - Advantages - Kinds of companies - Difference between private and public companies - Promotion of a company: Promotion - stages - promoters - characteristics - Company registration - Preparation of important documents - Memorandum of association - articles association - contents - prospectus - Statement in lieu of prospectus.

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Business Economics **COM 104N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

Business Economics

Module – I : Introduction

→ Economic activities

→ Distinction between economic and non - economic

→ Scope, Significance, and nature of economics

→ Micro, Macro – normative and positive economic analysis.

Module – II : Demand, Utility analysis and theory of Production

→ Meaning of the demand – Types of demand, individual, company market.

→ Industry demand, Derived demand – Demand function

→ Law of demand – Law of diminishing marginal utility – Law of equi – Marginal utility

→ Consumer's surplus – Elasticity of Demand – Factors influencing elasticity of demand.

→ Law of production – Law of variable proportion theory - Returns to scale – Internal and external economies.

→ Cost – output relations. Cost function and concepts – Law of supply.

Reference Books :

1. Academy Book
2. Micro Analysis by vaiash
3. M.L. Jhingah
4. C.P. Chopra
5. Business Economic : Kalyani Publications.
6. Business Economic : Himalaya Publications

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MATHEMATICS **MAT 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

DIFFERENTIAL EQUATIONS & SOLID GEOMETRY – 1

DIFFERENTIAL EQUATIONS

UNIT - 1

Formation of Differential equations, Differential equations of first order and first degree - Variables separable, Homogeneous differential equations, Equations reducible to homogeneous form.

(No question will be given in the examination)

Exact differential equations, integrating factors, Integrating factors of the form

(i) $\frac{1}{Mx+Ny}$ (ii) $\frac{1}{Mx-Ny}$ (iii) $\int_e f(x)dx$

(iv) $\int_e g(y)dx$ (v) $x^h y^k$

(1 short answer question, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations of first order, Bernoulli's equations, Change of variables, Total differential equations, Simultaneous total differential equations, Equations of the form $\frac{dx}{P}=\frac{dy}{Q}=\frac{dz}{R}$ (i) Method of grouping (ii) Method of multipliers, Orthogonal trajectories.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Differential equations of the first order but not of the first degree - Equations solvable for p, Equations solvable for y, Clairaut's equations and Equations reducible to Clairaut's form, Equations solvable for x.

(2 short answer questions, 2 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 4

Planes: General equation of a plane - Normal form - Transformation to the normal form - Determination of a plane under given conditions (i) Plane passing through a given point (ii) Plane passing through three given points (iii)

Plane in terms of its intercepts on the axes (intercepts form) - Angle between two planes - Perpendicular distance of a point from the given plane - Distance between parallel planes - Two sides of a plane - plane passing through the intersection two given planes - Angle bisectors of two planes - Pair of planes.
(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Lines: Equations of a line (i) General form (ii) Parametric form (iii) Symmetric form (iv) Two points form - Angle between a line and a plane. The condition that a given line may lie in a given plane - Coplanar lines. The condition that two given lines are coplanar.
(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Skew lines. The shortest distance between two skew lines. The length and equations of the line of shortest distance between two straight lines - Length of the perpendicular from a given point to a given line.

(1 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.
2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.
3. Ivan Niven, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY 101N** 2012-13 onwards I B Sc.

SYLLABUS

I SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

Unit I Vector Analysis (10):

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field. Vector integration, line, surface and volume integrals, Stoke theorem, Gauss theorem, and Greens theorem (statement only)

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Unit II Mechanics of Particles(10)

Motion of variable mass system, motion of a rocket,multi-stage rocket. Collisions in two and three dimensions, impact parameter, scattering cross-section, Rutherford scattering

Unit III Mechanics of rigid bodies(10)

Definition of Rigid body, rotational kinematic relations, equation of motion for a rotating body, angular momentum and inertial tensor. Euler's equations , precession of a top, Gyroscope.

WAVES AND OSCILLATIONS

Unit IV Fundamentals of vibrations(12)

Simple harmonic oscillator, solution of the differential equation of simple harmonic Physical characteristics of SHM, energy of a simple harmonic oscillator, combination of two mutually perpendicular simple harmonic vibrations of same frequency, Lissajous figures

Unit V Damped and forced oscillations(12)

Damped harmonic oscillator,solution of the differential equation of damped oscillator. Power dissipation, logarithmic decrement, relaxation time, quality factor, differential equation of forced oscillator and its solution, amplitude resonance, velocity resonance

Unit VI Complex vibrations(6)

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave.

Textbooks :

1. Berkeley Physics Course. Vol.1, **Mechanics** by C. Kittel, W. Knight, M.A. Ruderman - *Tata-McGraw hill Company Edition 2008*.
2. **Fundamentals of Physics**. Halliday/Resnick/Walker *Wiley India Edition 2007*.
3. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy *Orient Longman*.
4. **First Year Physics** - *Telugu Academy*.
5. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, *New Age International*.
6. **College Physics-I**. T. Bhimasankaram and G. Prasad. *Himalaya Publishing House*.
7. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. *McGraw Hill*.
8. **Waves and Oscillations**. N. Subramaniyam and Brijlal *Vikas Publishing House Private Limited*.

Reference Books :

1. **Fundamentals of Physics** by Alan Giambattista et al *Tata-McGraw Hill Company* Edition, 2008.
2. **University Physics** by Young and Freeman, *Pearson Education, Edition 2005*.
3. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman
Pearson Education Eleventh Edition.
4. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies*.
5. **Mechanics**. Hans & Puri. *TMH Publications*.
6. **Engineering Physics**. R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications*.

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CHEMISTRY **CHE 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

INORGANIC CHEMISTRY & ORGANIC CHEMISTRY

Inorganic Chemistry - I

1-P- block elements:

Group - 13: Synthesis and structure of diborane and higher boranes (B_4H_{10} and B_5H_9) boron - nitrogen compounds ($B_3N_3H_6$ and BN) - **Weightage - 15 Marks**

Group - 14: Preparation and applications of silanes and silicones, graphitic compounds. **- Weightage - 5 + 5 Marks**

Group - 15: Preparation and reations of hydrazine, hydroxylamine, phosphazenes. **- Weightage - 5 + 5 Marks**

Group - 16: Classification of oxides based on (i) Chemical behavriour and (ii) Oxygen content. **- Weightage - 5 Marks**

Group - 17: Inter halogen compounds and pseudo halogens. **- Weightage - 15 Marks**

2. Organometallic Chemistry:

Definition and classification of organometallic compounds, nomemclature, preparation, properties and applications of alkyls of 1,2 and 13 group elements. **- Weightage - 15 Marks**

Organic Chemistry - I

1. Structural theory in organic Chemistry: - Weightage - 15 + 5 Marks

Types of bond fission and organic reagents (Electrophilic, Nucleophilic and free radical reagents including neutral molecules like H_2O, NH_3 and $AlCl_3$)

Bond polarization:

Factors influencing the polarization of covalent bonds, electro nagativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance (or) mesomeric effect, application to (a) acidity of phenol and (b) acidity of carboxlic acids. Hyper conjugation and its application to stability of carbonium ions, free radicals and alkenes, carbanions, carbenes and nitrenes.

Types of organic reactions:

Addition - electrophitic - nucleophilic and free radical subsitution - electrophilic, nuleophilic and free radical. elimination - Examples (with mechanisms)

2. Alicyclic hydrocarbons (cycloalkanes) - Weightage - 15 Marks

Nomenclature, preparation by Freunds method, heating of dicarboxylic metal salts.

Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, shability of cycloalkanes - Baeyer's - Strain theory. Sachse and Mohr predictions.

Conformational structures of cyclobutane, cyclopentane, cyclohexane.

3. Benzene and its reactivity - Weightage - 15 + 5 + 5 Marks

Concept of resonance, resonance energy, heat of hydrogenation, heat of combustion of benzene, mention of c-c bond length and orbital picture of benzen.

Concept of aromaticity - aromaticity (definition), Huckel's rule - application to benzenoid (benzene, Napthalene) and non - Benzenoid compounds cyclopropeny! cation, cyclopentadienyl anion and tropylium cation.)

Reactions:

General mechanism of electrophilic substitution, mechanism of nitration. Friedel craft's alkylation and acylation. Orientation of aromatic substitution - definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and phenolic). Orientation effect of (i). Amino, methoxy and methyl groups (ii). Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups (iii) Halogens (explanation by taking mimimum of one example from each type).

4. Polynuclear hydrocarbons: - Weightage - 5 Marks

Structure of napthalene and anthracene (molecular orbita diagram and resonace energy) Any two methods of preparation of napthalene and reactivity towards electrophlic substution. Nitration and sulfonation as examples.

Additional Syllabus (Without Examination) :

Mathematical Concepts : Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation of functions like , maxima and minima. Partial differentation and reciprocity relations. Integration of some useful / relevant functions. Permulations and combinations. Factorials - Probability.

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BOTANY **BOT 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, CRYPTOGAMS

UNIT I
20 hours
Diversity of microbes.
Introduction to Microbiology

1. Viruses: structure, replication & transmission, diseases: Ex. TMV, yellow vein clearing & controlling measures.
2. Bacteria - structure, nutrition, reproduction diseases - citus canker, leaf blight of rice
3. Cyanobacteria - life history of *Oscillatoria, Nostoc, Anabaena*- Economic, importance / pathogen, symptoms and control.

UNIT - II
20 hours

4. Algae: general account, economic inportance.
5. Structure, reproduction, life history and systematic position of *Oedogonium Vaucheria, Chara, Ectocarpus & Polysiphonia.*

UNIT - III
20 hours
Fungi:

6. General characters and out lines of classification of fungi
7. Structure, reproduction and life history of *Albugo, Peziza, Puccinia Alternaria*.

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ZOOLOGY **ZOO 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

BIOLOGY OF NON CHORDATES AND CELL BIOLOGY

UNIT I
1.0 Protozoa to Cnidaria

1.1. Phylum Protozoa: General characters and outline classification up to classes.
Type study: *Paramoecium caudatum* (structure, binary fission and conjugation)
Trypanosoma gambiense (structure, life history, pathogenesis, prophylaxis)

1.2. Phylum Porifera : General characters and outline classification up to classes.
Type study: *Sycon* (external features, canal system, cells, spicules, reproduciton) Canal system in Sponges.

1.3. Phylum Cnidaria: General characters and outline classification up to classes.
Type study: *Obelia* (structure of colony, polyp, medusa and life history) Polymorphism in Cnidaria Corals and Coral reefs.

UNIT II
2.0 Platyhelminthes to Annelida

2.1.Phylum Platyhelminthes: General characters and outline classification up to classes.
Type study: *Fasciola hepatica* (structure; digestive, excretory and reproductive systems; life history and pathogenecity)

2.2 Phylum Nemathelminthes: General characters and outline classification up to classes. Type study: *Ascaris lumbricoides* (structure, reproductive system, life history and pathogenecity)

2.3. Phylum Annelida: General characters and outline classification up to classes
Type study: Leech (external features, digestive, circulatory, excretory and reproductive systems)

UNIT III
3.0. Cell Biology

3.1 Electron Mictoscopic structure of an animal cell

3.2. Structure of Plasma membrane – Fluid-Mosaic model Transport functions of plasma membrane - passive transport, active transport

UNIT IV

4.1 Structure and functions of Endoplasmic reticulum Golgi body, Ribosomes, Lysosomes and Mitochondria.

4.2. Chromosomes – Types and structure; Giant chromosomes - polytene and lamp brush chromosomes.

REFERENCE BOOKS

Biology of Invertebrates:

1. .The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. .Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. .Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. .Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. .Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. .A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. .A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. .Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

Cell Biology:

1. .Molecular Cell Biology. by Lodish, Berk, Kaiser, Scott.. Scientific American Books.
2. .Cell and Molecular Biology. by De Robertis & De Robertis : Saunders College.
3. .Cell Biology, Genetic Evolution and Ecology. by P.S.Varma and V.K. Agrawal; S.Chand and Co
4. .Molecular Biology. by Mohan P. Arora., Himalaya Publishing House Pvt.Ltd.
5. .Manual of Laboratory Experiments in Cell Biology. . Edward Gasque: (W.C. Brouh Publishers.
6. .Biomolecules. by Mohan P.Arora., Himalaya Publishing House Pvt.Ltd.
7. .Cell and Molecular Biology. .P.K.Gupta.
8. .Concepts of Cell Biology. - P.S.Verma and V.K.Agarwal
9. Biochemistry .U. Sathyanarayana and U. Chakrapani.
10. Biology .Campbell and Reece.
11. Molecular biology of the cell-Alberts et.,al
12. Cell Biology. by S.C. Rastogi
13. Cell Biology. By C.B. Powar, Himalayan Publications.

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ELECTRONICS **ELE 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

CIRCUIT ANALYSIS

UNIT - 1
30 hours

1. AC fundamentals: The sine wave - Average and RMS value - The j operator - Phasor diagrams - Power factor
2. Passive networks: Concept of voltage and current source, Kirchoff's laws - Method of mesh currents
3. Network theorems: Thevenin's norton's, superposition, max power transfer theorems

UNIT - 2
30 hours

4. Resonance: Series resonance, Parallel resonance of RLC ckts - Resonant frequency - Q-factor, Band width, selectivity.
5. RC & RL circuits: Transient and frequency response of RL and RC circuits - Types of filters: Low pass filter, high pass filter, band pass filters.

[Note: Sloving related problems in all the units]

Text Books:

1. Unified electronics vol I Agarwas & Alrarwal
2. Circuit Analysis - P. Ghanasivam - Pearson Edu.
3. Network theory - smarajit ghosh - PH1

Reference Books:

1. Circuits and Networks - A. Sudhakar & Shyammohans.
2. Electronic devices and circuit theory - R.L. Boylestad & L. Nashelsky

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COMPUTER SCIENCE **CSC 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

INFORMATION TECHNOLOGY AND MICROSOFT OFFICE

UNIT - 1

Development of computers and types; logical organization of digital computers memory: main memory, RAM, Cash, I/O units, secondary memory

Operating system: DOS commands, windows 98, 2000: working with files and folders running programs, using Recycle Bin

UNIT - 2

Ms-Office, MS-Word Basics

Headers and Footers, tables, Graphics, templates, Macros, Mail merge.

UNIT - 3

MS-Excel: work sheet, formatting, functions, charts, Graphics, worksheets as database linking.

UNIT - 4

Power Point: basics, crating Presenting, menus, toolbars, operating a presentation Creating a new slide, deleting a slide, copying a slide, slide numbering, saving closing and printing.

UNIT - 5

MS-Access: creating database, tables, queries, forms, reports, sorting, displaying and printing.

PRESCRIBED BOOK: Computers and commonsense IVth edition
AUTHOR: ROGER HUNT, JOHN SHELLY chapter (1,2,3,4,7)

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NCC **NCC 101** 2013-14 onwards I DEGREE

SYLLABUS

I SEMESTER

NCC ELECTIVE – I

UNIT - I

Introduction to NCC : Introduction, NCC motto, NCC flag, aims of NCC, cardinal points of NCC, organisation of defense forces in general, organisational structure of Indian Army, organisational structure of NCC, NCC song, incentives of NCC, ranks in Army, Navy and Air force - Certificate examination in NCC - Honors and awards

UNIT - II

National integration : Meaning and importance, unity in diversity, Indian history and culture, religion and customs of India, India and neighbours, contribution of youth in Nation building

UNIT - III

Leadership : Meaning, leadership traits, types of leadership, discipline and duty of Indian citizen, motivation, code of ethics, perception, communication, customs of services, importance of team work.

UNIT - IV

Personality Development : Introduction to personality development, factors influencing / shaping personality, physical, social, psychological and philosophical, self awareness - Known yourself / insight, change your mind set, interpersonal relationship and communication, communication skills, conflict motives - Resolution, importance of group / team work, influencing skills, body language, sociability, social skills, values and code of ethics.

Evaluation :

References :

1. Cadet's hand book - Common subject, all wings, by DG NCC, New Delhi
2. Cadet's hand book - Specialised subject, Army, by DG NCC, New Delhi
3. Pamphlets issued by the Ministery of Defense
4. DG, NCC training directive 2

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GENERAL ENGLISH **ENG 102NA** 2012-13 onwards I DEGREE

SYLLABUS

II SEMESTER

GENERAL ENGLISH

Prose :

1. I Have a Dream
2. Letter to a Teacher

Poetry :

1. Song 36 from Gitanjali
2. Telephone conversation

Non - detailed:

1. How far is the River
2. The boy comes Home

Grammar&composition:

1. Punctuation
2. Curriculum vitae
3. One word substitutes
4. Dialogue writing
5. Intonation

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking I
   Published by
   Foundation Books Pvt. Ltd., Cambridge House, New Delhi

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HINDI **HIN 102N** 2012-13 onwards I DEGREE

SYLLABUS

II SEMESTER

HINDI

PROSE:

1. संस्कृति और साहित्य का परस्पर संबंध - डा जी सुंदर रेड्डी
2. भारत एक है - रामधारि सिहं दिनकर.
3. हच.आई.वी/एड्स - हरि शंकर परसाई.

POETRY:

1. भूख हड्ताल - बालशैरि रेड्डी
2. मै हार गयी - मन्नू भंडारी
3. परमात्मा का कुत्ता - मोहन राकेश

GRAMMER:

1. वाक्यों में प्रयोग करना
2. वाक्य शुद्ध करना
3. विलोम शब्द
4. कार्यालय हिन्दी (English to Hindi
   Hinidi to English)

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FOUNDATION COURSE **GSC 102N** 2013-14 onwards I Degree

SYLLABUS

II SEMESTER

Time : 1 1/2 hrs ENVIRONMENTAL SCIENCE Max. Marks : 50

Unit – I

Environmental pollution :

Air pollution, water pollution, noise pollution

Solid waste management

Unit – II

Regional and sectoral issues :

Urbanisation, agro - foresting, dry lands

Unit - III

Human population and Enviroment :

Population growth and environment, role of information technology in environmental protection

Social issues and the Environment :

Water conservation - rain water harvesting, watershed management

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HISTORY **HIS 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

A brief political survey of south India - Sangham age - Satavahanas - Pallavas - Cholas - Chalukyas and Rashtra kutas - Kakatiyas and Vijayanagara - Polity and Administration, society, Economy art and Architecture.

UNIT-2

Invasions of Arabs, Gazanavids and Ghoris and Delhi sultanate - A brief political survey, polity and Administration under Delhi sultanate - Society composition of Rural society, Nobility - Status of women, Economic and Technological developments. Agriculture - Industry - Trade and commerce - Urbanisation, art and Architecture - Fine arts - Education and litrature.

UNIT-3

Impact of Islam on India society and culture - Bhakti and Sufi Movements - Emergence of composite culture.

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POLITICS **POL 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

1. Forms of Government:
a. Democracy: Direct and Indirect
b. Unitary and Federal
c. Parliamentary and Presidential
2. Theory of Separation of Powers
3. Organs of Government
a. Legislature: i. Unicameral and Bi-cameral
ii. Powers and Functions
b. Executive: i. Powers and Functions
c. Judiciary: i. Powers and Functions
ii. Independence of Judiciary and Judicial Review
4. Electorate and representation.

Books Recommended:

1. Principals of Political Science : Prof. A.C. Kapoor
2. Grammar of Politics : Laski H.J.
3. Substance of Politics : A. Appadorai
4. Political Theory : Ashirvadam
5. Political Theory : O P Gupta
6. Political ideologies : Baradat, Prentice Hall of India.
Their Origins and Impact

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ECONOMICS **ECO 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

MICRO ECONOMICS

I. Cost curve & revenue curves

Short term cost curve
Long term cost curve
Revenue TR, MR, AR
Supply – function, curve, exceptions

II. Markets

Perfect competition
Monopoly
Monopolistic competition
Oligopoly
i) Price rigidity
ii) Price determination

III. The Theory of distribution, Marginal productivity theory

The theory of rent, classical – neo classical theories – Modern theory of rent
The theory of wages, classical – neo classical theories
The theory of Interest, classical-neo classical theories – J.M. Keynes liquidity preference theory
The theory of profits, classical – neo classical theories

REFFERENCE BOOKS :

Micro Economic Analysis – M. L. Jhingan

TEXT BOOKS :

Micro Economics Analysis : Academy Book

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SPL. ENGLISH **ENG 102SN** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

SPECIAL ENGLISH

I. Drama :

a. Proposal - Anton Chekor

b. Mother's day - J.B. Priestley

II. Fiction

a. The Interview - Kushwant singh

b. The Gift of the Maji - O' Henry

c. The Tell – Tale heart - Edgar Allan poe.

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FINANCIAL ACCOUNTING **COM 201N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

FINANCIAL ACCOUNTING

Chapter - 1 Errors and Rectification:

Types of errors - Errors disclosed by a trial balance - errors not disclosed by a trial balance - Rectification before and after preparation of final statemets of accounts - suspense account - effect of errors on profit.

Chapter – 2 Bill of Exchange:

Definition of promissory notes and bills of exchange - Recording of transactions relating to bills - Books of drawer and acceptor - Honour and Dishonour of bills - Renewal of bills - Retiring of bills under rebate - Accommodation bills.

Chapter - 3 Consignments:

Definition and meaning - Distinction between 'Consignment' and 'sale' - Accounting treatment in the books of the consignor and consignee - Valuation of consignment stock- goods consigned at invoice price - Loss of stock (Normal and Abnormal)

Chapter - 4 Joint Venture Accounts:

Meaning and features - Accounting treatment - when one of the Co-ventures is appointed to manage the joint venture - when separate set of books are not maintained for recording joint venture transactions - when separate set of books are kept for the joint venture, memorandum joint venture account.

Chapter - 5 Depreciation - Provisions, Reserves:

Meaning of Depreciation - causes - objects for providing for depreciation - factors affecting depreciation, accounting treatment, methods of providing depreciation - straight line method - diminishing balances method - Annuity method.

Provisions and Reserves - Reserve fund - different types of provisions and Reserves.

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Fund. of Inform. Technology **COM 202N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT - 1

M.S.Excel:

Features of M.S. Excel - spread sheet / work sheet work book, cell, cell pointer, cell address etc. Parts of M.S. Excel window saving, opening and closing work book - Insertion and deletion of work sheet - Entering and Editing data in work sheet - change - Formation - Auto fill - Formulas and its advantages, Referances: Relative absolute anaminea - functions meaning and advantages of functions, different types of functions available in Excel - Templates - charts - graphs - macros - meaning and advantages of macros, creation, editing and deletion of macros - Data sorting, futening, validation, consolidation, grassing, pivot table and pivot chart reports.

UNIT - 2

M.S. Access:

Data, Information, database, file record, fields, features, advantages and limitations of M.S.Access Application of M.s. Access - parts of M.S.Access window tables, forms queuis and reports.

UNIT - 3

M.S. Power Point

Features, advantages and application of M.S.Power Point - parts of M.S. Power Point window - menus and tool bars creating present actions through auto content wizard, templetes and manually, slide show - salling, opening and closeing a presentation - Inserting, editing and deleting slides - types of slides - slide views formatting - Inserting of objects and charts in slides.

Multi Media:

Meaning, purpose, usuage and application Images, Graphics, sunday and music.

UNIT - 4

Internet & E.Commerce:

Serllices available on Internet - WWW - & Commerce - meaning advantages and limitations, applications of & commerce - trading stocks on line, ordering products journals . books etc.

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BOM **COM 203N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ORGANISATION AND MANAGEMENT

UNIT - 1

Stock Exchanges:

Stock exchange, functions and services, working of stock exchanges, role of SEBI in controlling capital market.

UNIT - 2

Management:

Management Meaning, significance management Vs administration - Functions of management - leadership- leader Vs manager - Traits of successful leaders, scientific management - features - Fayol's principles of management.

UNIT - 3

Planning:

Planning Meaning, significance, types of plans, decision making - steps in process decision making process.

UNIT - 4

Organizing:

Meaning - features - the process of organization - principles of organization - Elements of organizations - organization chart

UNIT - 5

Delegation of authority:

Meaning - Elements - principles - types - difficulties - delegation - guidelines for making delegation effects - centralization decentrailzation - meaning. Difference between delegation and decentralization.

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Business Economics **COM 204N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ECONOMICS

Market structure and pricing

® Types of competition – perfect

® competition – monopoly

® Price discrimination

® Mono polistic competition – meaning and significance of pricing

® Price determination under different competitive market conditions.

Theories of distribution and business cycles

® Marginal productivity theory of distribution

® Theories of rent, interest, wages and profits.

® Phases of Business cycles.

Theories of International Trade

® Need for international Trade

® Comparative cost theory – ohlin's theory – Rent trade policy.

® Role of W.T.O.

Reference Books :

1. M.L. Jhingan – International Economics
2. Mithani – International Trade.

Text Book :

Telugu Academy Book

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MATHEMATICS **MAT 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

DIFFERENTIAL EQUATIONS & SOLID GEOMETRY – 2

DIFFERENTIAL EQUATIONS

UNIT - 1

Higher order linear differential equations: Linear differential equations with constant coefficients, Solution of homogeneous linear differential equations of order n with constant coefficients, Solution of the non-hompgeneous linear differential equations with constant coefficients by means of polynomial operators. Methods of finding particular integral of $f(D)y=Q$ when $Q(x)$ is of the form i) be^{ax} ii) b sin ax or b cos ax
iii) bx^k and $P(D) = D - a_0$, $a_0 0$ iv) bx^k and $P(D) = a_n D^n + a_{n-1} D^{n-1} + \ldots a1D$
v) $e^{ax} V$, where V is a function of x vi) be^{ax} and $P(a)=0$ vii) xV, where V is any function x
(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations with non-constant coefficients - General solution in terms of nonsolution of the completary function, General by changing the dependentate variable, General solution by chaining independent variable, Method of variation of parameters, The cauchy - Euler equation.

System of linear differential equations - Solution of a system of linear equations with constant coefficients, An equivalent triangular system, Degenerate case :
$p_1(D)p_4(D)-p_2(D)p_3(D)=0$
(2 short answer questions, 2 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 3

Spheres: Definition and equation of the sphere - Equation of the sphere through four given points - plane sections of a sphere. Intersection of two spheres - Equation of a circle. Sphere through a given circle - Intersection of a sphere and a line. Power of a point - Tangent line and tangent plane of a sphere - plane of contact. Polar plane. Pole of plane, Conjugate points, Conjugate planes.
(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 4

Spheres: Angle of intersection of two spheres. Conditions for two spheres to be orthogonal - Radical plane. Radical line. Radical centre - Coaxial system of spheres. Simplified form of a coaxal system of spheres. Limiting points of a coaxal system of spheres.

(1 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

The cone: Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve - Enveloping cone - Quadratic cone - Equations of cones with vertex at origin and homogeneous - Condition that the general equation of the second degree should represent a cone - Condition that a cone may have three mutually perpendicular generators - Intersection of a line and a quadric cone - Tangent lines and tangent plane at a point - Condition that a plane may touch a cone - Reciprocal cones - Intersection of two cones with a common vertex - Right circular cone - Equation of the right circular cone with a given vertex, axis and semi-vertical angle.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

The cylinder: Definition of a cylinder - Equation to the cylinder whose generators intersect a given conic and are parallel to a given line - Enveloping cylinder - The right circular cylinder - Equation of the right circular cylinder with a given axis radius.

(1 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjeneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.

2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.

3. Ivan Niven, Herbert, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY 102N** 2012-13 onwards I B Sc.

SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

UNIT I Mechanics of continuous media(8)

Elastic constants of isotropic solids and their relation, Poisson's ratio and expression for Poisson's ratio in terms of

y, n and k. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, cantilever with an end load

UNIT II Central forces(12)

Central forces - definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force, gravitational field. (Definiton), motion under inverse square law, derivation of Kepler's laws,

UNIT III Special theory of relativity(10)

Galilean relativity, absolute frames, Michelson-Morley experiment, Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, mass-energy relation.

WAVES AND OSCILLATIONS

UNIT IV Vibrations of bars and pendulams12)

Longitudinal vibrations in bars- wave equation and its general solution. Special cases (i) bar fixed at both ends ii) bar fixed at the mid point, torsional pendulum - measurements of rigidity modulus (experiment), compound pendulum - measurement of g. (experiment).

UNIT V Vibrating Strings (12)

Transverse wave propagation along a stretched string, general solution of wave equation and its significance, modes of vibration of stretched string clamped at both ends, overtones.

UNIT VI Ultrasonics(6)

Ultrasonics, properties of ultrasonic waves,production of ultrasonics by piezo electric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves by Sear's method. Applications of ultrasonic waves.

Textbooks :

1. Berkeley Physics Course. Vol.1, **Mechanics** by C. Kittel, W. Knight, M.A. Ruderman - *Tata-McGraw hill Company Edition 2008*.
2. **Fundamentals of Physics**. Halliday/Resnick/Walker *Wiley India Edition 2007*.
3. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy *Orient Longman*.
4. **First Year Physics** - *Telugu Academy*.
5. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, *New Age International*.
6. **College Physics-I**. T. Bhimasankaram and G. Prasad. *Himalaya Publishing House*.
7. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. *McGraw Hill*.
8. **Waves and Oscillations**. N. Subramaniyam and Brijlal *Vikas Publishing House Private Limited*.

Reference Books :

1. **Fundamentals of Physics** by Alan Giambattista et al *Tata-McGraw Hill Company* Edition, 2008.
2. **University Physics** by Young and Freeman, *Pearson Education, Edition 2005*.
3. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman *Pearson Education Eleventh Edition*.

4. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies*.

5. **Mechanics**. Hans & Puri. *TMH Publications*.

6. **Engineering Physics**. R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications*.

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I B.Sc., Semester – II

Physics - Practicals – Syllabus

1. Determination of the Moment of Inertia of Fly Wheel
2. Determination of g and k using compound pendulum
3. Determination of the frequency of the given tuning fork using Volume Resonator
4. Determination of the Young's Modulus by Non-Uniform bending
5. Determination of the speed of waves on a stretched string using Sonometer
6. Measurement of errors – Simple Pendulum
7. Determination of the coefficient of Viscosity of water by Poiseulli's Method
8. Determination of the Monent of Inertia of a Rigid Body using Bifilar Pendulum
9. Determination of the Surface Tension of water by Capillary Rise Method.
10. Determination of the frequency of a turning fork using Melde's apparatus
11. Determination of the Rigidity Modulus of the material of a wire using Tensional Pendulum
12. Determination of the coefficient of Viscosity of a fluid using Searle's Viscometer.

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CHEMISTRY **CHE 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

PHYSICAL CHEMISTRY - I

1. Liquid state: - Weightage - 15 + 5 Marks

Intermolecular forces. Dipole - dipole ; dipole - induced dipole ; induced dipole - induced dipole (London disperssion foces) interactions. Liquid crystals, the mesomorphic state, classification of liquid crystals into Smectic and Nematic.

2. Solid state: - Weightage - 15 + 5 + 5 Marks

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Definition of lattice point, space lattice, unit cell. Bravis lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Determination of crystal structure by Bragg's method and the powder method. Indexing of planes and structure of NaCl and KCl crystals.

Defects in crystals. Stoichiometric and non-strichiometric defects. Band theory of semiconductors. Extrinsic and intrinsic semi conductors, n-type and p-type semiconductors and their applications of photo electrochemical cells.

3. Solutions: - Weightage - 15 + 5 + 5 Marks

Liquid - liquid - ideal solutions, Raoult's law. Ideally dilute solutions, Henry's law. Non - ideal solutions, vapour pressure - composition and vapour pressure - temperature curves. Azeotropes - HCl - H_2O, ethanol - water, trimethylamine – water nicotine - water systems. Effects of impurity on consulate temperature. Immiscible liquids and steam distillation.

Nernst distribution law. Calculation of the partition co-efficient. Applications of distribution law.

GENERAL CHEMISTRY - I

1. Atomic structure and elementary quantum mechanics.

- Weightage - 15 + 5 Marks

Black body radiation, plancks radiation law; photoelectric effect; Compton effect, deBroglie's hypothesis; Heisenberg's uncertainity principle; Postulates of quantum mechanics. Schrodinger wave equation; energy levels, wave functions and probability densities. Schrodinger wave equation for H-atom. Quantum numbers and their importance.

2. Chemical bonding: **- Weightage - 15 + 5 Marks**

Molecular orbital theory - LCAO method, construction of M.O diagrams for homo nuclear and hetero nuclear diatomic molecules [N_2, B_2, C_2, O_2, F_2, HCl, CO & NO]

3. Sterochemistry of carbon compounds: - Weightage - 15 + 5 + 5 Marks

Steroisomerism, steroisomers; enatiomers, diasteromers. Definition and examples. Conformational and configurational somerism. Definition, conformational somerism of ethane & n-butane.

Enantiomers : Optical activity wave nature of light, plane polarised light, interaction with molecules, optical rotation and specific rotation. Chiral molecules - definition and criteria - absence of plane, center, and S_n axis of symmetry - asymmetric and disymmetric molecules. Example of asymmetric molecules (Glyceraldehyde, lactic acid, Alanine) and disymmetric molecules [trans - 1,2 - dichloro cyclopropane]

Chiral centers: Definition - molecules with similar chiral carbons [tartaric acid], definition of mesomers. Molecules with dissimilar chiral carbons [2,3-dibromo pen-tane] Number of enantiomers & mesomers - caculations. D.L & R.S configuration for asymmetric & disymmetric molecules. Cahn - Ingold - Prelog rules. Racemic mixture, racemisation & resolution techniques.

Diasteromers: Definition - Geometrical isomerism with reference to alkenes - cis, trans & E,Z - configuration.

4. General principles of Inorganic qualitative analysis:

- Weightage 5 Marks

Solubility product, common ion effect, characteristic reactions of anions, separation of cations into groups, group reagents, testing of cations.

Additional Syllabus (Without Examination) :

Computers : General introduction to computers, different components of a computer, hardware and software, input - output devices, binary numbers and arithmatic. Introduction to computer language, programming, operating systems.

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CHEMISTRY **CHE 102P** 2012-13 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

Time : 3hr **Qualitative analysis and Inorganie preparations** Max. Marks : 70

Qualitative analysis and Inorganie preparations:

Analysis of mixtures containing two anions and two cations [of different groups] from the following.

Anions:

Sulphate, chloride, bromide, iodide, acetate, nitrate, borate, phosphate [with out inter fering]

Cations:

Lead, copper, bismuth, cadmium, iron, aluminum, zinc, managnese, nickel, cobalt, calcium, strotnium, barium, potassium, magnesium & ammonium.

Preparations:

Any three of the following Inorganic preparations

1. Ammonium choloride
2. Tetrammine copper (II) sulphate
3. Nickel dimethyl glyoxime
4. Potash alum

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BOTANY **BOT 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

BRYOPHYTES, PTERIDOPHYTES AND PALAEOBOTANY

UNIT I
25 hours
Bryophytes:
1. General characters.
2. Structure, reproduction, life history and systamatic position of *Marchantia Anthocoros & Polytrichum*. (Development details not required)
3. Evolution of sporophytes in Bryophytes.

UNIT - II
25 hours
Pteridophytes:
4. General characters.
5. Structure, reproduction, life history and systematic position of *Lycopodium, Equisetum, Marsilea.*
6. Evolution of stele.

UNIT - III
10 hours
Palaeobotany:
Introduction, types of fossils, fossilization, importance.

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BOTANY **BOT 102P** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

BOTANY PRACTICALS

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1. Gram staining of Bacteria.
2. Algae : Observation of vegetative and reproductive features of the following: *Oedogonium, Chara, Vaucheria, Ectocorpus, Polysiphonia, Nostoc Oscillatoria* and *Anabena.*
3. Fungi : Section cutting of diseased material or fructification coten and identefication of the pathogens of *Albugo, Peziza & Puccinia*
4. Bryophyta and Pteridophyta : Study of morphology and reproduction of the structures of *Marchantia, Anthoceros, Polytrichum, Lycopodium, Equisetum* and *Marselia.*
5. Anatomy: *Marchantia, Lycopodium, Marselia.*

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ZOOLOGY **ZOO 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

BIOLOGY OF NON CHORDATES AND BIOMOLECULES

UNIT I

1.0 Arthropoda and Mollusca

1.1. Phylum Arthropoda: General characters and outline classification of up to classes
Type study: *Palaemon*(external features, appendages, respiratory, circulatory and excretory systems, ommatidium, statocyst, reproductive system) *Peripatus*- characters and significance.

1.2. Phylum Mollusca: General characters and outline classification of up to classes
Type study: Foot in Mollusca, sheel in Mollusca, peral formation, Torsien in gastropoda, Veliger & Glochidium.

UNIT II

2.0. Echinodermata and Hemichordata

2.1. Phylum Echinodermata: General characters and outline classification of up to classes. Type study: Star fish (External features, water vascular system, pedicellariae, haemal and perihaemal systems and reproductive system)

2.2. General characters of Hemichordata : Structure and affinities of *Balanoglossus*

UNIT III

3.0. Biomolecules of the cell

3.1. Carbohydrates**:**
Classification of Carbohydrates - Monosaccharides, Disaceharides & polysacehacides.
Structures of Glucose and Fructose

3.2. Proteins:
Classification and structure of proteins
Amino acids: General properties, nomenclature

UNIT IV

4.0 Biomolecules of the Cell

4.1. Lipids:
Classification of lipids.

4.2. Nucleic acids:
Watson and Crick model of DNA, Chargaff.s rule.
Structure of RNA, Types of RNA - rRNA, tRNA and mRNA.

REFERENCE BOOKS

Biology of Invertebrates:

1. .The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. .Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. .Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. .Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. .Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. .A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. .A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. .Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

Cell Biology:

1. .Molecular Cell Biology. by Lodish, Berk, Kaiser, Scott.. Scientific American Books.
2. .Cell and Molecular Biology. by De Robertis & De Robertis : Saunders College.
3. .Cell Biology, Genetic Evolution and Ecology. by P.S.Varma and V.K. Agrawal; S.Chand and Co
4. .Molecular Biology. by Mohan P. Arora., Himalaya Publishing House Pvt.Ltd.
5. .Manual of Laboratory Experiments in Cell Biology. . Edward Gasque: (W.C. Brouh Publishers.
6. .Biomolecules. by Mohan P.Arora., Himalaya Publishing House Pvt.Ltd.
7. .Cell and Molecular Biology. .P.K.Gupta.
8. .Concepts of Cell Biology. - P.S.Verma and V.K.Agarwal
9. Biochemistry .U. Sathyanarayana and U. Chakrapani.
10.Biology .Campbell and Reece.
11.Molecular biology of the cell-Alberts et.,al
12. Cell Biology. by S.C. Rastogi
13. Cell Biology. By C.B. Powar, Himalayan Publications.

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ZOOLOGY PRACTICALS **ZOO 102P** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

Time : 3 hrs **BIOLOGY OF NON CHORDATES AND CELL BIOLOG** Max. Marks : 70

1. INVERTEBRATES: Observation of the following slides / specimens / models:

Protozoa - *Elphidium. Monocystis, Paramoecium* - binary fission and Conjugation.

Porifera - *Spongilla, Euspongia.*

Cnidaria - *Physalia, Velella, Corallium, Gorgonia, Aurelia, Pennatula,Obelia colony, Obelia medusa*.

Platyhelminthes - *Planaria, Larval stages of Fasciola -Miracidium, Redia, Cercaria Schistosoma haematobium*

Nemathelminthes - *Ancylostoma duodenale, Ascaris lumbricoides.*

Annelida - *Nereis, Aphrodite, Hirudo, Trochophore* larva.

Arthropoda - *Sacculina, Limulus, Julus, Scolopendra, Anopheles* mouthparts (male and female), *Peripatus.*

Mollusca - *Chiton, Unio, Teredo, Sepia, Octopus, Nautilus,Glochidium larva*.

Echinodermata - *Ophiothrix, Echinus, Clypeaster, Cucumaria,Antedon, Bipinnaria* larva.

Hemichordata - *Balanoglossus, Tornaria* larva.

2. DISSECTIONS:

Prawn : Nervous system, mounting statocyst and appendages or as an alternatively crab/Scorpion/ locust (digestive system)

Video clippings of anatomy of Leech and *Pila*

3. CELL BIOLOGY:

1. Identification of stages from prepared slides showing Mitosis and Meiosis

2. Identification of salivary gland chromosomes and polytene chromosomes (Photographs or figures).

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ELECTRONICS **ELE 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

ELECTRONIC DEVICES & CIRCUITS

UNIT - 1

30 hours

1. PN junction: Construction, working, V-1 characteristics and simple applications of
   - i. Junction diode
   - ii. Zener diode
   - iii. Tuunel diode
   - iv. Varactor diode

2. Bipolar junction transistor (BJT): PNP & NPN transistors - CB , CE, CC configuration - i/p & o/p characteristics - CE configuration as a two port ntwk, H- parameter equivalent circuits, Transistor biasing techniques - load line analysis.

3. Field effect transistor: Structure and working, characteristics of JFET, MOSFET - Depliton type, Enhancement type.

UNIT - 2

30 hours

1. Uni junction transistor: Structure and working of UJT - Characteristice. Application of UJT as a relaxation oscillator.

2. Silicon controlled rectifier (SCR): Structure and working of SCR. Two transistor representation, characteristics of SCR - Applications of SCR.

3. Photo electric devices: Structure and operation of LDR, photo voltaic cell, photo diode, photo transistor and LED.

[Note: Solving related problems in all units]

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ELECTRONICS **ELE 102P** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

Time : 3 hrs CIRCUIT ANALYSIS & ELECTRONIC DEVICES Max. Marks : 70

1. Thecehin's theorem.
2. Norton's theorem.
3. Maximum power transfer theorem.
4. Low pass filter.
5. High pass filter.
6. Zener diode V-1 characteristics.
7. Voltage regulator using zener diode.
8. BJT input and output characteristics.
9. FET - characteristics and determination of FET
10. UJT as relaxation oscillator.

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COMPUTER SCIENCE **CSC 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

PROCEDURAL ORIENTED PROGRAMMING LANGUAGE WITH 'C'

UNIT - 1

Introductory concepts
Fundamentals of 'C' language

UNIT - 2

Operators and Expressions
Data Input and Output
Preparing and running a complete C program

UNIT - 3

Control statements
Program structure
Functions
Arrays

UNIT - 4

Strings
Structures and unions
Files
Pointers

Prescribed Book:

1. Peter Norton, Introduction to Computers, Sixth edition, Tata McGraw Hill (2007)
2. Stephen G. Kochan, Programming in C, Third Edition, Perason Education (2007)

Reference Books:

1. Beyron S Gottfried, Programming with C, Second Edition, Tata McGraw Hill
2. Balaguruswamy. E, Fundamentals of Computing, TMH (2008)

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COMPUTER SCIENCE **CSC 102P** 2012-13 onwards I B.Sc

LAB CYCLE

II SEMESTER

C – PROGRAMMING

1. Program to fing the electrical bill depending upon the number of units.
2. PRogram to check whether given character is vowel or consonant.
3. Program to find the factorial of the given number.
4. Program to print the fibonocci series up to the given number.
5. Program to find whether given numbers in Armstrong or not.
6. Program to find whether a given number is prime or not.
7. Program to find the sum of individual digits of a given number.
8. Program to find sum, diff, product, and quotient of any two numbers using switch statement.
9. Program to find the sum of two matrices.
10. Program to find product of two matrices.
11. Program to find transpose of a matrix.
12. Program to read 'n' numbers and print them in descending order using bubble sort.
13. Program to search an element from a list of elements using linear search.
14. Program to search and element from a list of elements using Binary search.
15. Program to find sum of the digits using recursion.
16. Program to find length, copy, concatenate, compare, reverse of a given string using String functions.
17. Program on Nesting of Structures.
18. Program to swap two numbers using call by value mechanism without using 3rd variable.
19. Program to read n strings and print them in ascending order.
20. Program to access structure elements using pointers.

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NCC **NCC 102** 2013-14 onwards I DEGREE

SYLLABUS

II SEMESTER

NCC ELECTIVE – II

UNIT - I

First - Aid : Aims of first aid - Principle of first aid - Motto of first aid - List of items in first aid box - Types of bandages - Types of fracture - Dislocation - Types of wounds - Burns and scalds - Sprain - Strain - Asphyxia - Drowning - Poison - Shock - Snake bite - Sun and heat stroke - Insect bite - Dog bite - Hanging - Artificial respiration - Hemorrhage. Artificial respiration, carriage of sick and wounded.

UNIT - II

Social services activities : Basics of social service, weaker sections in the society and its identification, contribution of youth towards social welfare, NOGs and their role and contribution, social evils, drug abuse, family planning, corruption, counter terrorism, eradication of illiteracy - Aids awareness programme - Cancer awarness programme.

UNIT - III

Drill & basics of weapon training : Standing drill, marching with and without arms, parts of rifle, LMG, characteristic, firing and safety during fire.

UNIT - IV

Disaster management : Introduction, classification of disaster, natural disaster and man made disaster, disaster management during flood, cyclone and earth quake, assistance in removal of debris, collection and distribution of aid material, message services

Evaluation :

References :

1. Cadet's hand book - Common subject, all wings, by DG NCC, New Delhi
2. Cadet's hand book - Specialised subject, Army, by DG NCC, New Delhi
3. Pamphlets issued by the Ministery of Defense
4. DG, NCC training directive 3

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GENERAL ENGLISH **ENG 201NA** 2013-14 onwards II DEGREE

SYLLABUS

III SEMESTER

GENERAL ENGLISH

Poetry:

1. The Solitary Reaper
2. The Road Not Taken

Prose:

1. Mr. Know All
2. A Talk on Advertisinng

Non-detailed

1. Gajar Halwa
2. My Brother, My Brother

Grammar

1. Lexical web
2. Homonyms
3. Importance of the sounds of vowels
4. Words often confused
5. Idioms
6. Correction of sentences (Articles-Concord-Tenses)
7. Stress

Prescribed Text books:

1. English for empowerment - Orient Black swan
2. Nurturing competence - Lorven publications
3. A course in listening and speaking II
   Published by
   Foundation Books Pvt. Ltd.,
   Cambridge House, New Delhi

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HINDI **HIN 201N** 2013-14 onwards II DEGREE

SYLLABUS

III SEMESTER

HINDI

A. OLD POETRY : 1. Kabir Das Sakhi (1-10 Dohe)

2. Tulasi Das Dohe

B. MODERN POETRY : 1. Mathru Bhoomi

2. Ashok Ki Chintha

3. Bharath Matha

C. CHAPTERS TO BE STUDIED FROM HISTORY OF THE HINDI LITERATURE : 1. Adikal - Chandbardaye

2. Nirgun Bhakthi - Kabir Das

3. Saguna Bhakthi

a. Rama Bhakthi Sakha - Tulasi Das

b. Krishna Bhakthi Sakha - Sura Das

D.GENERAL ESSAYS : 1. Sahitya Aur Samaj

2. Vidyardhi Aur Anusashan

3. Aaj Ki Siksha Neeti

4. Vignan Abhishap Ya Vardaan

5. Samaj Mein Naari Ka Stan

E. TRANSLATION : ENGLISH to HINDI

Sentences form prescribed text books

TEXT BOOK : KAVYA DEEP

हिन्दी साहित्य का सुबोध इतिहास - डा. गुलाबराय

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FOUNDATION COURSE **GSC 201N** 2013-14 onwards II DEGREE

SYLLABUS

III SEMESTER

UNIT - I

1. Relations between science and society - Introduction

2. Health : Vaccination, Pencillin, X-rays, Antibiotics, Vitamins, Anaesthecia, D.D.T., Insulin, Radium therapy, cortisone, antiseptics

UNIT - II

3. Agriculture : Hybridization, Green revolution, fertilizers, insecticides, pesticides

UNIT - III

4. Communications : Radio, Telephone, Television, Satellite, Computers.

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HISTORY **HIS 201N** 2013-14 onwards II B.A

SYLLABUS

III SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

Establishment of Moughal empire - Sur interregnum - Brief survey of political history upto 1707 A.D. - Polity and administration - General conditions of the Mughal period i.e., Social, Nobility - Peasantry - Artisans - Slaves - Status of Women - Economy - Agriculture Industries, Trade and Commerce, Economy and Technology Development. Religion - Hindu, Muslim relations - compsite culture - Education, literature, art, architecture and fine arts. Decline and disintegration of Moughal empire.

UNIT-2

Rise of local states - Society - Economic conditions

Bengal - Outh - Punjab - Hyderabad - Kerala - Mysure - Hyder Ali and Tippu Sultan - Raya's of South India

Nayaka's of Mathura, Tanjore - Economic conditions - Trade and commerce -

Agriculture - Society and culture - Cultural life - Education - Christian missionaries.

UNIT-3

Rise of regional powers - Marathas - Shivaji - Administration - Sikhs

UNIT-4

Advent of European powers - Portuguese, Dutch, English and French

Expansion and consolidation of British empire - Wars - Diplomacy - Policies pursued - Subsidiary Alliance - Doctrine of Lapse - Revenue settlements - Permanent - Ryotware - Mahalwari systems

UNIT-5

Anti - Colonial upsurge - Peasant and tribal revolts - 1857 revolt - Causes and results

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POLITICS **POL 201N** 2013-14 onwards II B.A

SYLLABUS

III SEMESTER

INDIAN GOVERNMENT AND POLITICS

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1. Evolution of Indian constitution - Nationalist movement and philosophical foundations
1. Salient features of Indian Constitution - Amending Procedure
2. Indian Federation - Union - State relations - Recent trends - Sarkari commission
3. Fundamental rights and Fundamental Duties - Constitutional Remedies with special references to writs - Directive principals of state policy.
4. President - Election - Powers and functions - Prime Minister - In the coalition era and council of Ministers.
5. Parliament - Composition, powers and functions.
6. Judiciary - Supreme court - Composition - Powers and functions - Judicial review and Judicial Activitism - PIL

Books Recommended :

1. Politics in India	:Rajini Kothari
2. Indian constitution	:M.V. Pylee
3. Indian constitution	:Bakshi
4. Introduction for constitution of India	:D.D. Basu
5. Indian Govt. and Politics	:K.R. Acharya
6. Telugu Academi	:Bharata Prabhutwamu –Rajikiyalu

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MACRO ECONOMICS **ECO 201N** 2013-14 onwards II B.A

SYLLABUS

III SEMESTER

MACRO ECONOMICS

Module – I : NATIONAL INCOME

1. Meaning, defination and importance of macro economics
2. National income meaning, definition
3. National income : GNP, NNP, GDP, NDP, Personal Income, Disposable Income (DI), Per Capita Income (PCI), Real national income (RNI)
4. Methods of Estimation of National Income
5. Measurements of national income in India
6. Flow of national income

Module – II : THEORIES OF EMPLOYMENT

1. Classical Theory of Employment - Say's law of markets
2. Keynesian theory of employment
3. Consumption function - APC, MPC, factors influencing consumption function Investment function
4. MEC and rate and rate of interest and the concept of multiplier
5. Accelerator - Applicability of the Keynesian theory to the developing countries

Module – III : ECONOMIC SYSTEMS :

1. Capitalistic economy
2. Socialist economy
3. Mixed economy

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SPL. ENGLISH **ENG 201SN** 2013-14 onwards II B.A.

SYLLABUS

III SEMESTER

SPECIAL ENGLISH

POETRY :

1) One Day I wrote her Name - D.H. Spenser

2) The Canonization - John Donne

3) The School boy - William Blake

SHORT QUESTIONS :

a) Elizebethan poetry

b) Silver poets of the 16th century

c) Elizebethan sonnets

d) 17th century poetry

e) Cavalier or caroline poetry

f) Verse satire in the resto ration era

g) Pre - Romantic poets

ESSAY :

1) Of youth and age - Francis Bacon

2) Dream children - A Reverie - Charles lamb

SHORT QUESTIONS :

a) What is an essay ?

b) Origin of the essay

c) The Aphoristic essay

d) The critical essay

e) The periodical and social essay

f) The personal essay

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FINANCIAL ACCOUNTING **COM 301N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

FINANCIAL ACCOUNTING

UNIT - I

Hire purchase system -Features, accounting treatment in the books of hire purchaser and hire vendor - Default and repossession, installment purchase system - Difference between hire purchase system and installment purchase system. Accounting treatment in the books of purchaser and vendor.

UNIT - II

Royalties - Features - Land lord - Lease holder, sub lease - Preparation of royalty analysis table - Accounting treatment in the books of land lord and lease holder.

UNIT - III

Single entry system - Features - books and accounts maintained - Recording the transactions - Ascertainment of profit - Pure single entry system - Convertion of single entry system into double entry system.

UNIT - IV

Non profit organisations - Features of non - profit - Entities - Accounting process - Preparation of summaries - Receipts and payments account meaning and special features - Procedure for preparation - uses and limitations - Income and expenditure account - Features - Procedure for preparation - Preparation of balance sheet.

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Business Statistics **COM 302N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

BUSINESS STATISTICS

UNIT - 1

Introduction to Statistics :

Meaning, defination, importance and limitations of statistics - Collection of data - Primary and secondary data - [Sampling Random - Non - Random causes] - Schedule and Questionaire - Frequency distribution - Tabulation -

Laboratory work : Diagram and graphic presentation of data - using computers (Excel)

UNIT - 2

Measures of Central Tendency :

Defination, objectives and characteristics of measures of central tendency, types of averages: Arthimetic mean, Geomentric mean, Harmonic mean, Median, Mode, Deciles, Perceutiles, Properties of averages and their applications

Laboratory work : Calculations of average using computers.

UNIT - 3

Measures of Dispersion :

Meaning, defination, properties of dispersion - Range quartile deviation - Mean deviation - Standard deviation - co-efficient of variation

Laboratory work : Calculation of dispersion using computers.

UNIT - 4

Measures of Skewness :

Skewness defination - Karl pearson's and Bowley's measures of skewness - Normal distribution **Laboratory work** : Calcualtion of skewness using computers.

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Financial Services - Banking and Insurance **COM 303N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

FINANCIAL SERVICES - BANKING AND INSURANCE

UNIT - 1

Instruction to Financial Services :

a) Meaning of financial services, structure of Indian financial system, importance of financial system for the economic development [Financial & Banking system parts]

b) Banking system : Defination of Bank, functions of commercial bank, branch banking, unit banking, correspondent banking - Group banking, deposit banking, mixed banking and investment banking, an overview of banking, banking sector reforms with special reference to prudential norms, ATMs, E-banking, credit cards, online and offshore banking etc., [working and operations]

c) Regional rural banks : Co - operative banks, NABARD, SFC, SIDBI.

UNIT - 2

a) Banker and customer defination and their relationship, types of customer and modes of operations procedure and precaution for opening an account, pass - book and its features. Types of deposits, rights, duties and obligations of the banker. [Application forms for opening accounts, cheque - books, pass - books, requisition slips for withdrawls and deposit, bank statement etc.,]

UNIT - 3

Loans and Advances :

a) Cheque, types of crossing the cheque, payment of cheque and consequencies of wrongful dishonour, collection of local and upcountry cheques, responsibility and liabilities of collecting banker and statutory protection to the collecting banker.

[crossed cheques - various modes]

UNIT - 4

Types of Loans and Advances :

Types of loans and advances, principles of sound lending policies, credit appraisals of various forms of loans and advances - modes of creating charges - lien, pledge, mortgage and hypothecation. [Documents required for sanction of loans and advances]

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Taxation **COM 304N** 2013-14 onwards II B.Com

SYLLABUS

III SEMESTER

TAXATION

Objective : To equip the students with the working knowledge of both direct and indirect taxes.

Unit – I

Introduction - Assessee - Assessment year - Previous year - Income - Person - Residential status and incidence of tax (problems) Agricultural income, income fully and partially exempted from income tax

Unit – II

Heads of income - Income from salaries - Allowances - Perquisites, Provident fund - Computation of income from salary (problems)

Unit – III

Income from house property - determination of annual rental value - deduction from income from house property (problems)

Unit – II

Profits and gains from business and profession - Expenses expressly allowed and dis allowed for deduction - computation of profits and gains from business and profession (problems)

Reference Books :

1. Students guide to income tax, written by singhania

2. A systamatic approach to income tax, written by Girish Ahuja & Ravi Gupta.

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MATHEMATICS **MAT 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

ABSTRACT ALGEBRA AND REAL ANALYSIS – I

ABSTRACT ALGEBRA

UNIT - 1

Groups - Binary operations, properties, definition of a group and elementary properties, finite groups and composition tables, Subgroups - algebra of subgroups, cosets, Lagrange's theorem for finite groups, order of an element in a group.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Normal subgroups - Definition, criteria for the existence of coset multiplication, necessary and sufficient conditions for a subgroup to be a normal subgroup, normalizer, centralizer, factor group. Homomorphism of groups - Definitions and elementary properties, image, kernel, fundamental theorem of homo-morphism, automorphisms.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Permutation groups - Permutation, group of permutations, cycles and cyclic notation, even and odd permutations, the alternating group, Cayley's theorem. Cyclic groups - elementary properties, subgroups of finite cyclic groups, the classification of cyclic groups.

(2 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS

UNIT - 4

Real numbers - The completeness properties of *R*, applications of the suprimum property.

(No questions is to be given in the examination)

Sequences - Sequence, method of defining sequences, range, subsequences, bounded sequences, limit of a sequence, convergent sequence, divergent sequences, algebra of convergent sequences, Cauchy's first theorem of limits, Cauchy's second theorem on limits, monotonic sequences, monotone convergence theorem, limit points of a sequence, Bolzano - Weierstrass theorem for sequences, Cauchy's general principle of convergence.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Infinite series - Series, Cauchy's general principle of convergence, geometric series, auxiliary series (p-series), comparision tests, limit comparision test, Cauchy's *n*th root test, D'Alembert's ratio test, Cauchy's condensation test, Cauchy's - Maclaurin's integral test, Alternating series, Leibnitz's test, Absolute convergent series, conditionally convergent series.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Limits and continuity - Limit of a function, Algebra of limits, one sided limits, infinite limits, standerd limits, continuity of function, algebra of continuous functions, properties of continuous functions, Borel's theorem, Bolzano's theorem, intermediate value theorem, uniform continuity, uniform conitinuity theorem.

(2 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, John Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 201N** 2013-14 onwards II B Sc.

SYLLABUS

III SEMESTER

THERMODYNAMICS AND OPTICS

PART - A
THERMODYNAMICS

Unit I

1. Kinetic Theory of Gases : Deduction of Maxwell's law of distribution of molecular speeds - Transport phenomena- Explanation, derivation of Expression for Viscosity - Derivation of expressions for thermal conduction and diffusion of gases. (5 hours)

2. Thermodynamics :

a. Heat and work - Internal energy - Indicator diagrams work done in Isothermal and adiabatic processes - First law of thermodynamics - significance and applications of first law of thermodynamics - Second law of thermodynamics, different statements - Reversible and irreversible process - Carnot's reversible heat engine - Derivation of expression for efficiency of Carnot cycle - Carnot's theorem - Thermodynamic scale of temperature (10 hours)

b. Entropy-Introduction-entropy concept-entropy measurement-derivation of expressions for change in entropy in a reversible process and in an irrevesible process - Entopy - Temperature diagram - Expression for efficiency using T-S diagram (5 hours).

3. Thermodynamic Potentials and Maxwells Equations : Thermodynamic potentials - Derivation of Max wells thermodynamic relations - Derivation of lausius - clapeyron equation using Maxwells thermodynamic relations - Two specific heats of a gas - Derivations for ratio (Cp/Cv)and difference (Cp-Cv) of two specific heats of a gas using Maxwells thermodynamic relations - Joule - Kelvin effect, Explanation - Derivation of expression for Joule - Kelvin coefficient using Maxwells thermodynamic relations. (15 hours)

PART - B
OPTICS

Unit II

4. Matrix Methods in Paraxial Optics : Introduction to Paraxial Optics - Matrix method - Effect of translation - Effect of refraction- System matrix, image plane equation of an optical system - application of matrix methods to

simple optical systems 1. a thick lens 2. thin lenses in contact 3. two thin lenses separated by distance - cardinal points of lens system- explanation (10 hours)

5. Aberrations :

a. Aberration - Monochormatic aberration - spherical aberration - Methods of minimisation of spherical aberration - Coma - Astigmatism. (3 hours)

b. Chromatic aberration - Achromatic doublet - Removal of chromatic aberration (3 hours)

6. Interference :

a. The superposition principle - coherence - Condition of Interference of light - Interference by division of wave front- Fresnel's biprism - determination of wavelength of light - determination of thickness of a transparent material using biprism. Stokes law- change of phase on reflection (5 hours)

b.Interference by division of amplitude - the cosine law in reflectd light - colours of thin films - non reflecting thin films - determination of diameter of wire using wedge method - Newton's rings-explanation - experimental determination of wavelength of monochromatic light by using Newtons rings(5 hours).

NOTE : Problems should be solved at the end of every chapter of all units.

Textbooks

1. Optics by Ajay Ghatak. The McGraw - Hill companies.

2. Optics by subramaniyam and Brijilal.S.Chand & Co.

3. Fundamentals of Physics. Halllday/Resnick/Walker.C.Wlley India Edition 2007.

4. Optics and Spectroscopy. R. Murugeshan and Kiruthiga Siva Prasath.S.Chand & Co.

5. Second Year Physics - Telugu Academy

6. Modern Physics by R.Murugeshan and Kiruthiga Siva Prasath (for statistical Mechanics) S. Chand & Co.

Reference books

1. Modern Physics by G.Aruldhas and P.Rajagopal, Eastern Economy Education.

2. Berkeley Physics Course. Volume - 5. Statistical Physics by F.Relf. The McGraw – Hill Companies.

3. An Introduction to Thermal Physics by Daniel V.Schroeder.Pearson Education Low Price Edition.

4. Thermodynamics by R.C.Srivastava, Subit K.Saha & Abhay K.Jain Eastern Economy Edition.

5. Modern Engineering Physics by A.S. Vasudeva. S. Chand & Co. Publications.

6. Feyman's Lectures on Physics Vol. 1,2,3 &4. Narosa Publications.

7. Fundamentals of Optics by Jenkins A.Francis and White E. Harvey, McGraw Hill Inc.

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CHEMISTRY **CHE 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

INORGANIC CHEMISTRY AND ORGANIC CHEMISTRY

Unit - I (Inorganic Chemistry)

I. Chemistry of d - block elements: **Weightage : 15+5+5**

Variable oxidation states - their relative stability. Discussion of oxidation states with reference to ionic and covalent nature ; acidic and basic nature; oxidising and reducing nature. Colour and spectral behaviour of transition metal ion complexes. d-d transitions and origin of the colour -explanation of absorption specturm of complex. Magnetic behaviour - Paramagnetism and diamagnetism - definition - Their microscopic origin - Relationship between magnetic moment and number of unpaired electrons.

Complex formation behaviour. Factors influencing the stability of complexes - nature of the metal ion such as charge, size and electronic configuration; nature of the ligand - basicity, tri and polydentate character; back bonding. Comparitive treatment of second and third transition series with their 3d analogues.

II. Chemistry of f - block elements: **Weightage : 15+5**

Position in the periodic table. Lanthanide contraction - its causes and consequences - anomalous behaviour of Post - Lanthanides magnetism - magnetic moment curve - anamolies and explanation. Complexation - type of donor ligand preferred. Most common coordination number. Separation of Lanthanides by ion-exchange and solvent extraction methods.

Chemistry of actinides - Actinide contraction - Comparison with Lanthanides with respect to spectral properties, magnetic behaviour, complex forming nature :

III. Theories of bonding in metals : **Weightage : 15**

Free - Electron theory - Valance bond theory - Their key postulates - Explanation of metallic properties like electrical and thermal conductivity with the help of these theories - Limitations - Band theory of metals - Formation of conduction band and valence band; explanation of properties, of conductors, semiconductors and insulators.

IV. Metal Carbonyls and related compounds : **Weightage : 5+5**

Definition : Classification with examples - Nature of M - C = O bond. EAN rule with examples - Structure and hybridization in

Unit - II (Organic Chemistry) Weightage : 15

I. Halogen Compounds :

Nucleophilic aliphatic substitution reactions - Classification into SN_1 and SN_2. Energy profile diagrams of SN_1 and SN_2 reactions. Stereo chemistry of SN_2 (Walden inversion) and SN_1 (Recemisation) reactions. Explanation of both by taking the example of optically active alkylhalide like 2 - bromobutane - Ease of hydrolysis - Comparison of allyl, benzyl, alkyl, vinyl and arylhalides. Nature of nucleophile, leaving group, solvent, SN_i and neighbouring group participation.

II. Hydrogy Compounds : **Weightage : 5+5**

Alcohols : Preparation with hydroboration reaction; Grignard synthesis of alcohols

Phenols : Preparation from diazonium salts - Aryl, sulphates - Cumene (with mechanism)

Properties of Phenols : Acidic nature of phenols - Ease of formation of alkoxide / phenoxide ions and their reaction with R - Y - Esterification by acids (with mechanism) - Dehydration of alchols - Special reactions of phenols with mechanism - Bromination - Kolbe - Schmidt reaction - Reimer - Tiemann reaction.

Poly hydroxy compounds : Pinacol - Pinacolone rearrangement

III. Carbonyl Compounds : **Weightage : 15+5+5**

Synthesis of aldehydes from acid chlorides, synthesis of ketones from nitrites and carboxylic acids.

Physical Properties : Absence of hydrogen bonding - keto - enol tautomerism, reactivity of carbonyl groups in aldehydes and ketones.

Chemical Properties : Nucleophilic addition reactions with a) b) c) d) 2, 4 - DNP with mechanism. Halogenation using

Base Catalysed Mechanism : a) Aldol b) Cannizzaro c) Perkin d) Benzoin condensation

e) Halofrom reaction f) Knoevenagel reaction

Oxidation of aldehydes : Baeyer - Villiger - Oxidation of ketones with mechanism

Reduction : Wolf - Kishner reduction. MPV reduction - Reduction with and

Analysis of aldehydes and ketones : With a) 2, 4 - DNP test b) Tollen's test c) Fehling test d) Schiff's test e) Haloform test all with equations.

IV. Active methylene Compounds : **Weightage : 15+5**

Acetoacetic esters : Preparation by claisen condensation, Keto - enol tautomerism. Acid hydrolysis and Ketonic hydrolysis. Preparation of a) monocarboxylic acids b) dicarboxylic acids. Reaction with urea.

Synthetic applications : Preparation of a) Monocarboxylic acids (Propionic acid & n-butyric acid) b) dicarboxylic acids (Succinic acid and adipic acid) c) unsaturated carboxylic acid (Crotonic acid) Reaction with Urea.

Additional syllabus (without examination)

Food Analysis : Moisture, ash, crude protein, fat, crude fibre, carbohydrates, potassium, sodium and phosphate. Food adulteration - Common adulterants in food, contamination of food stuffs. Microscopic examination of foods for adulterants. Pesticide analysis in food products. Extraction and purification of sample. HPLC. Gas chromatography for organophosphates. Thin - layer chromatography for identification of chlorinated pesticides in food products.

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BOTANY **BOT 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

GYMNOSPERMS, ANATOMY AND PALAEOBOTANY

UNIT I

GYMNOSPERMS

1. General features of Gymnosperms
2. General account of Bennettitales
3. Morphology of vegetative and reproductive parts, Anatomy of root, stem and leaf, reproduction and life cycle of *Pinus* and *Gnetum*.
4. **Palaeobotany** - Types of fossils, Process of fossilisation,

UNIT - II

PLANT ANATOMY

1. Tissues and tissue systems
2. Root - Normal secondary growth; Abnormal secondary growth; e.g., *Tinospora,Boerhaevia, Dracaena.*
3. Stem - Normal secondary growth; Growth rings ; Sap wood and Heart wood, Periderm.

UNIT - III

1. Leaf : Internal structure of dicot, monocot and xerophytic leaves.
2. Wood structure : Teak wood, Rose wood, Neem, Terminalia

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ZOOLOGY **ZOO 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

BIOLOGY OF CHORDATES

UNIT I

1. General organisation of chordates 2. Salient features of Urochordata
3. Structure and life history of *Herdmania*
4. Salient features of Cephalochordata
5. General characters of cyclostomes

UNIT II

1. General characters and classification of fishes upto the level of subclasses
2. *Scoliodon* - External features, respiratory system, heart and brain
3. Types of scales in fishes
4. Migration in fishes
5. General characters and classification of extant amphibians upto orders level
6. *Rana* - External features, respiratory system, heart, brain
7. Parental care in amphibians

UNIT III

1. General characters and classification of extant reptiles upto orders
2. *Calotes* - External features, respiratory system, heart, brain
3. Key for identification of poisonous snakes
4. Snake bite and first aid

UNIT IV

1. General characters and classification of Aves upto super orders
2. *Columba* - External features, feathers, respiratory system, heart, brain
3. Migration of birds 4. Flight adaptations
5. General characters and classification of mammals upto subclasses
6. Dentition in mammals

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ELECTRONICS **ELE 201N** 2013-14 onwards II B.Sc

SYLLABUS

III SEMESTER

SOLID STATE ELECTRONICS CIRCUITS

UNIT - I

POWER AMPLIFIERS:

a) Rectifier : Half wave, full wave, bridge rectifiers - Efficiency, Ripple factor, regulation, Harmonic components in rectified output.

b) Filters : Choke input (Inductor) filter - shunt capacitor filter - L section and section Filters

c) Block diagram of regulated power supply, series and shunt regulated power supply. IC regulators (723, 78xx, 79xx, 317)

UNIT - II

RC Coupled Amplifiers : Analysis and frequence response of single state RC Coupled CE amplifier.

Feedback Amplifier : Positive and Negative feedback amplifiers, advantages of negative feedback (gain, bandwidth, noise, input and output impedance) & emitter follower.

Oscillators : Positive feedback amplifier - Oscillator, hartley and phase shift oscillator.

NOTE : Solving related problems in all units.

Text Books :

1. Solid state electronics unified II
2. Electronic devices and circuits - Millimans and Malkias
3. Principles of Electronics - V.K. Meheta

Reference :

1. Applied Electronics - R.S. Sedha
2. A First course in electronics - A.A. Khan & K.K. Dey
3. Micro Electronics - J. Millimans and Grabel.

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COMPUTER SCIENCE **CSC 201N** 2013-14onwards II B.Sc

SYLLABUS

III SEMESTER

OBJECT ORIENTED PROGRAMMING WITH JAVA

UNIT - I

1. Fundamentals of Object Oriented Programming
2. Java Evolution
3. Overview of Java Language 4. Constants, Variables and Data types

UNIT - II

5. Operators and Expressions
6. Decision making, Branching and Looping
7. Classes, Objects and Methods

UNIT - III

8. Arrays and Strings 9. Interfaces : Multiple Inheritance
10. Packages : Putting classes together

UNIT - IV

11. Multi Threaded Programming
12. Managing Errors and Exceptions
13. Applet Programming
14. Managing Files in Java

PRESCRIBED BOOK :

1. E. Balagurusamy, Programming with Java A primer, 3e, Tata Mc-Graw Hill Company (2008) Chapters : 1to 14, 16

REFERENCE BOOKS :

1. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline series, Tata Mc-Graw Hill (2007).
2. Timothy Budd, understanding Object Oriented Programming with Java, Pearson Education (2007).
3. Java, Java and Object Oriented Paradigm, PHI (2007)
4. Deitel & Deitel. Java TM : How to Program, 7th Edition, PHI (2008)

For Merit Students

Graphics Programming, JDBC

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N C C **NCC 201** 2015-16 onwards II Degree

SYLLABUS

III SEMESTER

N C C

UNIT I: Health and Hygiene

Human body and its structure - Muscles - Types and functions - Digestive organs - Glands that secret hormones - Factors that contribute to health - Sources of water supply - Preventable diseases - Air - Borne diseases - Water - Borne diseases - Insect - Borne diseases - Beats of healthy heart - Deficiency of vitamins that result in beriberi, night blindness - Vulnerable parts of the body - Full form of T.B., B.P., AIDS, HIV, NACO, STI, STD

UNIT II: Environment, Ecology and Pollution

Definitions of ecology, climate, temparture, snow, wind, parasites - Pollution - Pollutant - Types of pollution - Reasons for air pollution - Sources of water pollution and noise pollution - Main cause of land pollution - Afforestation - Deforestation - Forest eco system - NCC cadets and pollution check.

UNIT III: Adventure activities and self defense

College level adventure activity - Meaning of adventure - Trekking - Aims of trekking - Types of adventure activity - Aim of adventure activities - Adventure activities - Activies at college level - Planning adventure activities - Self defence - Unarmed combat - Various attacks - Basic throws.

UNIT IV: Miscellaneous

Full form of BLC, STD, MOD, LMG, SLR, MPI, AIDS, NGO, INSAS, CMG, RL, TOET, MMG, HMG, ALC, importance of the following related to NCC a. Gwalior b. Secunderabad c. 26th January d. Rajghat e. Shunthiban f. Shakthi Sthal g. Vir Bhumi

References:

1. Cadet's Hand Book - Common Subject, All Wings, by DG NCC, New Delhi.

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GENERAL ENGLISH **ENG 202NA** 2013-14 onwards II DEGREE

SYLLABUS

IV SEMESTER

GENERAL ENGLISH

Poetry:

1. Refugee Mother and Child
2. I Will Embrace Only the Son

Prose:

1. On shaking Hands
2. No Man is an Island

Non - detailed:

1. Never - Never Nest
2. Refund

Grammar

1. Consonents and their sounds
2. Correction of Sentences (Question tags, Modals, Prepositions, Articles)
3. Curriculum Vitae
4. Letter writing
5. Stative verbs
6. Intonation

Prescribed text books :

1. English for Empowerment - Orient Black Swan
2. Nurtusing competences - Lorven Publications
3. A course in Listening and speaking II
   (Foundation Books Pvt. Ltd., Cambridge House, New Delhi)

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SANSKRIT **SAN 202N** 2013-14 onwards II DEGREE

SYLLABUS

IV SEMESTER

SANSKRIT

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1. भारत संस्कृतेः मूलम् - सुसंहतभारतम् - 6 अङ्कः - आचार्य पुल्लेल क्षीरामचन्द्र :
2. उपनिषदादेश : - बृहदारव्यकात् - दकारकथा - तैतिरीयात् - शिक्षावल्ली
3. भोजस्य सारस्वती सुषमा - भोजप्रबन्धः - बल्लाल :

I. व्याकरण विभागः

कृत्प्रत्ययान्ता :

1. कत्वा	2. ल्यप्	3. तुमुन्	4. तव्य
5. क्त	6. क्तवतु	7. शतृ	8. शानच्

II. कविकाव्यशात्रसकाराणां परिचय :

1. पाणिनि :	2. कौटिल्यः	3. भरतमुनि :	4. दण्डी
5. भारवि :	6. माघः	7. भवभूतिः	8. श्रीहर्षः
9. श्रीशङ्कराचार्य :	10. जगन्नाथपण्डितरायः		

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HINDI **HIN 202N** 2013-14 onwards II DEGREE

SYLLABUS

IV SEMESTER

HINDI

A. OLD POETRY	:	1. Raheem Dohe 2. Bihari Dohe
B. MODERN POETRY	:	1. Thodthi Pathar 2. Parichai 3. Yeh Deep Akela
C. HISTORY OF HINDI LITERATURE	:	1. Reethi Kal - Bihari 2. Adhunik kal - Premchand 3. Natak ka vikas - Jaya Sankar 4. Pragathivad - Nirala 5. Prayogavad - Agneya
D. GENERAL ESSAYS	:	1. Bharath Mein Berojgari Ki 2. Prayojan Mulak Hindi : Arth Evam Swaroop, Raja Bhasha, Rashtra Bhasha Aur Sampark Bhasha. 3. Paryavaran Pradooshan 4. Abaadi Ki Samasya 5. HIV / AIDS
E. TRANSLATION	:	English to Hindi Paragraphs from prescribed text books
TEXT BOOK	:	KAVYA DEEP

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Environmental Studies **GSC 202N** 2010-11 onwards II Degree

SYLLABUS

IV SEMESTER

ENVIRONMENTAL STUDIES

UNIT - I

1. Environmental studies - Definition - Scope and importance

2. Environmental pollution, causes, effects and control of air, water and soil pollution

3. Basic principles of ecosystem functioning - Forest ecosystem, aquatic ecosystem (Pond)

Unit - II

4. Environment and natural resources

Forest resources - Deforestation problems, Afforestation, social forestry, forest produce and tribal people.

5. Water resources - Use and over utilization of surface and ground water conservation. Rain water harvesting, watershed management.

6. Social issues - Role of an individual in conservation of nature's resources.

Unit - III

7. Environmental problem in India - Effects of human activities in the quality of life, waste land reclamation, domestic pollution.

8. Conservation of nature - Concept of Biodiversity

9. Field work :

Visit to a local area to study local environment - Plants, birds, insects

Study of simple ecosystem - Pond

Prepare a team paper based on the observations during the field work.

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HISTORY **HIS 202N** 2013-14 onwards II B.A

SYLLABUS

IV SEMESTER

UNIT – 1 : Factors for social change - Christian missionaries - Western education - Emergence of new middle class - Growth of press

UNIT – 2 : Socio - Religious reform movements - Brahma Samaj - Arya Samaj - Theosophical society - Rama Krishna Mission - Aligarh movement

UNIT – 3 : Self respect movements - Jyothiba Phule - Narayan Guru - Periyaar and B.R. Ambedkar

UNIT – 4 : Indian National movement - Factors for the growth of Nationalism - Indian National Congress - Three phases of freedom struggle - Revolutionary movement - Peasant and workers movement

UNIT – 5 : Leaders of modern India - Dadabhai Naoroji - Gopala Krishna Gokhale - Balagangadhara Tilak - Mahatma Gandi - V.D. Savarkar - Bhagat Singh - Chandrasekhara Ajad

UNIT – 6 : Emergence of communal trends - Partition of India - Integration of Princely states into Indian union.

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POLITICS **POL 202N** 2013-14 onwards II B.A

SYLLABUS

IV SEMESTER

INDIAN GOVERNMENT & POLITICS

1. Party system - National and Regional parties - INC, BJP, CPI, CPIM, BSP. TDP, TRS, DMK, TMC - Coaliation politics.
2. Election commission - Powers and functions - Recent Electrol Reforms.
3. State Govt - Governer - C.M. - Council of ministers - Powers and functions
4. Social & Economic factors in Indian politics - Language, Religion, Caste and regional identities.
5. Political corruption - Kinds of defections - Causes and remedies - Lokayuktha
6. Challenges to National integration - Communalism, Terrorism and Regionalism
7. 73, 74 Constitutional Amendments.

Books Recommended :

1. Politics in India	:	Rajini Kothari
2. Indian constitution	:	M.V. Pylee
3. Indian constitution	:	Bakshi
4. Introduction for constitution of India	:	D.D. Basu
5. Indian Govt. and Politics	:	K.R. Acharya
6. Telugu Academi - Rajikiyalu	:	Bharata Prabhutwamu
7. Telugu Academi	:	Bharata Rajayagamu

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MACRO ECONOMICS **ECO 202N** 2013-14 onwards II B.A

SYLLABUS

IV SEMESTER

MACRO ECONOMICS

Module - I

MONEY AND THEORIES OF MONEY :

1. Meaning, functions and classification of money
2. Gresham's law - RBI classification of money
3. M_1, M_2, M_3, M_4 Theories of money.
3. Fisher's quantity theory of money
4. Cambridge approach (Marshall, Pigoue, Robertsan and Keynes)

Module - II

BANKING, STOCK MARKET AND INSURANCE :

1. Functions of Commercial Banks
2. The process of Credit Creation
3. Concept of Non Banking Finance Companies (NBFCs)
4. Concept of SEBI - Stock Market
5. Meaning, functions and importance of Stock Market
6. Primary and Secondary markets, concepts a) Shares b) Debentures c) Insurance
7. Types of Insurance - Life Insurance and General Insurance
8. Functions of the Reserve Bank of India
9. Methods of Credit Control - Quantitative and Qualitative methods.

Module - III

INTERNATIONAL ECONOMICS :

1. WTO (World Trade Organisation)
2. IMF (International Monitery Fund)
3. IBRD (International Bank for Reconstruction and Development)

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SPL. ENGLISH **ENG 202SN** 2013-14 onwards II B.A.

SYLLABUS

IV SEMESTER

SPECIAL ENGLISH

NOVEL :

1) Pride and Prejudice - Jane Austen

SHORT QUESTIONS :

a) The origin of the novel

b) The structure of the novel

c) Purpose and teaching of the novel

d) The Eighteenth century novel

e) The Ninteenth century novel

DRAMA :

1) Othello

SHORT QUESTIONS :

a) Religious plays

b) The moralities

c) Comedy of manners

d) Shakespeare as a dramatist

e) The heroic tragedy

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FINANCIAL ACCOUNTING **COM 401N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

FINANCIAL ACCOUNTING

Unit – I : Partnership accounts - Features, deed, types of partners - Fixed and fluetuating capital methods, appropriations of profits - Admission of a new partner - treatment of goodwill - Revaluation of assets and liabilities, adjustments of capitals - Retirement of a partner - death of a partner.

Unit – II : Dissolution of firms - Mode of settlement of accounts. When one partner insolvent - Garner Vs Murry.

Unit – III : Features, classification of shares and debentures - Issue of shares - Minimum subscription - Issue at premium and discount - Call in arrears - Call in advances - Over subscription - Fore feature and reissue of shares.

Unit – IV : Redemption of debentures, various methods of redemption of debentures.

Final accounts of Joint stock companies.

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Business Statistics **COM 402N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

BUSINESS STATISTICS

UNIT - V

Types of correlation : Meaning, defination and use of correlation - Types of correlation - Karl Pearson's correlation co-efficient - spearman's rank correlation - Probable error

Lab work : Calculation of correlation by using computers.

UNIT - VI

Regression Analysis : Meaning and utility of Regression analysis, comparison between correlation and regression - Regression equations - Interpretation of regression co-efficient

Lab work : Calculation of regression by using computers.

UNIT - VII

Analysis of time series : Meaning and utility of time series analysis - Components of time series, measurement of trend and seasonal variations - Utility of decomposition of time series - Decentralization of data - Calculating of trend and seasonal variation using computers.

Lab work : Computing second Degree parabola trend and seasonal variations by using computers.

UNIT - VIII

Index numbers : Meaning, defination and importance of index numbers - Methods of construction of Index numbers - Price index numbers - Quantity index numbers - Tests of Adequacy of index numbers - Deflating index numbers - Cost of index numbers - Limitation of index numbers

Lab work : Calculation of index numbers using computers.

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Financial Services - Banking and Insurance **COM 403N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

FINANCIAL SERVICES - BANKING AND INSURANCE

UNIT - I

Financial Markets : Indian money market - Characteristics, structure composition [call and notice money market, treasure bills market, CDs, CPs, short - term bill market, mmmFs and DFHI] problems and reforms in Indian money markets [CDs, CPs, treasury bills]

UNIT - II

Financial Services: Indian capital market - composition growth of primary and secondary markets, differences between primary and secondary markets, capital market reforms and NBFCs in capital markets, Stock - Exchange, NSE, OTCEL, online trading and Role of SEBI.

UNIT - III

Types of insurance and its regulations:

a) Definition, meaning of insurance and reinsurance, principles of insurance, kinds of insurance, advantages of insurance, globalization of insurance and insurance sector reforms in India.

b) Life Insurance : Practical aspects of life insurance, procedure for issuing of life insurance policies, issue of duplicate policies, nomination, surrender value,

policy loans, assignment, revivals and claim settlement [formats of types of insurance]

UNIT - IV

Non - Life insurance: Types of products and scope of fire insurance, marine insurance, health insurance, social insurance and rural insurance, regulation of insurance in India - Insurance act 1938 and IRDA 1999. [formats of non - life insurance]

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Taxation **COM 404N** 2013-14 onwards II B.Com

SYLLABUS

IV SEMESTER

TAXATION

Objective : To equip the students with the working knowledge of both direct and indirect taxes.

UNIT – I : Capital gains - long term and short term capital gains - Cost of acquisition - Cost of improvement - Cost inflation index - Sale consideration - Deductions under sec.54 (problems)

UNIT – II : Income from other sources - Tax laibility of dividend, interest, rent and casual income etc., - Deductions under sec.57 (problems)

UNIT – III : Clubbing of income, set off and carry forward of losses (Problems) deductions to be made in computation of total income (sec.80)

UNIT – IV : Assessment of an individual and computation of tax liability of an individual only - Rates of income tax - Education less - Surcharge (problems)

UNIT – V : Wealth tax act 1957 - Charge of wealth tax - Valuation date - Location of assets - Assets - Meaning - Deemed assets - Exempted assets - Net wealth - computation of net wealth - Valuation of assets - Return of wealth and procedure of assessment - Time limit for completion of assessment (problems).

Reference Books :

1. Direct taxes - Law and practice - Vinod K. Singhavia (Tax Mann)

2. Systems approach to income tax - Ahuja and Ravi Gupta.

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MATHEMATICS **MAT 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

ABSTRACT ALGEBRA AND REAL ANALYSIS – 2

ABSTRACT ALGEBRA UNIT - 1

Rings - Defination and basic properties, commutative ring, ring with unity, Boolean ring, division ring, field, subring, subfield. Integral domains - divisors of zero, integral domain, characteristic of a ring.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Ideals - Left, right and two sided ideals, algebra of ideals, principal ideal, principal ideal ring, maximal ideals, prime ideals, quotient ring. Homomorphism of rings - definition and elementary properties, range and kernal of a homomorphism, fundamental theorem of homomorphisms.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Polynomial rings - Polynomials in an indeterminate, polynomial ring, the evaluation of homomorphisms, division algorithm for polynomials, polynomial equation, irreducible polynomials, Eisenstein theorem, ideal structure of a polynomial ring, unique facterisation in a polynomial ring. Euclidean ring and examples.

(2 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS UNIT - 4

Differentiation - Derivative of a function, algebra of derivable functions, increasing and decreasing functions, Darboux's theorem, Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, L 'Hospital's rules, Taylor's generalized mean value theorem, Maclaurin's theorem, expansions of some basic functions.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Riemann integration - Partitions, Riemann sums, lower and upper Riemann integrals, Riemann integral, a necessary and sufficent condition for R-integrable, some classes integrable functions, algebra of integrable functions, fundamental theorem of integral calculus.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Riemann integration - Integral as the limit of a sum, first mean value theorem of integral calculus, Bonnet's mean value theorem of integral calculus, second mean value theorem of integral calculus, integration by substitution, integration by parts.

(1 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, Hohn Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 202N** 2013-14 onwards II B Sc.

SYLLABUS

IV SEMESTER

THERMODYNAMICS AND OPTICS

PART - A
THERMODYNAMICS

UNIT I

1. Low Temperature Physics :

Liquefaction of gases using Joule - Kelvin effect - Porous plug experiment - Distinction between: Joules expansion, Adiabatic expansion and Joule, Thomson's expansion - Expression for Joule Thomson cooling - Adiabatic demagnetization - Derivation of expression for fall in temperature - Liquefaction of Helium by Kaptizas method - principle of Refrigeration - Refregerant - Vapour Comperssion type. (8 hours).

2. Quantum theory of Radiation :

a. Classical theory of radiation: Introduction - Black body - Fery's black body - Distribution of energy in the spectrum of a black body(Lummer and Pringheim Experiment) - Statements of Wien's displacement law, Wien's law, Raleigh - Jeans law (3 hours)

b. Quantum theory of radiation: Introduction- Planck's law - Plank's Hypothesis- Derivation of Plank's Radiation law- deduction of Wien's law, Releigh Jeans law, Wiens displacement law from Planck's law. Pyrometers- Types of pyrometers - Disappearing filament optical pyrometer - determination of solar constant - Amstangstroms pyroheliometer- Temperature of Sun. (7 hours).

3. Statistical Thermodynamics :

Introduction to statistical mechanics - Statistical equilibrium - Probability, theorems in statistical thermodynamics - Maxwell - Boltzmann distribution law (Statement and expression only) - Application to ideal gas. Quantum Statistics - Phase space, Fermi - Dirac distribution law (Statement and expression only) - Application to electron gas, Bose - Einstein distribution law (Statement and expression only) - Application to photon gas - Comparsion of three statistics (7hours).

PART - B
OPTICS

UNIT - II

4. Diffraction :

Fraunhofer diffraction, Fraunhofer diffraction due to a single slit and double slit. The diffraction grating - Normal incidence - determination of wavelength of light - Fresnel diffraction - Fresnel half period zones - Zone plate - comparison of zone plate with convex lens (10 hours).

5. Polrization and Double Refraction :

Polarised light, Brewsters law - Malus law - Phenomenon of double refraction in calcilte - Construction and working of Nicol prism- applications of Nicol prism - Quarter & Half wave plate - Statement of optical activity (10 hours).

6. Lasers fiber optics and Holography :

Spontaneous, stimulated emission - Laser principle - Population inversion - Einstein coefficents - Types of lasers, He - Ne and Ruby lasers and the application of lasers. Introduction, Principle of Optical fiber - types of optical fibre, rays - Fiber materials - Basic principles of holography - Gabor Hologram and its limitations, Holography applications. (8 hours)

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II B.Sc., Semester – IV

SECOND YEAR PHYSICS PRATICALS

1. Co - efficient of thermal conductivity of a bad conductor by Lee's method.
2. Heating efficiency of electrical kettle with varying voltages.
3. Thickness of a wire - wedge method.
4. Determination of wavelength of light - Biprism.
5. Determination of radius of curvature of a given convex lens - Newtons' rings.
6. Resolving power of grating.
7. Study of optical rotation - polarimeter.
8. Dispersive power of a prism
9. Determination of wavelength of light using diffraction grating minimum deviation method.
10. Wavelength of light using diffraction grating - normal incidence method.
11. Resolving power of a telescope.
12. Refractive index of a liquid and glass (Boys method).
13. Pulfrich refractometer - determination of refractive index of liquid
14. Wavelength of Laser light using diffraction grating.

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CHEMISTRY **CHE 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

UNIT - I

PHYSICAL CHEMISTRY

1. Phase Rule : Concept of phase, component, degrees of freedom. Phase equilibrium of one component : Water system. Phase equilibrium of two component system solid - liquid equilibrium. Simple eutectic diagram of Pb-Ag system, desilverization of lead. Solid solutions - Compound with congruent melting point - Mg-Zn system, Compound with incongruent melting point - NaCl Water system. Freezing mixtures. **Weightage : 15+5**

2. Thermodynamics : The first law of thermodynamics - Statement definition of internal energy and enthalpy. Heat capacities and their relationship. Joules law - Joule Thompson coffient calculation of W, q dv and dH for the expansion of perfect gas under isothermal and adiabetic conditions for reversible process. State function - Kirchhoff's equation.

Second law of thermodynamics. Different statement of the law Carnot cycle and its efficiency Carnot theorem. **Weightage : 15+5+5**

3. Electro Chemistry : Debye - Huckel - Onsager equation for strong electrolytes (elementary treatment only). Definition of transport number, its determination by Hittorf's method. Application of conductivity its measurements - determination of dissociation constant (ka) of an acid, determination of solubility product of a sparingly soluble salt, conductometric titrations. Types of reversible electrodes - Hydrogen electrode.

Weightage : 15+5+5

UNIT - II

GENERAL CHEMISTRY

1. Molecular symmetry : Concept of symmetry in chemistry - symmetry elements. Rotational axes. Planes of symmetry and types of planes. Improper

rotational axis of symmetres. Inversion centre, identity element. The symmetry operations of a molecule form a group. Flow chart for the identification of molecular point group. **Weightage : 5**

2. Theory of Quantitative analysis :

a) Principles of Volumetric analysis : Theories of acid - base, red - ox, complexometric, iodometric and precipitation titrations, choice of indicators for these titrations.

b) Principles of Gravimetric analysis : Precipitation, coagulation, peptization, coprecipitation, Post precipitation, digestion, filtration and washing of precipitate, drying and ignition precipitation from homogeneous solutions, requirements for gravimetric analysis. **Weightage : 15+5**

3. Evaluation of Data : Theory of errors, ideas of significant figures and its importance, accuracy - Methods of expressing precission - Standard deviation and confidence limit. **Weightage : 15**

4. Introductory treatment to :

a) Pericyclic reactions : Definition of Pericyclic reactions as concerted reactions. Definition of HOMO and LUMO orbitals in the ground state and exited state with examples (ethane, 1, 3 - but diene and 1, 3, 5 hexa triene) Frontier molecular orbital theory and overlapping of HOMO and LUMO orbitals during pericyclic reactions symmetry consideration. Types of pericyclic reactions - Thermal and photo chemical - Electrocyclic reactions disrotatory and conrotary overlap - Cyclo addition and sigma tropic reaction - Supra and antera overlap with one examples. **Weightage : 15**

b) Synthetic Strategies : Terminology - Disconnection (dix), Symbol, Synthon, Synthetic Equivalent (SE), Functional Group Inter Conversion (FGI), Linear, Convergent and Combinatorial syntheseis. Target molecule (TM). Retro synthesis of the following molecules.

1) Acetophenone
2) Cyclohexene
3) Phenylethyl bromide. **Weightage : 5**

c) Asymmetric synthesis (Chiral) : Definition, enantiometric excess, streospecific reaction - dehalogination of 1, 2 - dibromide by I - Stereo selective reaction - Definitions - Example - Acid catalysed dehydration of 1 - phenyelpropanol. **Weightage : 5+5**

Additional syllabus (without examination)

Origin of waste water, types, water pollutants and their effects. Sources of water pollution - Domestic, industrial, agricultural soil and radioactive waste as sources of pollution. Objectives of anlysis - Parameter for analysis - Colour, turbidity, total solids, conductivity, aciditity, alkalinity, hardness, chloride, sulphate, floride, silica, phosphates and different forms of nitrogen. Heavy metal pollution - Public health significane of cadmium, chromium, copper, lead, zinc, manganese, mercury and arsenic. General survey of instrumental technique for the analysis of heavy metals in aqueous systems. Measurements of DO, BOD and COD. Pesticides as water pollutants and analysis. Water pollution laws and standards.

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CHEMISTRY **CHE 202P** 2013-14 onwards II B.Sc

PRACTICAL SYLLABUS

IV SEMESTER

Time : 3hrs **Inorganic Chemistry** Max. Marks : 70

Titrimetric Analysis :

1. Determination of carbonate and bicarbonate in a mixture
2. Determination of Fe (II) using as the standard solution
3. Determination of Fe (II) using with oxalic acid as primary standard.
4. Determination of Cu (II) using with as primary standard.
5. Determination of Zinc using EDTA
6. Determination of Magnesium using EDTA
7. Determination of hardness of water
8. Determination of Zinc by ferrocyanide
9. Estimnation of acetic acid in commercial vinegar
10. Estimation of antacid in the tablets
11. Estimation of Nickel using EDTA
12. Estimation of Calcium in chalk

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BOTANY **BOT 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

Plant Ecology - Bio Diversity - Bio Technology - Horticulutre and Tissue Culture

UNIT - I

Plant Ecology & Environment :

1. Atmosphere, light, temperature, soil and biota

2. Population ecology : Growth curves, ecotypes, ecads.

UNIT - II

Plant Ecology & Biodiversity :

3. Community Ecology : Community characterstics, frequency, density, cover, life forms,biological spectrum and Ecological succession - Hydrosere, xerosere.

4. Vegetation types of India - Biodiversity, forests and grass lands.

UNIT - III

Biotechnology - Tissue culture, Horticulture :

5. Concept and methods of r-DNA technology and its application in agriculture, medicine and industry, somatic hybridization, cybrids.

6. History and development in plant tissue culture, methods of culture of shoot tip, anther, ovary and embryo, their importance.

7. Horticulture - Definition and brief history of Horticulture

Methods - Cutting, grafting, layering

Plants propogated by seperation

Plants propogated by division

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BOTANY **BOT 202P** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

BOTANY PRACTICALS

1. Slide preparation of pinus stem, needle
2. Slide preparation of tinospora root, boerhaevia stem, dracaena stem and xerophytic leaf, dicot and monocot leaf
3. Ecology experiments
4. Spotors identification
5. Record
6. Viva – voce

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ZOOLOGY **ZOO 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

EMBROLOGY, ECOLOGY AND ZOOGEOGRAPHY

UNIT - I

1. Gametogenesis
2. Fertilisation
3. Types of Eggs
4. Types of cleavages
5. Cell lineage in *Planocera*

UNIT - II

1. Development of frog upto gastrulation and formation of primary germ layers.
2. Foetal membranes of chick - Formation and functions
3. Placenta - Development, types and functions

UNIT - III

1. Biogeochemical cycles - Nitrogen cycle, Carbon cycle, Phosphorus cycle
2. Habitat & Ecological niche.
3. Community interactions - competition, predation, mutualism, commensalism and parasitism.
4. Ecological succession - Primary and secondary succession - seral stages, climax community with examples.

UNIT - IV

1. Population - Growth curves, population density, dispersal
2. Growth of human population and its control
3. Population regulating mechanisms - biotic & abiotic
4. Zoogeography - Fauna of Oriental region, Australian region, Ethiopian region

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ZOOLOGY PRACTICALS **ZOO 202P** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

Time : 3 hrs **BIOLOGY OF CHORDATES, EMBRYOLOGY & ECOLOGY** Max. Marks : 70

I. Dissections **:** Fish : 5th and 7th cranial nerves, 9th and 10th cranial nerves.Video clippings of anatomy of *Calotes*

II. Osteology **:** Girdles and limb bones of frog, lizard, bird and rabbit

III. Embryology **:** Study of sperms, TS of testis and TS of ovary of frog / mammal Different stages of cleavages (2, 4, 8, cell stages) Chick embryos wm 24 hrs, 33 hrs, 48 hrs

IV. Museum specimens : All important representatives of Prochordata, Cyclostomata and vertebrates.

V. Ecology **:** Determination of pH, Estimation of dissolved oxygen at different temperatures, Estimation of salinity, Estimation of total alkalinity.

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ELECTRONICS **ELE 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

OPRATIONAL AMPLIFIER AND COMMUNICATION

UNIT - 1

Operational Amplifiers : Block diagram of Op - Amp, Op - Amp parameters, common mode rejection ratio (CMRR), slew rate, virtual ground, inverting and non inverting - amplifiers

Applications of Op-Amps : Summing amplifiers, voltage regulator, logarithmic amplifier, sine wave generator and square wave generator.

UNIT - 2

Communications : Need for modulation, types of modulation amplitude, frequency & phase modulation, amplitude modulation - side bands, modulation index, square law diode modulation, demodulation and detection.

Frequency modulation - Simple frequency modulator, ratio detection of FM waves, advantages of frequency modulation and super hetrodyne receiver.

Note : Sloving related problems in all units

Text Books :

1. Operational amplifier and linear integrated circuit - Ramakanth.A.Gayakward
2. Electronic communication - D. Roddy & J. Coolean.

Reference Books :

1. Electronic communication system - George Kennedy
2. Operational amplifier and linear integrated circuit - K. Lal Kishore.
3. Electronic devices and circuits - Millman and Halkias - Tata MC Graw Hill (TMH)
4. Micro electronics - J. Millman and A.Grabel - TMH
5. Operational Amplifiers and linear integrated circuits - Ramakant A. Gayakward - Prentice Hall of India (PHI)
6. Operational Amplifiers and linear integrated circuits - K. Lalkishore - Pearson education
7. Analog electronics - L.K. Maheswari and M.M.S Anand - PHI

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ELECTRONICS **ELE 202P** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

Time : 3 hrs ANALOG CIRCUITS AND COMMUNICATIONS LAB Max. Marks : 70

1. Inverting and non inverting Op-Amp

2. Op-Amp as a wien bridge oscillator

3. Op-Amp as a integrator and differentiator

4. Emitter follower

5. Astable multivibrator using Op-Amp

6. Voltage regulator using Op-Amp

7. Regulator power supply 723, 78xx, 317

8. Monostable multivibrator using Op-Amp

9. AM modulator and demodulator

10. FM modulator

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COMPUTER SCIENCE **CSC 202N** 2013-14onwards II B.Sc

SYLLABUS

IV SEMESTER

DATA STRUCTURES IN JAVA

UNIT – I :

1. Introduction and overview
2. String Processing

UNIT – II :

3. Stacks
4. Queues

UNIT – III :

5. Linked Lists
6. Sorting Methods

UNIT – IV :

7. Searching methods
8. Trees

Prescribed Text Book :

1. Robert Lafore, Data Structures and Algorithms in Java, Second Edition, Pearson Education (2008)

Reference Book :

1. Adam Drozdek, Data Structures and Algorithms in Java, Second Edition, Cengage Learning (2008)

2. John R. Hubbard, Anita Hurry, Data Structures with Java, Pearson Edition

3. Samatha, Classic Data Structures, PHI (2005)

For Merit Students Only

Graphs and their representations

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COMPUTER SCIENCE **CSC 202P** 2013-14 onwards II B.Sc

LAB CYCLE

III AND IV SEMESTERS

Java Lab Cycle :

1. Write a Java Program to determine the sum of the following harmonic series for a given value of 'n'. 1+1/2+1/3+..._1/n
2. Write a program to perform the following operations on strings through interactive input.
   a. Sort given strings in alphabetical order.
   b. Check whether one string is sub string of another string or not.
   c. Convert the strings to uppercase.
3. Write a program to identify a duplicate value in a vector.
4. Create two threads such that one of the thread print even no's and another prints odd no's up to a given range.
5. Define an exception called "Marks out of Bound" Exception, that is thrown if the entered marks are greater than 100.
6. Create a package called "Arithmetic" that contains methods to deal with all arithemtic operations. Also, write a program to use the package.
7. Write an Applet program to design a simple calculator.
8. Write a program to read a text and count all the occurrences of a given word. Also, display their positions.
9. Illustrate the method overriding in Java
10. Write a program to fill elements into a list. Also, copy them in reverse order into another list.
11. Write an interactive program to accept name of a person and validate it. If the name contains any numeric value throw an exception "InvalidName".
12. Create an anonymous array in Java
13. Write an applet program to insert the text at the specified position.
14. Prompt for the cost price and selling price of an article and display the profit (or) loss percentage.
15. Create a font animation application that charges the colors of text as and when prompted.

Data Structures Lab Cycle :

16. Program to create, insert, delete and display operation on single linked list ?
17. Program to create, insert, delete and display operation on double linked list ?
18. Program to create, insert, delete and display operations on circular single linked list ?
19. Program to split a single linked list
20. Program to reverse a single linked list
21. Program to implement Insetion Sort
22. Program to implement PUSH and POP operations on Stack using array method.

23. Program to implement PUSH and POP operations on Stack using linked list method.
24. Program to implement insert and delete operations on Queue using array method.
25. Program to implement insert and delete operations on Queue using linked list method.
26. Program to implement insert and delete operations on Priority queue ?
27. Program to implement insert and delete operations on Double Ended Queue ?
28. Program to evaluage postfix expression by using Stack ?
29. Program to construct Binary Search Tree and implement tree traversing Techniques.
30. Program to delete a leaf node from binary search tree.
31. Program to implement Selection Sort.
32. Program to implement Bubble Sort.
33. Program to implement Operations on Circular Queue.
34. Program to implement Quick Sort.
35. Program to find number of leaf nodes and non leaf nodes in Binary Search Tree.

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HISTORY **HIS 301N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

HISTORY OF MODERN WORLD (1453 - 1848)

UNIT - I

Characteristics, features of renaissance - Significance of reformation and counter reformation movements in Europe - Geographical discoveries.

UNIT - II

Rise of colonialism, Mercantilism and commercial revolution - Emergence of modern world economy.

UNIT - III

Age of revolutions - Glorious revolution (1688) - American revolution (1776) - French revolution (1789) - Napoleon Bonaparte - Achievements and down fall - Vienna congress - 1830, 1848 French revolutions.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Chainese civilization - Shintoisam - Buddisam

2) Boxer revolution

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HISTORY **HIS 401N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

HISTORY AND CULTURE OF ANDHRA PRADESH - SYLLABUS

(FROM SATAVAHANAS TO 1857)

UNIT - I

Influence of Geographical features on history, sources - Growth and spread of Jainism and Buddhism and their contribution to Art and Architecture.

UNIT - II

The Qutub Shahis - A brief survey of Political History - Society, Economy and Culture. The Asaf Jahis - A brief survey of their political History - Society, Economy and Culture - Salarjung Reforms.

UNIT - III

Andhra under Colonial rule : Coming of European merchant companies - Conquest of Andhra by the British - Early uprising - Administration.

UNIT - IV

Land revenue settlements - Agrarian conditions - Famines - Impact of Industrial Revolutions on Andhra Economy - Sir Thomas Munroe - Impact of 1857 Revolt in Andhra.

Andhra under British rule - Madras native association - 1879 - Rampa rebellion - Rekapalli rebellion

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Buddhist sites in Andhra Pradesh

2) Kakatiya's Architecture

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POLITICS **POL 301N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

POLITICAL THOUGHT

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1. Introduction to the study of Political Thought.

2. Ancient Greek Political Thought - Plato and Aristotle.

3. Machiavelli

4. Hobbes, Locke and Rousseau

5. Bentham and J.S. Mill

*** Human Rights (For Academically Bright Students)**

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POLITICS **POL 401N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

PRINCIPALS OF PUBLIC ADMINISTRATION

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1. Meaning, Scope and Importance of Public Administration - Relation with Political Science, Sociology and Economics.

2. Public administration and Private administration, differences and similarities - The importance of Public administration in developing Nations.

3. E. Goverance : a) CARD b) E - SEVA c) SMART. Admn

4. a) Classical approach - Luther Gulick and Lyndal Urwick
   b) Human relations approach - Elton Mayo
   c) Ecological approach - F.W. Riggs
   d) Socio - Pyschological approach - MC Gregor and Abharam Maslow
5. Line and Staff agencies.

*** RTI Act 2005 (For Academically Bright Students)**

Books Recommended :

1. Public administration theory & practice - Mohit Bhattacharya
2. Public administration theory & practice - Awasthi and Maheshwari
3. New Horizons of Public administration - Prof. Mohit Bhattacharya
4. Public administration theory & practice - M.P. Sarma
5. Prabhutva Palana Shastram - Telugu Academy

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ECONOMICS **ECO 301N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

Module- 1

Meaning of economic growth and development measures of Economic development - GNP, PQL and HDI factors influencing economic development - Blanced and unbalanced growth - Choice of Techniques - Labour intensive and capital intensive technique - Sustainable development.

Module- 2

Basic features, Basic demographic futures, size and growth of population - Age and sex composition rural and urban population - Occupational distribution. Population policy - Poverty, income inequalities and unemployment causes and consequences - Current five year plan - Objectives. New economic reforms - Libarlization, privatization and globalization in India - Andhra Pradesh economy

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ECONOMICS **ECO 401N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

Module - I : Public Finance and Taxation

Meaning and scope of public finance - Distinction between public and private finance - Principle of maximum social advantage - Public good V/s private goods - Sources of public revenue - a) Taxes b) Administrative revenues c) Commercial revenues d) Gifts and grants e) Deficit finance - Canons of the taxation - Impact, shifting and incidence of taxation - Effects of the taxation - The concept of VAT.

Module - II : Public Expenditure and Public Debt

Meaning and classification of public expenditure - Reasons for the growth of public expenditure - Wagnar's law effects of public expenditure on production - Public debt - Classification of public debt - Govt. subsidies in India.

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SPL. ENGLISH **ENG 301NS** 2015-16 onwards III B.A.,

SYLLABUS

V SEMESTER

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1. Drama: Samson Agonistes (Detailed)

2. Fiction: The Financial Expert (Non Detailed)

Further Reading (Advanced Reading) :

1. Dr. Faustus - Marlowe

2. Duchess of Malfi - Webster

3. Coolie - Mulk Raj Anand

4. Kanthapura - Raja Rao

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SPL. ENGLISH **ENG 401NS** 2015-16 onwards III B.A.,

SYLLABUS

V SEMESTER

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1. History of English language:

1. Origin of language
2. Indo European family of language
3. Grimm's law
4. Verner's law

2. History of literature:

1. Age of Chaucer
2. Age of Shakespeare
3. Age of Milton
4. Age of Dryden
5. Age of Pope and Johnson
6. Age of wordsworth
7. Age of Tennyson
8. Age of Hardy
9. Modern age.

3. Figures of speech:

1. Simile
2. Metaphor
3. Metonymy
4. Synecdoche
5. Pessonification
6. Apostrophe
7. Climax
8. Bathos and anticlimax
9. Hyperbole or Exaggeration
10. Pun

Further Reading (Advanced Reading) :

1. A History of the English language - Albert G. Baugh

2. Modern Applied Linguistics (An Introduction) - N. Krishnaswamy

3. A Glossory of Litery Terms - M.H. Abraham

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BUSINESS LAWS **COM 501N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

CONTRACT ACT

a) Defination - Essentials of a valid contact, types of contracts

b) Offer and acceptance - Essentials of valid offer and acceptance and revocation of offer and acceptance

c) Consideration - Essentials of valid consideration

d) Capacity of contract. Special rules and regarding minor

e) Consent - Free consent, coercion, undue influence, fraud, misrepresentation and mistake

UNIT - II

DISCHARE OF A CONTRACT

a) Illegal and immoral agreements - Agreements opposed to public policy

b) Various modes of discharge of contract, remedies for breach of contracts.

UNIT - III

SPECIAL CONTRACTS

a) Contract of indemnity and guarantee, rights and liabilities of security, Discharge of security

b) Bailment contracts, agency contracts, creation and termination of agency, various modes types of agents, rights and duties of agents and principal.

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AUDITING **COM 502N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION TO AUDITING

Auditing : Meaning - Defination - Evolution - Objectives - (a) Primary objectives (b) Secondary objectives - Importance

UNIT - II

TYPES OF AUDIT

Based on ownership : Proprietorship, partnership, companies, trusts, co - operative societies - Government Departments.

Based on Time : Interim, final, continuous

Based on objectives : Independent, financial, internal, cost, tax, Government secretarial

UNIT - III & IV

PLANNING OF AUDIT AND CONTROL

Auditor : Qualifications and disqualifications - Qualities - Appointment and re - appointment - Remuneration - Removal - Rights - Duties - Liabilities.

UNIT - IV : Audit planning - Engagement letter - Audit programme - Audit note book - Audit papers - Audit work book. Audit contents - Audit markings - Internal check - Internal control (sales, purchase - Fixed assets - Cash book - Pay roll) - Accounting and controls and sampling in Audit.

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A M A **COM 503N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

Introduction - Limitations of Financial Accounting - Emergence of Management Accounting - Definition and scope - Role of Management Accountant - Controller - Functions - Managerial services - Management information system (theory).

UNIT - II : BUDGETORY CONTROL

Budgets - Meaning - Budgetory control - Objectives, advantages, limitations - Essentials of budgets and budgetory control - Types of budgets - Sales budgets, cash budget - Flexible budgets (problems).

UNIT - III : WORKING CAPITAL

Management of working capital - importance - Factors influencing working capital requirement (problems).

UNIT - IV

Funds flow statement - Meaning, importance - Statement showing changes in working capital - funds from operations, - preparation of funds flow statement (problems).

UNIT - V : CASH FLOW STATEMENT

Cash flow statement - Meaning - Importance, differences between funds flow statement and cash flow statement - Cash from operations - Preparation of cash flow statement (problems).

Reference Books:

1. Management accounting - Man, Mohan and Goyal
2. Advanced management accounting - Sarma and gupta

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C M A **COM 504N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION

Nature and scope of Cost Accounting and Management Accounting - Limitations of Financial Accounting - Objectives of Cost Accounting - Cost Accounting Vs. Financial Accounting - Cost Accounting Vs. Management Accounting - Advantages and limitations of Cost Accounting - Installation of Costing System (theory only).

UNIT - II

ELEMENTS OF COST

Elements of cost - Classification of cost - Problems on cost sheet and tenders (problems).

UNIT - III

MATERIALS

Direct and indirect material, material control - Functions of the purchase department - Stock levels - EOQ - Methods of material issues - FIFO, LIFO, Base stock method, Simple average, Weighted average methods (problems).

UNIT - IV

LABOUR

Direct and indirect lalour - Time keeping and time booking - Methods of wage payments - Time wage, piece wage, Halsey, Rowan, Taylor's differential piece rate - Merrieck method (problems).

UNIT - V

OVER HEADS - MEANING

Different methods of classification - Allocation and apportionment of over heads - Machine hour rate - Primary distibution and secondary distibution - Different methods (problems).

Reference Books :

1) Cost Accountancy - Jain and Narang
2) Cost Accounting - Dutt
3) Cost Accounting - Maheswari

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C A **COM 505N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

Accounting Standards : International and Indian Accounting Standard - Importance and need for Accounting Standards (theory only).

UNIT - II

Valuation of Shares : Necessity for valuation of shares, methods of valuation of shares. Net assets method, yield method (or) market value method, earning capacity method, Duel method. (Excluding problems with valuation of good will)

UNIT - III

Valuation of Goodwill : Needs and methods - Normal profit method, super profits method, capitalization method.

UNIT - IV

Issue of Bonus shares : Criteria of issue for bouns shares. Accounting treatment.

UNIT - V

Amalgamation, absorption and Internal reconstruciton : Amalgamation - In the nature of merger and purchase - Calculation of purchase consideration - Treatment in the books of transferor and transferee.

Internal reconstruction - Accounting treatment - Preparation of final statement after reconstruction.

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A C A **COM 506N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I : The accounts of holding companies - I

The nature of holding companies - Legal requirements for a holding company - Scheudule VI of the comapnies Act and subsidiary companies - Preparation of consolidated balance sheet - Cancellation of investement account - Minority interest (including problems).

UNIT - II : The accounts of holding companies - II

Cost of acquiring control or good will - Capital reserve - Preference share capital in subsidary companies - Debentures in subsidiary companies - Preacquisition profits / losses - Inter company transactions - Unrealised profit on stock - Revaluation of assets - Bonus shares - Treatment of dividend received from subsidiary company (including problems related to single subsidiary company)

UNIT - III : Accounts of electrical companies - I (Double - Accounting system)

Meaning of Double - Account system - Revenue account and net revenue account - Capital account (receipts and expenditure on capital account) and general balance sheet (including problems)

UNIT - IV : Accounts of electricity companies - II

Replacement of an asset. Important provisions of Indian Electricity Act 1910. Electricity Supply Act 1948 and the company Act 1956. Formats of relevant accounts - Calculation of reasonable return and disposal surplus. Preparation of net revenue account and balance sheet (including problems).

V.S.R. & N.V.R. COLLEGE , TENALI

AUTONOMOUS NAAC B++

B.Sc. MATHEMATICS - FIFTH SEMESTER

SYLLABUS (With effect from the academic year 2011-2012)

LINEAR ALGEBRA **MAT 301**

VECTOR SPACES

UNIT - 1

Vector space, general properties of vector spaces, vector subspaces, algebra of subspaces, subspace generated by subspace, linear combination of vectors, linear span, linear sum of two subspaces, linear dependence and linear independence of vectors.

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - 2

Basis of a vector space, finite dimensional vector spaces, existence of basis theorem, invariance theorem, dimension, basis extension theorem, coordinates, change of basis, dimension of a subspace, quotient space, dimension of quotient space, direct sum of subspaces, dimension of direct sum.

(2 short answer questions, 2 long answer questions will be given in the examination)

LINEAR TRANSFORMATIONS

UNIT - 3

Linear transformations - Linear transformation, linear operator, some particular transformations, properties of linear transformations, determination of linear transformation, range of a linear transformation, null space of a linear transformation, rank-nullity theorem, linear transformations of vectors, addition and scalar multiplication of linear transformations, product of linear transformations.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 4

Singular and non singular linear transformations, invertible linear transformation, fundamental theorem of linear transformations, matrix representation of linear transformations.

(2 short answer questions, 2 long answer questions will be given in the examination)

INNER PRODUCT SPACES

UNIT - 5

Introduction, inner product space, norm of a vector, Schwarz's inequality, special cases of Schwarz's inequality, triangle inequality, normed vector space, parallelogram law.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Orthogonality, orthogonal set, orthonormal set, Bessel's inequality, another form of Bessel's inequality, complete orthonormal set, Parsvel's identity, orthonormal basis, Gram-Schmidt orthogonalisation process, orthogonal complement.

(2 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. III, DEEPTI PUBLICATIONS, Tenali.

REFERENCE BOOKS

1) J.N. Sharma and A.R. Vasista, Linear Algebra, Krishna Prakashan Mandir, Meerut - 250002.

2) V. Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. III, S Chand & Co.

3) Kenneth Hoffman and Ray Kunze, Linear Algebra, Pearson Education, New Delhi.

4) Stephen H. Friedberg, Linear Algebra, Prentice Hall of India Pvt. Ltd.,

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AUTONOMOUS NAAC B++

B.Sc. MATHEMATICS - FIFTH SEMESTER

SYLLABUS (With effect from the academic year 2011-2012)

MODERN APPLIED ALGEBRA **MAT 401**

UNIT - 1

Sets and functions - Sets, subsets, boolean algebra of sets, functions, inverses, functions on a set S to S

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - 2

Sets and functions - Sums, products and powers, Peano axioms, Finite induction.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Binary relations - Binary relation, graph, relation tables, relation matrices, algebra of relations, partial orderings, equivalence relations and partitions.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 4

Finite state machines - Finite state machine, completely specified machine, state diagram, state table, covering and equivalence, equivalent states, minimization procedure.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Programming languages ALGOL - Introduction, Arithmetic expressions, identifiers, assignment statements, arrays, for statements, block structures in ALGOL.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Boolean algebras - Introduction, order, boolean polynomials, block diagrams for gating networks, connections with logic.

(2 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, MODERN APPLIED ALGEBRA, DEEPTI PUBLICATIONS, Tenali.

REFERENCE BOOK

G. Birkhoff and T.C. Bartee "Modern Applied Algebra", Mc. Graw - Hill Book Company, New York, 1970.

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PHYSICS **PHY 301N** 2015-16 onwards III B.Sc.,

SYLLABUS

V SEMESTER

ELECTRICITY, MAGNETISM AND ELECTRO MAGNETISM

UNIT - I :

ELECTROSTATICS

1. Gauss law and its applications : Gauss law statement, Electric field due to uniformly charged sphere, an infinite sheet of charge conducting plane, Mechanical force on a charged conductor.

Electric potential definition, Relation between electric intensity and electric Potential, Equipotential surfaces, Potential due to charged sphere and electric dipole.

2. Capacitance: Capacity definition, Capacity of spherical capacitor, Cylindrical condenser, Capacity of parallel plate condenser with and without dielectric between the plates, Electric energy stored in a charged condenser, Force between plates of condenser, Altracted disc electrometer construction and working to determine potential difference.

UNIT - II :

DIELECTRICS AND MAGNETISM

1. Dielectrics: Atomic view of dielectrics, Gauss's law in dielectrics, definitions of Electric displacement and electric polarization, Relation between **D**, **E** and **P**, Relation between dielectric constant and susceptibility, Boundary conditions.

2. Magnetism and electromagnetic induction: Magnetic shell, Field due magnetic shell, Potential due to magnetic shell, Equivalence of electric circuit and magnetic shell, Biot savart's law, calculation of **B** due to long straight wire, a Circular current loop. Faraday's laws -Lenz's law, Expression for induced EMF, Self and Mutual Inductance (Statements), coefficient of coupling (Statement), Calculation of self inductance of a long solenoid, Energy stored in magnetic field.

Reference Books:

1. Electricity Berkeley Physics series
2. Electricity and Magnetism Brijlal and Subrammanayam
3. Physics, Vol-II Halliday and Resnik
4. Unified Physics Vol-III Jai Prakash & Co

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PHYSICS **PHY 401N** 2015-16 onwards III B.Sc.,

SYLLABUS

V SEMESTER

MODERN PHYSICS

UNIT - I : SPECTROSCOPY

1. Atomic physics : Spectra of Hydrogen, drawbacks of Bohr's atomic model, spector of Alkali atoms, Spectral terms, Selection Rules, L-S and J-J Couplings. Zeeman effect, Paschen back effect (basic idea).

X - Ray spectra : Week spectra, Continuous spectrum and its dependence on voltage, Duane Hunt's law, Properties of X-rays, Practical applications of X-rays. Mosley's law, its importance, Derivation on the basis of Bohr's theory of atom.

2. Molecular physics:

Raman effect : Characteristics of Raman Effect, Experimental Study of Raman effect, Stokes and anti-Stokes lines, Quantum theory of Raman Effect, Applications of Raman effect.

Spectroscopic Techniques : Single beam spectrophotometer, Double beam spectrophotometer.

UNIT - II : QUANTUM THEORY

1. Photoelectric effect : Photoelectric effect, Experimental study of photoelectric effect, characteristics of photoelectrons, Fundamental laws of photoelectric emission, Einstein's photo-electric equation and Millikan's experimental verification.

2. Matter waves and wave particle duality : De Broglie's hypothesis for matter waves: wavelength of matter waves. Properties of matter waves, Expression for group velocity, Relation between group velocity and wave velocity. Davission and Germer's electron diffraction experiment,G.P. Thomson experiment.

Uncertainty principle : Heisenberg's uncertainty principle, Relation for p and x its extension to energy and time. Experimental illustration of Consequence of uncertainty relation.

Principle : Gamma ray microscope, Diffraction at a single slit, Particle in a box.

Reference Books:

1. Introduction of Atomic Spectra H.F.White
2. Spectroscopy Straughen and Walker
3. Physics of Atom Wher and Richards
4. Elements of Modern Physics Patil
5. Introduction to Modern Physics H.S.Mani and G.K.Mehta
6. Prospective of Modern Physics A.Beiser
7. Unified Physics Vol-IV Jai Prakash & Co

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CHEMISTRY **CHE 301N** 2015-16 onwards III B.Sc.,

SYLLABUS

V SEMESTER

ORGANIC AND PHYSICAL CHEMISTRY

Unit - 1 (Organic Chemistry)

1. Nitrogen Compounds **Weightage : 15 marks = 1, 5 marks = 2**

Amines (Aliphatic and Aromatic) : Nomenclature, classification into 1^0,2^0,3^0 amines and quarternary ammonium compounds. Preparative methods - 1. Hoffman's bromamide reaction (mechanism) 2. Reduction of Amides and Schmidt reaction. Physical properties and basic character - Comparative basic strength of Ammonia, methyl amine, dimethyl amine, trimethyl amine and aniline - Comparative basic strength of aniline, N - methyl aniline and N, N - dimethyl aniline, steric effects and substituent effects. Chemical properties : a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation e) Reaction with Nitrous acid of 1^0,2^0,3^0 (Aliphatic and aromatic amines). Electrophilic

substitutions of Aromatic amines - Bromination and its applications and Nitration and its applications. Diazotization, Diazonium salts - Preparation and its applications.

2. Heterocyclic Compounds **Weightage : 15 marks = 1, 5 marks = 2**

Introduction and Defination : Simple 5 membered ring compounds with one hetero atom Ex. Furan, Thiophene and Phyrrole. Aromatic character - 6 - Electron system (four - electrons from two double bonds and a pair of non - bonded electrons from the hetero atom). Resonance structures : Indicating electron surplus carbons and electron deficient hetero atom. Explanation of feebly acidic character of pyrrole, electrophillic substitution at 2 or 5 position, halogenation, nitration and sulphonation under mild conditions. Reactivity of furan as 1, 3 - diene, Diels alder reaction (one example). Sulphonation of thiophene preparation of furan, pyrrole and thiophene from 1, 4 - Dicarbonyl compounds only, Paul - Knorr synthesis, structure of pyridine, Basicity - Aromaticity - Comparision with pyrrole - One method of preparation and

properties - Reactivity towards Nucleophilic substitution reaction - Chichibabin reaction.

3. Carbohydrates **Weightage : 15 marks = 2, 5 marks = 3**

Monosaccharides: All discussion to be confined to (+) glucose as an example of aldo hexoses and (-) fructose as example of ketohexoses. Chemical properties and structural elucidation : Evidences for straight chain pentahydroxy aldehyde structure (Acetylation, reduction to n- hexane, cyanohydrin formation, reduction of Tollen's and Fehling's reagents and oxidation to gluconic and saccharic acids). Number of optically active isomers possible for the structure, configuration of glucose based on D-glycerlaldehyde as primary standard (no proof for configuration is required). Evidence for cyclic structure of glucose (Some negative aldehydes tests and mutarotation). Cyclic structure of glucose. Determination of cyclic structure (Pyranose structure, anomeric carbon and anomers). Proof for the ring size (methylation, hydrolysis and oxidation reactions). Different ways of writing pyranose structure (Haworth formula and chair conformational formula). Structure of fructose : Evidence of 2 - Ketohexose structure (formation of penta acetate, formation of cyanohydrin its hydrolysis and reduction by HI to give 2 - Carboxy n-hexane).

Same osazone fromation from glucose and fructose. Hydrogen bonding in osazones, cyclic structure for fructose (Furanose structure and Haworth formula).

Interconversion of Monosaccharides : Aldopentose to aldo hexose - eg : Arabinose to D - Glucose, D- Mannose (Kiliani - Fischer method). Epimers, Epimerisation - Lobry de Bruyn van Ekenstein rearrangement. Aldohexose to Aldopentose eg: D- glucose to D - Arabinose by Ruff's degradation. Aldohexose (+ glucose) to ketohexose (- fructose), and Ketohexose (fructose) to aldohexose (Glucose).

4. Amino acids and proteins **Weightage : 15 marks = 1, 5 marks = 1**

Introduction: Definition of amino acids, Classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Essential and non essential amino acids with examples. Methods of synthesis : General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, Valine and Leucene) by following methods : a) From halogenated carboxylic acid b) Malonic ester synthesis c) strecker's synthesis. Physical properties : Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point. Chemical properties :

General reactions due to amino and carboxyl groups - Structure and nomenclature of peptides and proteins.

Unit - 2 (Physical Chemistry) **Weightage : 15 marks = 1, 5 marks = 2**

Photochemistry : Differences between thermal and photochemical processes. Laws of photochemistry - Grothus - Drapper's law and Strak - Einstein's law of photochemical equivalence. Quantum yield. Photochemical reactions of hydrogen - chlorine, hydrogen - bromine reactions. Jablonski diagram depicting various processes occuring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing). Photosensitized reactions - Energy transfer process (simple example).

Additional Syllabus

Mass Spectroscopy : Basic Prinicipals - Molecular ion / parent ion, fragment ions / daughter ions. Theory - Formation of parent ions. Representation of mass spectrum. Identification of parent ion, (M+1), (M+2), base peaks (relative and abundance 100%). Determination of molecular formula - Mass spectra of ethyl benzene, acetophenone, n - butyl amine and l - propanol.

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CHEMISTRY **CHE 401N** 2015-16 onwards III B.Sc.,

SYLLABUS

V SEMESTER

CHEMISTRY AND INDUSTRY

UNIT - I : Drugs **Weightage : 15 marks = 3, 5 marks = 4**

1. Introduction : Drug, disease (definition), Historical evolution, Sources - Plants, Animal synthetic, Biotechnology and human gene therapy.
2. Terminology : Pharmacy, Pharmacology, Pharmacophore, Pharmaco dynamics, Pharmaco kinetics (ADME, Receptors - brief treatment) Metabolities and Antimetabolities.
3. Nomenclature : Chemical name, Generic name and Trade names with examples.
4. Classification : Classification based on structures and therapeutic activity with one example each.
5. Synthesis : Synthesis and therapeutic activity of the following drugs., L - Dopa, Chloroquin, Omeprazole, Albuterol and Ciprofloxacin.
6. Drug Development : Pencillin, Separation and Isolation, structures of different pencillins.
7. HIV - AIDS : Immunity - Prevention of AIDS. Drugs available - Examples with structures : PIS : Indinavir (Crixivan), Nelfinavir (Viracept), NNRTIS : Efavirenz (Susrtiva), Nevirapine (Viramune) NRTIs : Abacavir (Ziagen), Lamivudine (Epivir, 3TC) Zidovudine (Retravir, AZT, ZDV).
8. Preparation, properties, biological activity and side effects : Eg. Paracetamol, Sulpha methoxazole (Tablets)

9 Formulations :

i. Need of conversion of drugs into medicine. Additives and their role (brief account only)

ii. Different types of formulations.

UNIT - II : Pesticides **Weightage : 15 marks = 1, 5 marks = 2**

1. Introduction to Pesticides - Types - Insecticides, Fungicides, Herbicides, Weedicides, Rodenticides, plant growth regulators, Pheremones and Hormones. Brief discussion with examples, structure and uses.
2. Synthesis and present status of the following.

DDT, BHC, Malathion, Parathion, Endrin, Baygon, 2, 4 - D and Endo - Sulphon.

UNIT - III : Green Chemistry **Weightage : 15 marks = 1, 5 marks = 3**

Introduction : Definition of green chemistry, need of green chemistry, basic principles of green chemistry.

Green synthesis : Evaluation of the type of the reaction

i) Rearrangements (100% atom economy)

ii) Addition reaction (100% atom economy), Pericyclic reactions (no byproduct)

a) Selection of Solvent :

i) Aqueous phase reactions

ii) Reactions in ionic liquids

iii) Solid supported synthesis

iv) Solvent free reactions (solid phase reactions)

b) Green catalysts :

i) Phase transfer catalysts (PTC)

ii) Biocatalysts

c) Microwave and ultrasound assisted green synthesis :

i) Aldol condensation

ii) Cannizzaro reaction

iii) Diels - Alder reaction

iv) Strecker synthesis

v) Willaimson synthesis

vi) Dieckmann condensation

UNIT - IV : Material Science **Weightage : 15 marks = 1, 5 marks = 1**

Super conductivity, characteristics of super conductors, Meissner effect, types of super conductors and applications.

Nano materials : Synthetic techniques, bottom - up - sol - gel method, top - down - electro deposition method. Properties and applications of nano - materials. Composites - Definition, general characteristics, particle reinforce and fiber reinforce and composites and their applications.

Additional Syllabus

Chemo informatics : Introduction - The domain of Chemistry - A Chemist's fundamental questions - The scope of Chemo informatics - Learning in Chemo informatics - Major tasks - Representation of the objects - Data - Learning - History of Chemo informatics - Structure data basis - Quantitative structural activative relationships - Molecular modeling - Structure elucidation - Chemical rections and synthetic design - Teaching Chemo informatics.

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BOTANY **BOT 301N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

TAXONOMY, ECONOMIC BOTANY, MEDICINAL BOTANY

UNIT-I

1. Taxomy of Angiosperms- History, Principles and types of classification.
2. Benthem and Hooker , Englar and Prantle systems of classifications.
3. A brief account of current concepts of Taxonomy,cytotaxonomy and anatomy in relation to taxonomy.

UNIT-II

4. Annonaceae, Rutaceae, Caesalpinaceae, Cucurbitaceae, Umbelliferae, Amaranthaceae, Euphorbiaceae.

UNIT-III

5. Food plants ; Rice, Maize, Sugarcane.
6. Fibers ; Cotton
7. Vegetable oils : Ground nut, coconut.
8. Wood yielding plants : Teak, Sandal wood.
9. Spices : General account of Turmeric, Zinger, Piper.
10. Beverages : Tea, Coffee.
11. Rubber yielding plants : Rubber.
12. Medicinal Plants: General account of Datura, Vinca, Ocimum, Emblica, Rauwolfia, carum carvi. Medical systems : Ayurveda, Homeopathy and Naturopathy.

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BOTANY **BOT 401N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

PLANT PHYSIOLOGY & GENETICS

UNIT - 1

1. Plant water relations; Importance of water to plant life, diffusion, imbibition, osmosis, plasmolysis. Absorption of water, Ascent of sap, Transpiration and factors affecting stomatal movement.
2. Transport of organic substances; structure of phloem, mechanism of phloem transport, source, sink relationship, factors affecting translocation.
3. Photosynthesis ; Chloroplast structure, pigments, action spectra and Emerson's experiments, i.e red drop and enhancement effects, photophosphorylation, Calvin cycle, c4 cycle, CAM path way, photorespiration.

UNIT - 2

4. Mendalian inheritance, laws of segregation and independent assortment, back cross, test cross.
5. Gene inter actions; incomplete dominance, epistasis, complementary genes, duplicate genes.
6. Linkage,crossing over

UNIT - 3

7. Structure of gene.
8. Chromosomal mutations - structural and numerical, point mutations, induced mutations.

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ZOOLOGY **ZOO 301N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

ANIMAL PHYSIOLOGY

Unit - I

1.1. PHYSIOLOGY OF DIGESTION :

1.1.1. Types of digestion – Extra and Intracellular

1.1.2. Digestion of carbohydrates, proteins and lipids

1.1.3. Gastrointestinal hormones – Control of digestion

1. 2. PHYSIOLOGY OF RESPIRATION :

1.2.1. Types of respiration – External and Internal

1.2.2. Structure of mammalian lungs and gaseous exchange

1.2.3. Transport of oxygen – Formation of oxyhemoglobin and affinity of hemoglobin for oxygen, and oxygen - haemoglobin dissociation curves.

1.2.4. Transport of carbondioxide – Chloride shift – Bohr's effect

Unit - II

2.1. PHYSIOLOGY OF CIRCULATION :

2.1.1. Open and closed circulation

2.1.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle myogenic and neurogenic hearts

2.1.3. Regulation of heart rate – Tachycardia and Bradycardia

2.2. PHYSIOLOGY OF EXCRETION :

2.2.1. Definition of excretion

2.2.2. Forms of Nitrogenous waste materials and classification of animals on the basis of excretory products

2.2.3. Gross organization of mammalian excretory system and structure of kidney

2.2.4. Structure of nephron and formation of urine - Counter - current mechanism

Unit - III

3.1. PHYSIOLOGY OF MUSCLE CONTRACTION :

3.1.1. Ultra-structure of skeletal muscle

3.1.2. Sliding filament mechanism of muscle contraction

3.1.3. Chemical changes during muscle contraction – Role of calcium, ATP utilization and its replenishment

3.2. PHYSIOLOGY OF NERVE IMPULSE :

3.2.1. Structure of nerve cell

3.2.2. Nature of nerve impulse – Resting potential and action potential, properties of nerve impulse, threshold value, refractory period, all or none response.

3.2.3. Structure of synapse – Mechanism of synaptic transmission – Electrical and chemical transmissions

Unit - IV

4.1. PHYSIOLOGY OF ENDOCRINE SYSTEM :

4.1.1. Pituitary gland and its hormones

4.1.2. Hormones of pineal gland, thyroid, parathyroid, thymus, adrenal and pancreas

4.1.3. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in humans

4.2. PHYSIOLOGY OF HOMEOSTASIS :

4.2.1. Concept of homeostasis and its basic working mechanism

4.2.2. Mechanism of homeostasis – Giving three illustrations viz., hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals, and temperature regulation in man.

FOR GIFTED STUDENTS ONLY

1. Keymograph operation
2. Demonstration of blood circulation (e.g., frog)
3. Effect of hormones on reproduction in man

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ZOOLOGY **ZOO 401N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

AQUACULTURE

Unit – I : Introduction

1. Scope and definition of aquaculture
2. Categories of aquaculture
3. Types of fisheries

Unit – II : Seed collection, production and transport

1. Collection from natural resources
2. Production by induceed breeding (Indian major carps only)
3. Bandh breeding
4. Hatchery design and management
5. Seed transport

Unit – III : Management of fish ponds and fish nitrution

1. Nursery pond management
2. Stocking pond management
3. Nutritional requirements
4. Supplementary feeding

Unit – IV : Fish pathology

1. Viral diseases
   a. Viral Haemorrhagic Speticemia (VHS)
   b. Infectious Pancreatic Necrosis (IPN)
2. Bacterial diseases
   a. Vibriosis
   b. Bacterial Gill Disease
3. Fungal diseases
   a. Branchyomyeosis
   b. Saprdigiasis
4. Parasitic diseases
   a. Whirling disease
   b. Gyrodactylosis
   c. Argulosis

Unit – V : Harvesting

1. Fishing gear
2. Fishing craft

Unit – VI : Post harvesting technology

1. Reasons for fish decay
2. Need for preservation
3. Methods of preservation

Unit – VII : Fish byproducts

1. Fish manure
2. Isinglass
3. Fish glue
4. Fish oils
5. Fish skin and fins
6. Artificial pearls

FOR GIFTED STUDENTS ONLY

FIELD STUDY

1. Visit to fish breeding centre
2. Visit to culture ponds
3. Visit to shrimp hatchery

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ELECTRONICS **ELE 301N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

DIGITAL ELECTRONICS

UNIT - I

Introduction to number systems, logic gates OR, AND, NOT, X - OR, NAND, NOR gates -Truth tables - Positive and negative logic - Logic families and their characterstics - RTL, DTL, ECL, TTL and CMOS - Universal building blocks NAND and NOR gates.

Laws of boolean algebra Demorgan's theorems - Boolean identities - Simplification of boolean expressions - Karnaugh maps (upto 4 varibles) - Sum of products (SOP) and product of sums (POS) (Prime implicants not need)

UNIT - II

Combinational circuits : Multiplexer and De - Multiplexer - Decoder - Encoder, Half adder, Full adder and parallel adder circuits.

Sequential circuits : Flip flops - RS, D, JK, T and JK master slave (working and truth tables) - Semiconductor memories - Organization - Synchronous and Asynchronous binary counters, up / down counters - Decade conter (7490) - Working, truth tables and timing diagrams.

Text Books :

1) Digital principles and applications - Malvino & Leach - TMH
2) Fundamentals of digital circuits - Anand Kumar - PHI

Reference Books :

1) Digital electronic principles and integrated circuits - Mani - Willey India
2) Digital Fundamentals - F. Loyd & Jain - Pearson Education
3) Modern Digital Electronics - R.P. Jain - TMH
4) Digital Electronics - Gothman

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ELECTRONICS **ELE 401N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

MICRO PROCESSOR

UNIT – I : Introduction to micro computer and micro processor : Organisation of a micro computer - Tole of micro processor in micro computer - Intel 8085 micro processor - Central Processing Unit CPU - Arithmetic and Logic Unit ALU - Timing and control unit - Register organisation - Address, data and control buses - Pin configuration of 8085 and its description. Timing diagrams - Instruction cycle, machine cycle, fetch and execute cycles.

Instruction set of 8085, instruction and data formats - Classification of instructions - Addressing modes. Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division. Finding the largest and smallest in a data array. Programming examples using stacks and subroutines.

UNIT - II

Interfacing peripherals applications : Programmable peripheral interface (8255) - Applications of 8255 - Stepper motor control - Seven segment LED.

Micro processor applications : A/D converters - Types of A/D converts successive approximation and dual slope integration type A/Ds - Interfacing of ADC 0804 IC - Types of D/A - Resister Network - R - 2R ladder network - DAC - 08 and their interfacing to the micro processor.

Text Books :

1) Fundamentals of micro processor and micro controllers - B.ram - Dhanpet Rai & sons.

2) Micro processor architecture and programming - Ramesh S. Goanter - Penram.

Reference Books :

1) Introduction to micro processor - Aditya P. Mathur - TMH.

2) Micro processor and micro controllers hardware and interfacing - Mathivannan - PHI

3) Advanced micro processor and peripherals, architecture, programming and interface - A.K. Ray and K.N. Bhurchandi - TMH.

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III B.Sc.(Computer Science): V Semester : Paper 301N 2015 – 16 onwrads

Title: Database Management Systems – Syllabus

UNIT – 1:

14. **Database systems :** Introducing the database and DBMS, why the database is important, historical roots : Files and file systems, problems with file systems data management, database systems.
15. **Data Models :** The important of data models, data model basic building blocks, business rules, the evaluation of data models, degree of data abstraction.
16. **The Relational Database Model :** A logical view of data, keys, integrity rules, relational set operators, the data dictionary and the system catalog, relationships with in the relational database, data redundancy revisited, indexes, codd's relational database rules.

UNIT – 2 :

17. **Entity relationship model :** The ER model, developing ER diagram, Database design challenges : Conflicting goals.
18. **Advanced Data Modeling :** The extended entity relationship model, entity clustering, entity integrity : Selecting primary keys, design cases : Learning flexible database design.
19. **Normalization of database tables :** Database tables and normalization, the need for normalization, the normalization process, improving the design, surrogate key considerations, high level normal forms, normalization and database design, denormalization.

UNIT – 3 :

20. **Introduction to SQL :** Data definition command, data manipulation commands, select queries, advanced data definition commands, advanced select queries, virtual tables, joining database tables.
21. **Advanced SQL :** Relational set operators, SQL join operators, sub queries and correlated queries, SQL functions, oracle sequences, updatable views and procedural SQL.
22. **Database design :** The information system, the systems development life cycle, the database life cycle, database design strategies, centralized Vs decentralized design.

UNIT – 4 : Transaction management and concurrency control : What is transaction, concurrency control, concurrency control with locking methods, concurrency control with time stamping methods, concurrency control with optimistic methods, database recovery management.

23. **Distributed database management systems :** The evolution of distributed database management systems, DDBMS advantages and disadvantages, distribution processing and distribution database, characteristics of distributed database management systems, DDBMS components, levels of data and process distribution, distributed database transparency features, distributed transparency, transaction transparency, performance transparency and query optimization, distributed database design, client server Vs DDBMS.
24. **The data ware house :** The need for the data analysis, decision support systems, the data ware house, online analytical processing, star schemas, data mining, SQL extension for OLAP.
25. **Database Administration :** Data as a corporate asset, the need for and role of databases in an organization, the evolution of the database administration function, the database environment's human component, database administration tools.

EXTRA:

Storing data : Memory hierarchy, RAID, disk space management.

Prescribed Text Book

2. Peter Rob, Carlos Coronel, Database systems design, implementation and management, Seventh Edition, Thomson (2007)

REFERENCE BOOKS :

6. Elimasri / Navathe, Fundamentals of Database systems, Fifth Edition, Pearson Addison Wesley (2007)
7. Raman A Mata – Toledo / Panline K Cushman, Database management systems, Schaum's outlibe series, Tata McGraw Hill (2007)
8. .J. Date, A. Kannan, S. Swamynathan, An introduction to Database systems, Eight Edition, Pearson Education (2006)
9. Michel Kifer, Arthur Bernstein, Philip M. Lewis, Prabin K. Pani Graphi, Database systems : An application oriented approach, Second Edition, Pearson education (2008)
10. Atul Kahate, Introduction to Database management systems, Pearson education (2006)

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III B.Sc.(Computer Science): V Semester : Paper 401N 2015 – 16 onwards
Title: Computer System Architecture

Unit-I

Digital Logic Circuits: Digital Computer Logic Gate, Boolean Algebra, Maps Simplification, Combinational Circuits, Flip Flops, Sequential Circuits Digital Components: Integrated Circuits, Decoders, Multiplexes, Registers, Shift Registers, Binary Counter, Memory Unit
Data Representation: Divide Layer, Complement, Fixed Point Representation, floating Point Representation, Binary codes, Error Codes.

Unit-II

Register Transfers and Macro Operations: Register Transfer Language, register Transfer, Bus and Memory Transfer, arithmetic Micro operations, Logic Micro operations, Shift Micro operations, Arithmetic Logic Shift Unit.
Basic Computer Organization Design: Instruction Codes, Computer Register, Computer Instructions, Tuning & Control, Instruction Cycle, Memory Reference Instructions, Input-Output Interrupt.

Unit-III

Micro Programmed Control: Control Memory, Address Sequencing, Micro program Example, Design of Control Unit.
CPU: General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, data Transfer and Manipulation, Program Control.

Unit-IV

Computer Arithmetic: Addition and Subtraction, Multiplication Algorithms, Division Algorithms, Floating Point Arithmetic Operations, decimal Arithmetic Unit, Decimal Arithmetic Operations.
Input-Output Organization: Peripheral Devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfers, Priority Interrupt.
Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Associate Memory, Cache Memory.

EXTRA:

Multiprocessors : Characteristics of Multiprocessors, Inter connection structures – Time shared common bus, Multiport memory.

Text Book:

1. M.Morris Mano: Computer System Architecture, 3rd Edition PHI
   (Chapters: 1,2,3,4,5,7,8,9,10,11,12)

Reference Book:

2. John P. hyes, Computer Architecture and Organization, 2nd Edition.

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HISTORY **HIS 302N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

HISTORY OF MODERN WORLD (1815 - 1945 AD)

UNIT - I

Industrial revolution and rise of capitalism - Unification movements in Germany and Italy. Meizi restoration and modernisation of Japan.

UNIT - II

World between 1914 - 1945 - Rivalry among colonial powers - Imperialist hegemony - Asia after 1850 - Uropeon countries imperialism in Asia - fareast - Japan - Cheina - America opendoor policy Causes and consequences of first world war - World between the World Wars - League of nations, Fascism in Italy, Nazism in Germany, Militarism in Japan - Communist movements in Russia and China.

UNIT - III

Causes and consequences of Second World War - UNO

UNIT - IV

Post Second World War developments - Cold War - Rise of the third block.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Nationalism - Nationalist movements in Asia and Africa
2) 1911 - China revolution
3) Globalisation

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HISTORY **HIS 402N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

HISTORY AND CULTURE OF ANDHRA PRADESH SYLLABUS FROM 1870 TO 1956

UNIT - I

Social Reform and Literary Movements : Veeresalingam, Raghupathi Venkata Ratnam Naidu, Gurajada Appa Rao, Kommarraju Venkata Lakshmana Rao, Non Brahmin, Adi Andhra, Dalit, Self respect movements - New literary movements - Gurram Jashua, Boyi Bhimanna, Viswanath Satyannarayana, Rayaprolu Subba Rao, Sri Sri

UNIT - II

Freedom movement in Andhra : Vandemataram, Home rule, Non co - operation, Alluri Sitrarama Raju - Rampa Rebellion 1922 - 24 - Civil disobedience and Quit India Movements - Women participation in freedom movement. Revolutionary Associations in Andhra.

Political consciousness in Telangana : Nizam Andhra Mahasabha, Hyderabad state Congress, Razakars, Police Action and Accession of Telengana into Indian union.

UNIT - III

Leftist movements in Andhra and Telangana : Peasant armed struggel - Tribal uprisings - Komaram Bhimu - Bhoodan movement.

UNIT - IV

Movement for Seperate Andhra State : Andhra Mahila sabha - Sree Bagh Pact - Martyrdom of Potti Sreeramulu - Formation of Andhra State, 1953 - Visalandhra

movement - State's re - organisation commission - Gentlemen's agreement - Formation of Andhra Pradesh in 1956.

History after formation of Andhra Pradesh - 1969 Jai Telengana movement - 1972 Jai Andhra movement.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Separate Andhra movement
2) Separate Telangana movement
3) Sri Krishna Report

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POLITICS **POL 302N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

POLITICAL THOUGHT

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1. Western Political Thought : Hegal, T.H. Green and Karl Marx
2. Ancient Indian Political Thought
   a) Sources of Ancient Indian Political Thought
   b) Manu - Varna Dharma and Danda Nethi
   c) Kautilya

జీడ్ఞూబహ్మూ – బహోఱ్ఞూమ్మూ,ాళీూబిజ్ర బాగీశ్థిూ=ష్లీ, ద్దిళిఅనజిూ,్ఞహోళ్ళీ–్వళ బాగీశ్థిూ–్వూ, గ్పీ ూబిజప్పబ, ద్దిళ్టి

నగ్పీ్ఞ ఈూ–్వ, ఒబఇ ఎజి, ద్ధ్వాళీ,ాహోఅఈూచ్ఛ స్బల్లళ్టీఇ ాైద్ధళీ.

3. Modern Indian Political Thought

a) Gandhi	-	Ahimsa and Satyagraha
b) Nehru	-	Democratic Socialism
c) Dr B.R. Ambedkar	-	Anhilation of Caste
d) MN Roy	-	Radical Humanism
e) J.P.	-	Total Revolution

*** Anti caste or self respect movements in India (A brief study)**
(For Academically Bright Students)

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POLITICS **POL 402N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

PRINCIPALS OF PUBLIC ADMINISTRATION

1. Principles of Organisation - Hierarchy, Span of control, Co-ordination, unity of command, Delegation of authority, Centralisation and Decentralisation.

2. Decision Making Theory - Herbert A. Simon

3. Financial Administration - Budget - Principles - Budgetary process - Comptroller and Auditor General.

4. Public Relations - Meaning and Importance

*** Women Empowerment (For Academically Bright Students)**

Books Recommended :

1. Prof. Mohit Bhattacharya : Public Administration, Theory & Practice
2. Chitra Ramachandram : Indian Public Administration
3. R.K. Arora : Indian Administration
4. Bharatadesa Palana : Telugu Academy

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ECONOMICS **ECO 302N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

Module - I :

Indian agriculture - Industry and service sector - Nature and importance - Trends in agriculture and productivity - Factors determining productivity rural and credit, micro finance and self help groups (SHGS) - Agricultural price policy and food security.

Structure and growth of Indian industry - Industrial policies - 1948, 1956, 1991 growth and problems of small scale industries - FEMA - Disinvestment policy, Direct foreign investement, growing, importance of service sector in India.

Module - II : A.P. State Economy

GSDP - Sectoral of contribution and trends - Population trends - Dconographic dividend - Agricultural sector - Land use - Croping pattern - SEZ ;

Module - III : Planning - Objectives and Development

Books References :

1. G.M. Meier - Leading issues in Economic development
2. Reserve Bank of India - Hand Book of statistics on Indian Economy
3. Dhingra - Indian Economy
4. Datta and Sanbaram - Indian Economy
5. M.P. Todaro - Economic development
6. Telugu Academy pulications
7. Yojana

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ECONOMICS **ECO 402N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

Module - I :

Theories of International Trade - Inter - Regional and International trade - Importance of International trade - Theories of International trade - Theory of absolute advantage theory - Comparative cost theory - Hecksher and Ohilin theory - Terms of trade

Module - II : Protection and balance of payments - Forign trade in India

Tariffs - Meaning and defination of tariffs - Tariffs and their effects - Balance of payments - Disequilibrium in balance of payments - Measures to correct disequilibrium - Recent exim policy - WTO Impact trade in Agriculture products in India.

Books for reference:

1. B.P. Tyagi - Public Finance
2. H.T. Bhatia - Public Finance
3. J. Baghawathi - International Trade
4. C.D. Kindle Barger - International Economics
5. Telugu Academy publications
6. Yojana

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SPL. ENGLISH **ENG 302NS** 2015-16 onwards III B.A.,

SYLLABUS

VI SEMESTER

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1. Drama: A Mid summer Nights Dream. (Detailed)
2. Drama: The Apple Cart. (Non - Detailed)

Further Reading (Advanced Reading) :

1. Hamlet - William Shakespeare
2. Henry IV - Part II - William Shakespeare
3. Pygmalion - G.B. Shaw
4. Murder in the Cathedral - T.S. Eliot

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SPL. ENGLISH **ENG 402NS** 2015-16 onwards III B.A.,

SYLLABU

VI SEMESTER

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1. History of English Language :

1. Characteristics of old English
2. Characteristics of middle English.
3. Characteristics of modern English.
4. American English.
5. Indian words in English.
6. English as an international language.

2. History of literature : (Contribution of authors)

1. Chaucer
2. Spenser
3. Marlowe
4. Alexander pope
5. John keats
6. Charles Dickens
7. Mathew Arnold
8. T.S. Eliot.

3. Figures of speech :

1. Oxymoron
2. Litotes or understatement
3. Zeugma
4. Epigram
5. Irony
6. Antithesis
7. Paradox
8. Onomatopoeia
9. Alliteration
10. Euphemism

Further Reading (Advanced Reading) :

1. A background to the study of English literature - Birjadish Prasad

2. A History of English literature - Arthur Compton Rickett

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BUSINESS LAWS **COM 601N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

SALE OF GOODS ACT

a) Contract of sale, difference between sale and agreement to sell

b) Rights of unpaid seller

c) Conditions and warranties - Meaning - Express and implied conditions and warranties

UNIT - II

COMPANY ACT - 1956

a) Management of companies - Directors - Qualifications, disqualifications, appointment - Removal, rights and duties.

b) Company meetings and resolutions

c) Various kinds of winding up of a company

d) Doctrine of ultravires - Doctrine of indoor management

UNIT - III

CONSUMER PROTECTION ACT - 1986

a) Defination of the term consumer, unfair trade practices, restrictive trade practices and compeainant - Rights of consumer

UNIT - IV

ESSENTIAL COMMODITIES ACT - 1955

a) Defination - Objectives - Powers to control production - Supply - Distribution - Penalities for violation.

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AUDITING **COM 602N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

VOUCHING

Meaning - Vouching of cash and trading transcations - Investigation, verification and valuation of assets and liabilities.

UNIT - II

AUDIT OF FINANCIAL STATEMENTS

Receipts - Payments - Sales - Purchases - Fixed assets - Investements - Personal Ledger - Inventories - Capital and reserves - Other assets - Other liabilities.

UNIT - III

AUDIT OF INSTITUTIONS

Partnership - Manufacturing and other companies - Non - trading concerns.

UNIT - IV

INVESTIGATION AND AUDIT REPORT

INVESTIGATION : Meaning - Pre - requisites - Difference between investigation and auditing.

AUDIT REPORT : Contents - Preparation of audit report - Qualified report

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A M A **COM 603N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

CAPITAL BUDGETING

Capital Budgeting - Meaning - Need - Different methods - Traditional methods - Pay back method - Average rate of return - Time adjusted methods - Net present values method - Profitability index method - Internal rate of return (problems).

UNIT - II

MARGINAL COSTING - I

Marginal costing - Meaning - Advantages - Limitations - Absorption costing Vs. Marginal costing - Product mix - Make or buy decision - Techniques for decision making (problems)

UNIT - III

MARGINAL COSTING - II

Break - Even - Analysis - Break - Even - Chart - Meaning - Assumption - Advantages - Limitations - Calculation of Break - Even - Point - Margin of safety - Cost - Profit volume - Ratio (P.V.Ratio) (problems)

UNIT - IV

STANDARD COSTING

Standard costing - Meaning - Advantages - Limitations - Variances - Material variances - Labour variances (problems)

Reference Books :

1. Cost and Management Accounting - Jain and Narang
2. Management Accounting - Sarma and Gupta
3. Management Accounting - Maheswari and Gupta

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C M A **COM 604N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

CONTRACT COSTING AND JOB COSTING

Features - Costing process, work certified - Work uncertified - Completed conctracts - Incomplete contracts - Calculation of profit or loss.

UNIT - II

PROCESS COSTING

Features - Treatment of normal and abnormal losses - Preparation of process cost accounts - (excluding equivalent products and inter process profits) (problems).

UNIT - III

FINANCIAL STATEMENTS

Features - Limitations - Need - Meaning - Objectives - Financial statements - Preparation - Different methods (problems)

UNIT - IV

RATIO ANALYSIS

Meaning - Advantages - Limitations - Calculation of profit and loss A/c. ratios - Balance sheet ratios - Combined ratios - Interpretation of ratios - Preparation of Financial

Accounts with the help of ratios (problems).

REFERENCE BOOKS

1) Cost and Management Accounting - Jain and Narang

2) Management Accounting - Sarma and Gupta

3) Cost Accounting - Maheswari

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C A **COM 605N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

BANK ACCOUNTS

Books and registers to be maintained by banks - Slip system of posting - Rebate on bills discounted - Shedules of advances - Non performing assets - Legal provisions relating to preparation of final accounts.

UNIT - II

ACCOUNTS OF INSURANCE COMPANIES

Life insurance companies - Preparation of revenue account, Profit and Loss account, Balance sheet and Valuation balance sheet.

UNIT - III

FIRE CLAIMS

Accounting treatment, calculation of loss of stock, average clause.

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SYLLABUS

VI SEMESTER

UNIT - I : Accounting for price level changes (Inflation Accounting)

Introduction, limitations of historical accouting, methods of accounting for price level changes, current cost accounting - Methods. Preparation of income statement, cost balance sheet under CCA / CCB (including problems).

UNIT - II : Human Resource Accounting

Definition, objectives, approaches, assumptions, advantages, limitations of H.R.A. H.R.A. in India, Human Resource Cost Accounting, historical cost accounting, replacement, cost method, opportunity cost method (theory only).

UNIT - III : Social Responsibility Accounting

Meaning, nature of social responsibility, need, objectives, accounting concept and objectives of social responsibility, indicators of social performance (theory only).

UNIT - IV : Liquidation of companies

Scope, contributory, preferential payments, preference dividend, statement of affairs and deficiency / surplus account. Liquidator's final statement of account. Liquidator's remuneration (including problems).

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Autonomous **NAAC B**

III B.Sc. VI SEM - MATHEMATICS : SYLLABUS (MAT 302N)

(With effect from the academic year 2015-2016)

MATRIX ALGEBRA AND VECTOR CALCULUS

MATRIX ALGEBRA

UNIT-1

Rank of a matrix – Rank of a matrix, elementary transformations, elementary matrix, equivalence of matrix, reduction to normal form, row and column equivalence of matrices, rank of a product of matrices, inverse of a matrix by using elementary transformations.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-2

Linear equations – System of linear equations, system of homogeneous linear equations, linearly independent solutions of homogeneous linear equations, condition for consistency for a system of nonhomogeneous linear equations, condition for a system of *n* equations in *n* unknowns to have a solution, methods of solving equations.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-3

Eigen values and Eigen vectors – Eigen values, Eigen vectors, properties of eigen values, nature of characteristic roots, relations between characteristic roots characteristic vectors, Cayley-Hamilton theorem.

(**2 short answer question, 2 long answer questions will be given in the examination)**

VECTOR CALCULUS

UNIT-4

Vector functions – Vector function of a scalar variable, derivative of a vector function.

Differential operators – Point functions, limit, continuity, directional derivative, gradient, level surface, angle between two surfaces, divergence, solenoid, curl, irrotational, differential operators, second order differential operators.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-5

Vector integration – Integration of vector function, line integral, surface integral, volume integral and problems on these integrals.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-6

Integral transformations – Gauss's divergence theorem, some deductions of Gauss's divergence theorem, Green's theorem in a plane, Green's identities, Stooke's theorem and problems on these theorems.

(**2 short answer question, 2 long answer questions will be given in the examination)**

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B. Sc. Mathematics, Vol. III, DEEPTI PUBLICATIONSTenali.

REFERENCE BOOK

1. A. R. Vasista, Matrices, Krishna PrakashanMandir, Meerut-250002.
2. V. VenkateswaraRao and others, A text book of B. Sc. Mathematics, Vol. III, S Chand & Co.
3. Shanti Narayana, Matrices, S. Chand & Co., New Delhi.
4. Shanti Narayana and P. K. Mittal, Text Book Vector Analysis, S. Chand & Co., New Delhi.
5. S. C. Mallik and SavithaArora, Mathematical Analysis, Wiley Estern Ltd.,

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Autonomous **NAAC B**

III B.Sc. V SEM - MATHEMATICS : SYLLABUS (MAT 402N)

(With effect from the academic year 2015-2016)

NUMERICAL ANALYSIS

UNIT-1

Finite differences : Finite differences, difference operators – Algebraic properties of $\Delta, E,$ Symbolic relations and separation of symbols, Differences of a polynomial, Fundamental theorem of difference calculus – One or more missing terms – Factorial notation – Methods of representing a polynomial a factorial notation, Differences of zero.

(**3 short answer question, 2 long answer questions will be given in the examination)**

UNIT-2

Interpolation with equal intervals : Derivation of Newton Gregory formula for forward and backward interpolation and problems on them.

(**1 short answer question, 2 long answer questions will be given in the examination)**

UNIT-3

Central difference interpolation formula : Gauss's forward formula for equal intervals – Gauss's backward formula – Gauss's third formula – Stirling's formula – Bessel's formula – Everett's formula and problems on the above formulae.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-4

Interpolation with unequal intervals : Divided differences – Newton's formula – Lagrange's formula – Relation between divided differences and ordinary differences – problems on Lagrange and Newton's formula.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-5

Numerical differentiation : Derivatives using forward difference formula – Derivatives using backward difference formula – Derivatives using central difference formula – Maxima and minima of a tabulated function.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-6

Numerical integration : The Trapezoidal rule – Simpson's 1/3 rule – Simpson's 3/8 rule – Weddle's rule – Romberg's integration.

(**2 short answer question, 2 long answer questions will be given in the examination)**

PRESCRIBED BOOK

Dr. A. Anjaneyulu, MODERN APPLIED ALGEBRA, DEEPTI PUBLICATIONS, Tenali.

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V.S.R & N.V.R College, Tenali

PHYSICS **PHY 302N** 2015-16 III B.Sc.,

SYLLABUS

VI SEMESTER

ELECTRICITY, ELECTROMAGNETIC WAVES AND ELECTRONICS

UNIT - III : Electricity, Electromagnetic Waves and Electronics

1. Varying currents and alternating currents : CR circuit, LR circuit, Growth and decay of currents, LCR circuit - Critical damping (qualitative).

Relation between current and voltage in pure R, C and L Circuits, Vector diagrams,

L C R series and parallel circuits, Power factor, Q -factor.

2. Maxwell's equations and electromagnetic waves : Basic laws in integral form, Derivation of Maxwell's equations in differential form, Maxwell's wave equation of Plane electromagnetic waves, Production of electromagnetic waves (Hertz experiment), Poynting theorem.

UNIT-IV : Electronics

1. Semiconductors : PNP and NPN transistors, definations of CB,CE,CC configurations, input and output characteristics of NPN transistor with commen emitter configuration, hybrid parameters (definations), Transistor as an amplifier, RC Coupled amplifier (qualitative), Phase shift oscillator (qualitative).

2. Digital principles : Binary arithmetics, Logic gates using discrete components, Truth tables, Half and full adders, De Morgan's theorems: Statement and Proof.

Reference Books :

1. Electricity and electronics Tayal
2. Electricity and Magnetism Brijlal and Subrammanayam
3. Electricity and Magnetism V.M.Smith
4. Digital Electronics Malvino

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PHYSICS **PHY 302NP** 2015-16 III B.Sc.,

SYLLABUS

VI SEMESTER

PRACTICALS

LIST OF EXPERIMENTS

1. Carey Foster's Bridge- comparison of resistance
2. Internal resistance of a cell by potentiometer
3. Figure of merit of a moving coil galvanometer
4. Voltage sensitivity of a moving coil galvanometer
5. LCR Circuit series resonance, Q-factor
6. LCR parallel resonance - Q-factor
7. Power factor of an A.C. Circuit - LR circuit
8. Determination of A.C Frequency- sonometer
9. Characteristics of junction diode
10. Characteristics of Transistor
11. Characteristics of Zener diode
12. Verification of Kirchhoff's laws
13. Variation of magnetic field along the axis of a circular coil carrying current - Stevart Gee's apparatus.

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PHYSICS **PHY 402N** 2015-16 III B.Sc.,

SYLLABUS

VI SEMESTER

MODERN PHYSICS

UNIT - III : Quantum mechanics and nuclear physics

1. Quantum mechanics : Physical interpretation of wave function(), Schrödinger Time independent wave equation, Schrödinger Time dependent wave equation, Solution of Schrodinger Time dependent wave equation, Postulates of wave mechanics, Free particle, Energy levels of a particle in one-dimensional box.

2. Nuclear physics : Structure of nuclei: Basic properties of nucleus: mass, charge, radius, density, spin(I), Magnetic dipole moment(ì), Electric quadrupole moment(Q), Binding energy, p-p and n-p scattering ,general concepts of nuclear forces. Range of alpha particle and experimental measurement, Geiger's law,Geiger - Nuttal law, alpha decay, Gamow's explanation of alpha decay.

Nuclear detectors : Working of GM Counter, Proportional counter, Wilson Cloud chamber.

UNIT - IV : Nuclear reactions and solid state physics

1. Nuclear reactions : Kinds of nuclear reactions, Conservation laws in nuclear reactions, Compound nucleus, Direct reactions.

2. Solid state physics : Bragg's law, Bragg's X-Ray Spectrometer, Crystallography by Laue method. Crystallography by powder diffraction method. Magnetic properties of materials: Dia, Para and Ferro magnetic materials, Weiss theory of ferromagnetism-ideas of magnetic domains, anti-ferromagnetism and ferrites.

Superconductivity : Superconductivity, its properties and uses. Type - I, and Type - II super conductors.

Reference Books :

1. Quantum Mechanics Mathaws and Venkatesan
2. Introduction to Quantum Mechanics Pauling and Wilson
3. Introduction to Solid state Physics Kittel
4. Elements of Modern Physics Patil

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SYLLABUS

VI SEMESTER

PRACTICALS

LIST OF EXPERIMENTS

1. Energy gap of semiconductor using a junction diode
2. Temperature characteristics of Themistor
3. RC-Coupled amplifier
4. Logic gates AND, OR, NOT, X-OR gates
5. Verification of Truth tables for half and full adders
6. Verification of De Morgan theorem
7. Phase shift oscillator
8. Network theorems
9. R C Circuit (Frequency Response)
10. C R Circuit - Time constant
11. Characteristics of Electric bulb
12. Bridge rectifier
13. Full wave rectifier with filters
14. Hartmann's formula - Grating
15. Solar cell - V, I characteristics

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CHEMISTRY **CHE 302N** 2015-16 onwards III B.Sc.,

SYLLABUS

VI SEMESTER

INORGANIC AND PHYSICAL CHEMISTRY

UNIT - I

1. Co-ordination chemistry **Weightage : 15 marks = 2, 5 marks = 3**

IUPAC nomenclature, bonding theories - Review of Werner's theory and Sidgwick's concept of co-ordination, valence bond theory, geometries of co-ordination numbers 4 (Tetrahedral and square planar) and 6 (Octahedral) and its limitations ; crystal filed theory - splitting of d - orbitals in octahedral, tetrahedral and squareplanar complexes - Low spin and high spin complexes - Factors affecting crystal field splitting energy, merits and demerits of crystal field theory. Isomerism in coordination compounds - Structural isomerism and stereo isomerism - Stereochemistry of complexes with 4 and 6 coordination numbers.

2. Spectral and magnetic properties of metal complexes

Weightage : 5 marks = 2

Electronic absorption spectrum of $[Ti(H_2O)_6]^{3+}$ ion. Types of magnetic behaviour, spin only formula, calculation of magnetic moments, experimental determination of magnetic susceptibility - Gouy method.

3. Stability of metal complexes **Weightage : 15 marks = 1, 5 marks = 1**

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

4. Hard and soft acids bases (HSAB) **Weightage : 5 marks = 3**

Classification, Pearson's concept of hardness and softness, application of HSAB principles - Stability of compounds / complexes, predicting the feasibility of a reaction.

UNIT - II

1. Chemical kinetics **Weightage : 15 marks = 1, 5 marks = 2**

Rate of reaction, factors influencing the rate of a reaction - Concentration, temperature, pressure, solvent, light, catalyst. Experimental methods to determine the rate of reaction. Definition of order and molecularity. Derivation

of rate constants for first, second, third and zero order reactions and examples. Derivation for time of half change. Methods to determine the order of reactions. Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy. Theories of reaction rates - Collision theory - Derivation of rate constant for bimolecular reaction. The transition state theory (elementary treatment).

2. Catalysis **Weightage : 15 marks = 2, 5 marks = 1**

Homogenious and heterogeinous catalysis, caparision with examples. Kinitics of specific acidscatalysid rections, inversion of cane sugar, kinitics of specific base catalysed conversion of acetone to di acetone alcohol. Acid and Base catalysed reactins - hydrolysis of esters, mutarotation of glucose. Catalytic activity at he surfaces. Mechanisms of heterogeneous catalysis. Lang muir - Hinsheiwood mechanism.

Enzyme catalysis: Classification, characteristics of enzyme catalysis - kinitics of enzyme catalysed reactions - nichaelis menten law, significance of nichaelis constant (km) and maximum velocity (v max). Factors affecting enzyme catalysis - effect of temperature, PH concentration and inhibitior atalytic effiency - mechanism of oxidation of ethanol by alcohol dehydrogenace.

Additional Syllabus

Bioinorganic Chemistry :

Metals in medicine : Introduction and overview - Metal deficiency and disease - Toxic effects of metals - Survey of metals used for diagnosis and chemotherapy - Platinum anticancer drugs - A case study.

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CHEMISTRY **CHE 302NP** 2015-16 onwards III B.Sc

PRACTICALS

VI SEMESTER

ORGANIC CHEMISTRY

1. Synthesis of Organic compounds :

   i) Aromatic electrophilic substitution.

   Nitration : Preparation of nitro benzene and p - Nitro acetanilide

   Halogenation : Preparation of p - bromo acetanilide - Preparation of 2, 4, 6 - Tribromo phenol

   ii) Diazotization and coupling : Preparation of pheyl azo - Napthol

   iii) Oxidation : Preparation of benzoic acid from benzyl chloride

   iv) Reduction : Preparation of m - nitro aniline from m - Dinitro benzene

   v) Acetylation of salicyclic acid

2. Organic qualitative analysis : Identification of an organic compound through the functional group analysis (Acetic acid, Oxalic acid, Succinic acid, Benzoic acid Cinnamic acid, Pthalic acid, Salicylic acid, Phenol, Alpha Napthol, Beta Napthol, Resorcinol, Acetaldehyde, Benzaldehyde, Acetone, Ethyl methyl ketone, Acetophenone, Benzophenone, Glucose, Fructose, Aniline, Urea, Benzamide)

3. Demonstration experiments :

   i) Preparation of TLC plates

   ii) Verification of the purity of the samples (compounds) by TLC

   iii) Compound obtained by the benzoylation of aniline

   iv) 2, 4 - Dinitro phenyl hydrazone of acetone.

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CHEMISTRY **CHE 402N** 2015-16 onwards III B.Sc.,

SYLLABUS

VI SEMESTER

CHEMISTRY AND INDUSTRY

UNIT - I : Chromatography **Weightage : 15 marks = 1, 5 marks = 3**

Classification of chromatography methods, principles of differential migration adsorption phenomenon, nature of adsorbents, solvent systems, R_f values, factors effecting R_f values.

a. Paper chromatography : Principles, R_f values, experimental procedures, choice of paper and solvent systems, developments of chromatogram - ascending, desscending and radial. Two dimensional chromatography, applications.

b. Thin layer chromatography (TLC) : Advantages, principles, factors effecting R_f values. Experimental procedures. Adsorbents and solvents. Preparation of plates. Development of the chromatogram. Detection of the spots. Applications.

c. Column chromatography : Principles, experimental procedures, stationary and mobile phases, separation technique. Applications.

d. High performance liquid chromatography (HPLC) : Principles and applications.

e. Gas liquid chromatography (GLC) : Principles and applications.

UNIT - II : Spectrophotometry **Weightage : 15 marks = 1, 5 marks = 2**

General features of absorption - Spectroscopy, Beer - Lambert's law and its limitations, transmittance, absorbance and molar absorptivity. Single and double beam spectrophotometers. Application of Beer - Lambert law for quantitative analysis of

i) Chromium in
ii) Manganese in manganous sulphate
iii) Iron (III) with thiocyanate.

IT - III : Molecular Spectorscopy **Weightage : 15 marks = 2, 5 marks = 4**

1. Electronic Spectroscopy : Interaction of electromagnetic radiation with molecules and types of molecular spectra. Potential energy curves for bonding and antibonding molecular orbitals. Energy levels of molecules . Selection rules

for electronic spectra. Types of electronic transistions in molecules effect of conjugation. Concept of chromophore.

2. Infra red spectroscopy : Energy levels of simple harmonic oscillator, molecular vibration spectrum, selection rules. Determination of force constant. Qualitative relation of force constant to bond energies. An harmonic motion of real molecules and energy levels. Modes of vibrations in polyatomic molecules. Characteristic absorption bands of various functional groups. Finger print nature of infrared spectrum.

3. Raman spectroscopy : Concept of polarizability, selection rules, pure rotational and pure vibrational Raman spectra of diatomic molecules.

4. Proton magnetic resonance spectroscopy ($_1$H - NMR) : Principles of nuclear magnetic resonance, equivalent and non - equivalent protons, position of signals. Chemical shift, NMR splitting of signals - Spin - Spin coupling, coupling constants. Applications of NMR spectra with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1, 1, 2 - tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT - IV : Macro molecules **Weightage : 15 marks = 2, 5 marks = 3**

Classification of polymers, chemistry of polymerization, chain polymerization, step polymerization, coordination polymerization - Molecular weight of polymers of number average and weight average molecular wieghts, degree of polymerization, determination of molecular weight of polymers by viscometry, osmometry and light scattering methods. Kinetics of free radical polymerization, derivation of rate law. Preparation and industrial applications of polyethylene, PVC, Teflon, polyacrylonitrile, terelene and nylon - 66. Introduction to biodegradability.

Additional Syllabus

Introduction to Bioorganic Chemistry : Basic considerations - Proximity effects in organic Chemistry. Molecular adaptations - Molecular recognition and the supra molecular level.

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CHEMISTRY **CHE 402NP** 2015-16 onwards III B.Sc

PRACTICALS

VI SEMESTER

PHYSICAL CHEMISTRY

1. Chemical kinetics :

i) Determination of specific reaction rate of the hydrolysis of methyl acetate catalyzed by hydrogen ion at room temperature.

ii) Determination of rate of decomposition of hydrogen peroxide.

2. Distribution law :

i) Determination of distribution coefficient of iodine between water and carbon tetrachloride.

ii) Determination of molecular status and partition coefficient of benzoic acid in toluene and water.

3. Electro chemistry :

i) Determination of concentration of HCl conductometrically using standard NaOH solution.

ii) Determination of concentration of acetic acid conductometrically using standard NaOH solution.

iii) Determination of redox potentials of Fe^{2+} / Fe^{3+} by potentiometric titration of ferrous ammonium sulphate Vs. potassium dichromate.

4. pH metry :

i) Preparation of phosphate buffer solutions

ii) pH metric titration of weak acid (acetic acid) with strong base NaOH and calculation of dissociation constant.

5. Colorimetry :

i) Verification of Beer - Lambert law for and determination of concentration of the given solution.

ii) Verification of Beer - Lambert law for and determination of concentration of the given solution.

6. Project work : Collection of spectral data of a minimum of six compounds belonging to different functional groups (other than those included in the syllabus) and submission of the report. IR Spectra of ethyl alcohol, acetaldehyde, acetic acid and ethyl acetate. PMR spectra of ethyl bromide, acetaldehyde, toluene, acetophenone. Mass spectra of Ethyl benzene, acetophenone, n - Butyl amine, l - propanol.

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BOTANY **BOT 302N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

TAXONOMY, EMBRYOLOGY AND PALYNOLOGY

UNIT - I

1. Rubiaceae, Asteraceae, Sapotaceae, Asclepiadaceae, Acanthaceae, Lamiaceae, Orchidaceae, Poaceae.

UNIT - II

2. General account of palynology and its importance with special reference to the pollengrains of Hibiscus Acacia and grass

3. Microsporogenesis.

4. Megasporogenesis,types of embryosacs and development of monosporic, bisporic and tetrasporic types.

UNIT - III

5. Endosperm; types and development.

6. Embryogeny; development of dicot and monocot embryos.
   Polyembryony

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BOTANY **BOT 302NP** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

1. Technical description and identification of the plants of the following families

Annonaceae, Rutaceae, Caesalapinaceae, Cucurbitaceae, Umbelliferae, Rubiaceae, Asteraceae, Sapotaceae, Asclepiadaceae, Lamiaceae, Amaranthaceae, Euphorbiaceae, Poaceae.

2. Utilization of plants

Botanical name, family, morphology of useful product, uses of the plants included in theory syllabus.

3. Palynology

Study of pollen grains of *Hibiscus*, *Acacia* and grass.

4. Embryology - slides

T.S. of anther showing archesporial cells
T.S. of anther showing pollen tetrads
T.S. of anther showing pollen grains
Dicot embryo
Monocot embryo
Orthotropous ovule
Anatropous ovule
Compylotropous ovule

BOT 302N P
Botany Practical - III: Scheme of valuation

A.
12M
Twig with medium sized flowers
6M
Technical description
½M
Diagram of Twig
1M
Diagram of L.S. flower
½M

Floral diagram
2M
Floral Formula
1M
Display of T.S. Ovary
1M
B&C
10M
Twigs from the Families included in the syllabus
Assignment... 5M
5M
Name of the family... 1M
5M

D	**8M**
Embryology Slide Diagram	4M
Notes	3M
Identification	1M
E, F & G 3 x 3M	**9M**
Utilization of plants	
Botanical name	1M
Family	1M
Morphology of useful product	1M
H & I 2 x 3M	
6M	
Herbarium sheets	2M
Botanical name	1½M
Family	1½M
Viva Voce	**10M**

Examiners should ask five simple questions pertaining to the syllabus

Record	**10M**
Herbarium	**3M**
Field Trip Diary	**2M**

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BOTANY **BOT 402N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

PLANT PHYSIOLOGY, SEED TECHNOLOGY AND CELL BIOLOGY

UNIT - 1

1.Respiration : Aerobic and Anaerobic respiration, glycolysis, Kreb's cycle, electron transport system, factors affecting respiration.

2. Nitrogen metabolism : Protein synthesis.

UNIT - II

3. Growth and Development : Deffinition,development kinetics of growth.

4. Plant growth hormones : History and discovery of plant hormones. Auxins, Gibberlins, Cytokinins, Absessic acid and Ethylene - Mechanism of action.

5.Seed Technology : Seed dormancy, seed viability, seed germination, physiological aspects of germination.

UNIT - III

6. Structure and functions of cell organelles - Ultra structure of cell membrane, ultra structure of Nucleus.

7. Chromosome structure and organization, types of chromosomes, functions of chromosomes.

8. DNA structure, replication of DNA, genetic code.

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BOTANY **BOT 402NP** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

PLANT PHYSIOLOGY

Major Experiments

1. Measurement of osmotic potential by incipient plasmolysis method.
2. Differental transpiration by cobalt chloride method.
3. Seperation of chloroplast pigments by paper chromatography.
4. Effect of quality of light and concentration of CO_2 on the rate of photosynthsis.
5. Hydrolysis of starch - amylase activity
6. Titrable acidity - estimation of acids in lemon or tamarind leaves.
7. Effect of temperature on membrane integrity - beet root slices.

Minor Experiments

1. Demonstration of transport of water through xylem
2. Demonstration of imbibition
3. Demonstration of osmosis by egg membrane.
4. Potato osmoscope
5. Phototropism
6. Arc Auxanometer.

Cell Biology

Study of mitosis in root tips of onion.

Genetics

1. Problems on Mendelism
2. Problems on Linkage
3. Problems on Genetic Interactions.

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ZOOLOGY **ZOO 302N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

GENETICS, ANIMAL BIOTECHNOLOGY AND ORGANIC EVOLUTION

Unit - I

1.0. Genetics :

1.1. Genetic interactions – Incomplete dominance, co-dominance and epistasis

1.2. Identification of DNA as the genetic material – Griffith's experiment and hershey- Chase experiment

1.3. Human karyo typing, barr bodies, Lyon's hypothesis and amniocentesis

1.4. Chromosomal disorders – Autosomal and Allosomal

Unit - II

2.0. Animal Biotechnology :

2.1. Scope of biotechnology, cloning, vectors - Characters of vectors, plasmids

2.2. Gene cloning- Enzymatic cleavage of DNA, restriction endonucleases and ligation

2.3. Transgenesis and production of transgenic animals (Fish and Goat)

2.4. Application of stem cell technology in cell based therapy (Diabetes and Parkinson's disease)

Unit III

3.0. Organic Evolution :

3.1. Genetic basis of evolution, gene pool, gene frequencies, Hardy - Weinberg's law, forces of destabilization - natural selection, genetic drift, mutations, isolation and migration

3.2. Speciation – Allopatric and sympatric

FOR GIFTED STUDENTS ONLY

1. Protein synthesis
2. Human genome project 3. Cloning

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ZOOLOGY **ZOO 302NP** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

Animal Physiology :

1.0. Identification of organic substances - Carbohydrates, proteins and lipids

2.0. Unit oxygen consumption in an aquatic animal (fish or crab) – Demonstration only

3.0. Qualitative analysis of ammonia, urea and uric acid

4.0. Demonstration of salivary amylase

Genetics :

5.0. ABO blood group identification

6.0. Problems based on blood grouping

7.0. Karyo typing of human chromosomes (Human karyo typing figure on paper should be cut into different sets of chromosomes and students are asked to arrange in an order and comment on the idiogram)

8.0. Identification of genetic syndromes given on charts or photographs

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ZOOLOGY **ZOO 402N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

CLINICAL SCIENCE

Unit - I

1.0. Hematology :

1.1. Blood composition and functions

1.2. Blood groups (ABO, Rh & MN) and transfusion problems

1.3. Blood diseases – Anaemia, leukemia, leucocystosis and leucopaenia

1.4. Biopsy and Autopsy - Clinical importance only

1.5. Cholesterol and its significance in cardio vascular problems

1.6. Blood sugar levels and diabetes

Unit - II

2.0. Immunology :

2.1. Types of immunity - Innate and acquired

2.2. Antigens - Haptenes and epitopes and their properties

2.3. Ig G - Structure and biological properties

2.4. Hypersensitivity - Immediate and delayed

Unit - III

3.0. Important Human Parasites :

3.1. Blood parasites - Structure, life cycle and clinical significance of *Plasmodium*

3.2. Intestinal parasites – Structure, life cycle and clinical significance of *Entamoeba hystolytica, Taenia solium, Ancylostoma duodenale* and *Enterobius vermicularis*

FOR GIFTED STUDENTS ONLY

BIOMEDICAL TECHNOLOGY

1. Diagnostic imaging	-	X - Ray
		CAT Scan
		MRI Scan
2. Monitoring bodies vital functions	-	ECG
		EEG
		ELISA

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ZOOLOGY **ZOO 402NP** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

Aquaculture & Fisheries :

1.0 . Identification of important freshwater and marine edible fishes (Any five)

2.0. Identification of important edible prawn / crab / lobster / oyster (Any five)

Field Work :

Filed work is compulsory. Field trip to local fisheries / aquaculture unit is to be conducted and certified felid note book should be submitted at the time of practical examination. Five marks are allotted for the certified field record.

Clinical Science :

3.0. Identification of the following protozoan parasites :

3.1. *Entamoeba hystolitica*

3.2. *Giardia intestinalis*

3.3. *Plasmodium* - any two stages

4.0. Identification of the following helminth parasites :

4.1. *Taenia solium* – Entire, scolex and matured proglottid

4.2. *Enterobius vermicularis*

4.3. *Ancylostoma duodenale* – Male and female

5.0. Blood cell counting (RBC & WBC)

6.0. Estimation of hemoglobin (Sahli's method)

Animal Biotechnology :

7.0. Identification of vectors (Charts or photographs)

8.0. Identification of genetic disorders (Charts or photographs)

9.0. Identification of transgenic animals (Charts or photographs)

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ELECTRONICS **ELE 302N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

INTRODUCTION TO MICRO CONTROLLERS

UNIT - I

MCS - 51 Micro controller architecture

Difference between micro processor and micro controller - Advantages and disadvantages of M.C. block diagram of 8051 micro controller, description of functional units - Memory organisation - Program memory and data memory - Pin configuration - Comparative study of various MC.

UNIT - II

Instruction set and overview

Instruction set - Addressing modes - Classification of instructions - I/O ports, timers / counter, serial communication - Communication modes.

Text Books :

1) The 8051 micro controller and embedded systems - Mohammad Ali Mazidi and J.G. Mazid.

2) Programming and customizing 8051 micro controller - Myke Predko.

3) The 8051 micro controller : Architecture, programming and applications - Kenneth J. Ayala.

4) Design with micro controller - John B. Peatman.

Reference Books :

1) Fundamentals of micro controllers and applications in embedded systems - Ramesh Gaonkar

2) The micro controller idea - Jan Axelson

3) 8051 micro controller and embedded systems - Rajiv Kapadia.

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ELECTRONICS **ELE 302NP** 2015-16 onwards III B.Sc

PRACTICLES

VI SEMESTER

DIGITAL ELECTRONICS

A. Digital Experiments :

1) Verification of truth tables of OR, AND, NOT, NAND, NOR and EX - OR gates (by using 7400 - series).

2) Construction of gates using NAND, NOR gates.

3) Verification of Demorgan's theorem.

4) Construction of half and full address and verifying their truth tables.

5) Operation and verifying truth tables of flip - flops - RS, D and JK using ICs.

6) Operation and verifying truth tables of flip - flops - RS, D and JK using kit.

7) Construction of decade counter (7490)

8) Construction of ripple counter

B. Simulation experiments using appropriate electronic circuit simulation :

1) 4 - bit parallel adder using combinational circuits

2) Decade counter using JK flip flops

3) Up / down counter using JK flip flops

4) Up / down counter using 7493

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ELECTRONICS **ELE 402N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

EMBEDDED SYSTEMS PROGRAMMING AND APPLICATIONS

UNIT - I

Programming : Interrups - Programming examples, logic control, square wave generation and time delay generation.

Assembly language programming tools, software development tools - Hardware development tools and systems and tools.

UNIT - II

Micro controller interfacing and applications.

Simple keyboard interfacing, 7 - segment display, LED, LCD, stepper motor, ADC and DAC.

Text Books :

1) The 8051 micro controller and embedded systems - Mohammad Ali Mazidi and J.G. Mazid.

2) Programming and customizing 8051 micro controller - Myke Predko.

3) The 8051 micro controller : Architecture, programming and applications - Kenneth J. Ayala.

4) Design with micro controller - John B. Peatman.

Reference Books :

1) Fundamentals of micro controllers and applications in embedded systems - Ramesh Gaonkar

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ELECTRONICS **ELE 402NP** 2015-16 onwards III B.Sc

PRACTICLES

VI SEMESTER

MICRO PROCESSOR AND MICRO CONTROLLER LAB

A. Micro processor :

1) Binary addition and subtraction (8 - bit and 16 - bit)
2) Multiplication and division
3) Picking up largest / smallest number
4) Arranging - ascending / descending order.
5) Decimal addition (DAA) and subtraction

B. Micro processor (hardware) :

1) Interfacing R - 2R ladder network (DAC) (4 bits) to generate wave forms
2) Interfacing a seven segment display.

C. Micro controller experiments using 8051 kit :

1) Multiplication of two numbers using MUL command (later using counter method for repeated addition)
2) Division of two numbers using DIV command (later using counter method for repeated subtraction)
3) Pick the smallest number among a given set of numbers
4) Pick the largest number among a given set of numbers
5) Generate a specified time delay

D. Using Keil software :

1) Pick the largest number among a given set of numbers
2) Pick the smallest number among a given set of numbers
3) Arrange a given set of numbers in ascending order
4) Arrange a given set of numbers in decending order
5) Generate a rectangular wave form at specified port terminal

E. Micro controller (Interfacing) :

1) Interface a ADC and a temperature sensor to measure a temperature
2) Flash a LED connected at a specified output port terminal

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III B.Sc.(Computer Science): VI Semester : Paper 302N

Title: Operating Systems – Syllabus 2015 – 2016 onwards

Unit – 1: OS Fundamentals and Structure of OS.

Introduction – What operating systems do – Computer – System organization – Computer system architecture – Operating system structure – Operating system operations : Process management – Memory management, storage management, protection and security – Distribution systems – Computing environments.

System structures – Operating system services – User operating system interface – System calls – Types of system calls – System programs – Operating system structure – System boot. Process concept – Process scheduling – Operations on processes – Inter process communication – Examples of IPC systems – Communication in client server systems.

Unit – 2 : Multithreading and process synchronization.

Multithreaded programming – Multithreading models – Thread libraries – Threading issues – Operating system examples. Process scheduling – Basic concepts – Scheduling criteria – Scheduling algorithms – Multiple process scheduling – Thread scheduling – Operating system examples. Process synchronization – The critical section problem – Peter's solution – Synchronization hardware – Semaphores – Classic problems of synchronization – Monitors – Synchronization examples. Deadlocks – System model – Deadlock characterization – Methods for handling deadlocks – Deadlock prevention – Deadlock avoidance – Deadlock detection – Recovery from deadlock.

Unit – 3 : Memory management strategies.

Memory: Management strategies – Swapping – Contiguous memory allocation – Paging – Structure of the page table – Segmentation. Virtual – Memory management – Demand paying – Page replacement. File system – File concept – Access methods – Directory structure – Protection.

Unit – 4 : File systems and I / O management.

Implementing file systems – File system structure - File system implementation – Directory implementation – Allocation methods – Free space management – Efficiency and performance – Recovery. Secondary storage structure – Overview of mass – Storage structure – Disk structure – Disk attachment – Disk scheduling – Disk management – Swap space management – RAID structure. I / O systems – Overview – I / O hardware – Application I / O interface – Kernel I / O subsystem – Transforming I / O requests to hardware operations.

FOR MERIT STUDENTS :

Security: - The security problem, User authentication, Program threats

Prescribed Text Book:

2. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating system principles, Seventh Edition, Wiley India Edition (2007)
   Chapters (1 to 13, 19, 21)

Reference Book:

7. William Stallings, Operating systems Internals and design principles, Fifth Edition, Pearson education (2007).
8. Andrew S Tanenbaum, Modern operating systems, Second Edition, Pearson Education.
9. Archer Harris J, Operating systems, Schaum outline series, Tata McGraw Hill (2006).
10. Davis and Raj Kumar, Operating systems A systematic view, Sixth Edition, Pearson Education (2007).
11. Bhatt, Introduction to operating systems: Concept and practice, Second Edition, PHI (2008).
12. Stallings, Operating systems – Internals and Design principles, Fifth Edition, PHI (2007).

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III B.Sc. - Computer Science: VI Semester : Practical III CSC 302NP

Title: DBMS 2015 -16 onwards

Lab session – 1:

41. Create table called employee

Column name	type	size
Emp no	numeric	4
Emp name	alphabets	10
Job	alphabets	9
Hire date	date	
Salary	Numeric	7.2

42. Display the structure of the Employee table.
43. Insert the values into the table employee.
44. Increases the size of E name to 20 characters in the Employee table.
45. To change the name of the Employee to Emp.
46. To list all the records form the table employee.
47. To conform all the transactions permanently in the table from employee.
48. To delete the records from the table Employee who's job is clerk.
49. Write a query display all the different job types in employee.
50. To modify the salary column in the employee table to add Rs. 1000/- for each employee.

Lab session – II

51. To display all the database tables available in the current year.
52. Undo the delete from the table emp.
53. Write a querry to display the records for the employee table whose salary is greater than 3000/-
54. Write a query to find out the employee names there employee no is 1,2 & 4
55. Write a query find the Employee who are getting salary between Rs. 5000 to 9000.
56. Write a query to display all the Employee names which have 're' or 'aj'.
57. Write a query to display the department name in ascending order.

58. Create a table Emp Dup which contains the name, Job, salary of Employee table.
59. Display the employee names in lower case.
60. To display the Emp names & their salary increase 20% and Empressed as a whole number.

Lab session – III

61. Assuming the date of Apprised date is one year after the hire date (Add Months) order the output of Assending order from Apprised date.
62. Display the time of the day (HH:MI:SS)
63. Construct Rama Rao + Krishna Rao = Rama krishna
64. Find the greatest salary and commission in the in the dept no.
65. Calculate the no.of Employees in the dept no. 10.
66. Show the average salary for each department having more than three employess.
67. Write a query to display the no. of people with the same job.
68. Create an Index on Emp of Emp or table.
69. Write a query to display the employee names location and D.No. the employees whose salary is grater than 1500.
70. Find the job that was filled in the first half of 1983 and the same job that was filled during the same period 1984.

Lab lesson: IV

71. Display all the employees who earn more than the lowest salary in dept no. 30
72. Display the e name, job from employees whose salary greater than the highest salary in sales dept.
73. Create a view which contains e name, job and salary of all clerks.
74. Create a snapshot which contains.
75. Create a sequence to generate the even no's below 2000.
76. Write a query to print the clusters in the current user.
77. Write a query to print the sequence in the current user.
78. Find all the employees who earn maximum salary.
79. Find all the employees who earn lowest salary in each department.
80. Display the dept no. which have the an average salary greater than the dept no = 30

Reports:

3. Generate the reports using SQL * plus commands for company reports produced by the personal department.

4. Generate the report using to SQL * plus commands for ABC international company configuration report.

Programs:

5. Write a program to read the three subjects marks calculated total & average marks of the student.
6. Write a program to display the first 10 no's in reverse order.
7. Write a program to reverse a given string.
8. Write a PL, SQL., program to find the given no's prime or not.

Triggers:

4. Create a Trigger to modify the record into the upper case before going to insert the record into the table customer.
5. Insert the values into the trigger.
6. Drop the Trigger.

Functions:

4. Create a function to calculate the amount as per the given quantity and rate
5. Calling calc amount function in PLSQL Block

Procedures:

1. Create a procedure to find the area of the circle.
2. Creating procedure with out argument's
6. Calling show – msg in PL/SQL Block.

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III B.Sc.(Computer Science): VI Semester : Paper 402N

Title: Web Technologies – Syllabus 2015 – 16 onwards

Unit: I

Introduction: HTML, XML and the World Wide Web.

HTML: Basic HTML, The Document body, Text, Hyperlinks, Adding more formatting, Lists, Tables, Using colors and images, Images.

More HTML: Multimedia objects, Frames, Forms – towards interactivity, The HTML document head in detail, XHTML – An evolutionary markup.

Cascading style sheets: Introduction, Using styles: Simple examples, Defining your own styles, Properties and values in styles, Style sheets – A worked example, Formatting blocks of information, Layers.

Unit: II

An introduction to Java Script: What is dynamic HTML, Java Script, JavaScript - the basics, Variables String manipulation, Mathematical functions, Statements, Operators, Arrays and Functions.

Objects in Java Script: Data and objects in Java Script, Regular expressions, Exception Handling, Built in objects, Events.

Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, writing to a different frame, Rollover buttons, Moving images.

Unit: III

Programming in Perl Script : Why Perl ?, On-Line Document, The Basic Perl Program, Scalars, Arrays, Control Structures

Active Server Pages and Java: Active Server Pages, Java.

XML: Defining Data for Web applications: Basic XML, Document type definition, XML schema, Document Object Model, Presenting XML.

Unit: IV

Good Design: Structure, Tables versus Frames, Accessibility, Internationalization, Exercises.

Useful Software: Web browsers, Perl, Web servers, mod_perl, Databases, Accessing your ISP, Exercises.

Protocols: Protocols, IP and TCP, Hyper Text Transfer Protocol, Common Gateway interface, The Document Object Model, Introducing the Document Object Model, Exercises.

Case Study : The plan, the data.

FOR MERIT STUDENTS :
CGI scripting : Introduction to CGI, developing CGI applications.

Prescribed Text Book:

2. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007).

Reference Book:

3. Paul S. Wang Sanda S. Katila, An Introduction to Web Design Plus Programming, Thomson (2007).

4. Robert W. Sebesta, Programming the World Wide Web, Third Edition, Pearson Education (2007).

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III B.Sc. - Computer Science: VI Semester: Practical IV CSC 402NP

Title: Web Technologies Lab – Lab cycle 2015 – 16 onwards

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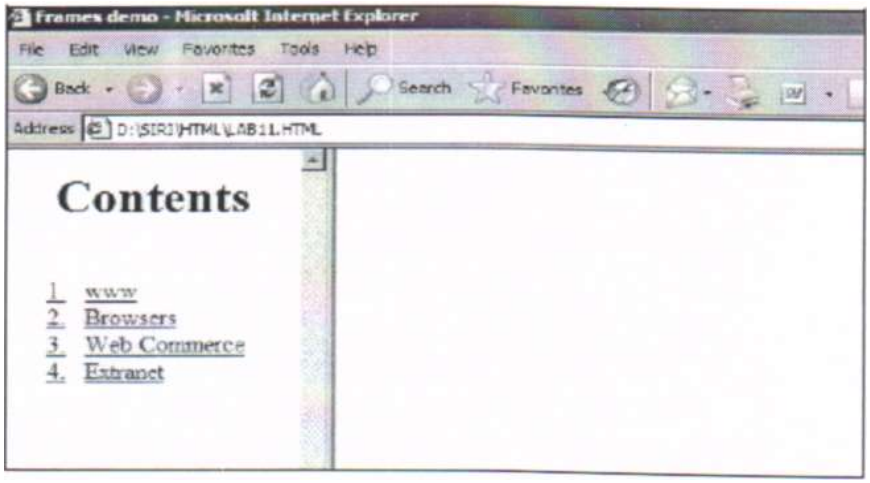
1. Write a HTML program illustrating text formatting
2. Illustrate font variations in your HTML code
3. Prepare a sample code to illustrate links between different sections of the page
4. Create a simple HTML program to illustrate three types of lists
5. Embed a real player in your web page
6. Embed a calendar object in your web page
7. Create an applet that accepts two numbers and perform all the arithmetic operations on them
8. Create nested table to store your curriculum
9. Create a form that accepts the information from the subscriber of a mailing system
10. Design the page as follows:

11. Illustrate the horizontal rulers in your page

12. Create a help file as follows:



13. Write a Java Script to accept the first, middle and last names of the user and print the name

14. Evaluate the following:

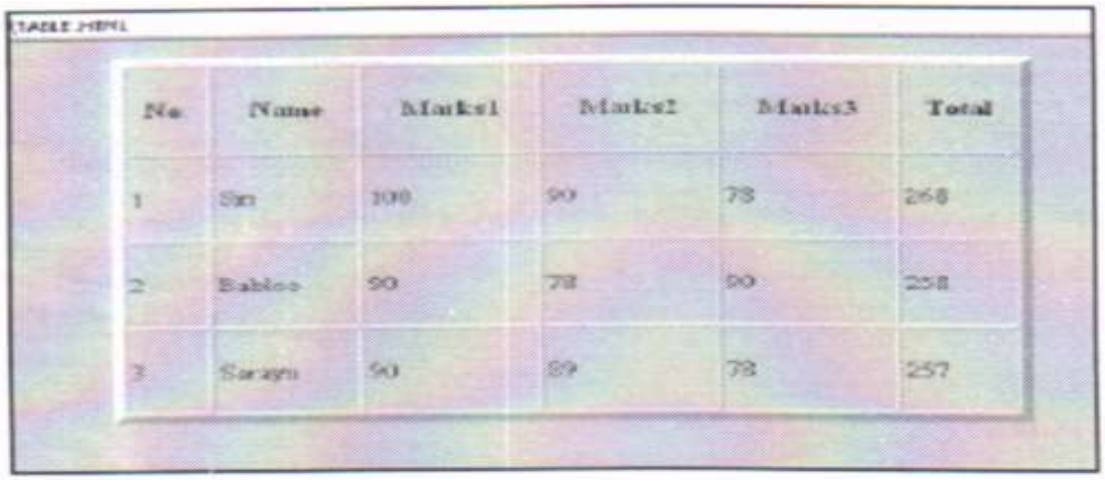
a) “10” + “90”

b) (10<8)>10:8

c) J=(i++)+(--i)+(++i)+(i++)where i = 2

15. Write a script to wish the user “Good Morning” at different hours of the day

16. Write a script to read information of ‘n’ students from the user and store them into the table as follows:



17. Write a DHTML program to give different colors for different heading tags

18. Using DHTML, invert the behavior of <h1> to <h6> tags

19. Create an inline style sheet for your web page

20. Create an external style sheet for creating a font family

21. Illustrate the creation of embedded style sheet

22. Illustrate the procedure of creating user – defined classes

23. Write an ASP script to send the information accepted from the user and send it to a CGI script

24. Write an ASP script to update the student information with some number ‘n’ in the table

25. Delete the desired student’s record from the table using the ASP script.

2014-17 Batch Syllabus

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GENERAL ENGLISH **ENG 101NA** 2012-13 onwards I DEGREE

SYLLABUS

I SEMESTER

GENERAL ENGLISH

Prose :

1. The Conjurer's revenge
2. The best investement I ever made

Poetry :

1. Ode to Autumn
2. Dover beach

Non - detailed:

1. Little girls are wiser than men (short story)
2. Merchant of venice

Grammar & Composition:

1. Tenses
2. Synonyms and Antonyms
3. Correction of sentences
4. Writing the English words from Trascription
5. Writing the correct transcription of English words
6. Stress

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking - I
   Published by
   Foundation Books Pvt. Ltd., Cambridge house, New Delhi

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BOM **COM 103N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ORGANISATION AND MANAGEMENT

UNIT - 1

Fundamental concepts:

Concepts of business, trade, Industry and commerce, Business - features of business, Trade - Classification - Aids to trade - Industry - Classification - Commerce - relationship between trade, Industry and commerce - Business organisation - concept - Functions of Business

UNIT - 2

Entrepreneur:

Meaning - Characteristics of Entrepreneurs - Types of Entrepreneurs - Functions of an Entrepreneur - Steps to start enterprise - Sources of finance - Long term, Short term.

UNIT - 3

Forms of Organization - Sole proprietorship, Partner ship and Joint Hindufomily:

Business organization - Forms of Business organization - Classification - Factors influencing the choice of suitable form of organisation - Sole proprietorship - Meaning - Characterstics - Advantages and disadvantages - suitability.

UNIT - 4

Partner ship - Meaning - Characterstics - Kinds of partners - Registration of partnership deed - Rights and obligations of partners - Joint Hindu Family Business - Characteristics - Advantages and limitations.

UNIT - 5

Joint stock company:

Joint stock company - Meaning - Characteristics - Advantages - Kinds of companies - Difference between private and public companies - Promotion of a company: Promotion - stages - promoters - characteristics - Company registration - Preparation of important documents - Memorandum of association - articles association - contents - prospectus - Statement in lieu of prospectus.

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Business Economics **COM 104N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

Business Economics

Module – I Introduction

® Economic activities

® Distinction between economic and non - economic

® Scope, Significance, and nature of economics

® Micro, Macro – normative and positive economic analysis.

Module – II Demand, Utility analysis and theory of Production

® Meaning of the demand – Types of demand, individual, company market.

® Industry demand, Derived demand – Demand function

® Law of demand – Law of diminishing marginal utility – Law of equi – Marginal utility

® Consumer's surplus – Elasticity of Demand – Factors influencing elasticity of demand.

® Law of production – Law of variable proportion theory - Returns to scale – Internal and external economies.

® Cost – output relations. Cost function and concepts – Law of supply.

Reference Books :

1. Academy Book

2. Micro Analysis by vaiash

3. M.L. Jhingah

4. C.P. Chopra

5. Business Economic : Kalyani Publications.

6. Business Economic : Himalaya Publications

7. Micro Economics : Academy book

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FINANCIAL ACCOUNTING **COM 101N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

FINANCIAL ACCOUNTING

Chapter - 1 Introduction to Accounting

History of Accounting - Accounting theory - Definition and meaning - Book - Keeping and Accounting - Scope of Accounting - Objectives of Accounting - Basic accounting concepts, users of accounting information - Advantages and Limitations. Functions of an accountant - Double entry system - Single entry system, Classification of accounts - Accounting process. Journal - Ledger - Trial Balance.

Chapter - 2 Subsidiary Books

Introduction - Advantages of Subsidiary Books. Types of Subsidiary Books - Cash - Books

Chapter - 3 Bank Reconciliation Statement

Cash book - pass book - need - Reasons for difference between cash book and pass book balances - Method of preparation of BRS - Favourable balance - preparation of BRS (overdrafts) preparation of BRS (from cash book and pass book directly)

Chapter - 4 Preparation of Trial Balance, Final Statements of Accounts:

Introduction - Importance of Trial Balance - Objectives - advantages - limitations - Final accounts of sole trader. Capital and Revenue expenditure - Trading Account - Manufacturing account - Profit and Loss account - Balance Sheet - Final accounts with adjustments.

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Fund. of Inform. Technology **COM 102N** 2012-13 onwards I B.Com

SYLLABUS

I SEMESTER

FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT - 1

Introduction to Computers

Definition, charcteristics and limitations of computers - Elements of computers - Hard ware - CPU - Primary and Secondary Memory - Input and output devices.

UNIT - 2

Modern communications:

Communications - FAX, voice mail, and information services - Email - creation of e-mail id - group communication - Tele conferencing - video conferencing - File exchange - Band width - modem - Network topologies - Network types CAN, MAN, WAN and their architecture.

UNIT - 3

Operating Systems

Meaning, definition, functions and types of operating systems - Booting process - DOS - Internal and External commands - wild cards - Windows operating system - Desktop, start menu - Control panel, windows accessories.

UNIT - 4

M.S. Office:

Word processing - meaning and features of word processing - Advantages and applications of word processing - Parts of M.S.Word - Toolbars - creating - saving and closing a document - Opening and editing a document - moving and copying a text - Applying bullets and numbering - Insertion of objects - Date and time, Headers and Footers and Page Breaks - Spelling and Grammer checking - Mail Merge meaning - Aav - Perpox - Creating merged letters.

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BOTANY **BOT 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, CRYPTOGAMS

UNIT I

Diversity of microbes.

Introduction to Microbiology

1. Viruses: structure, replication & transmission, diseases: Ex. TMV, yellow vein clearing & controlling measures.

2. Bacteria - structure, nutrition, reproduction diseases - citus canker, leaf blight of rice

3. Cyanobacteria - life history of *Oscillatoria, Nostoc, Anabaena*- Economic, importance / pathogen, symptoms and control.

UNIT - II

20 hours

4. Algae: general account, economic inportance.

5. Structure, reproduction, life history and systematic position of *Oedogonium Vaucheria, Chara, Ectocarpus & Polysiphonia.*

UNIT - III

20 hours

Fungi:

6. General characters and out lines of classification of fungi

7. Structure, reproduction and life history of *Albugo, Peziza, Puccinia* ***Alternaria*****.**

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CHEMISTRY **CHE 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

INORGANIC CHEMISTRY & ORGANIC CHEMISTRY

Inorganic Chemistry - I

1-P- block elements:

Group - 13: Synthesis and structure of diborane and higher boranes (B_4H_{10} and B_5H_9) boron - nitrogen compounds ($B_3N_3H_6$ and BN)- **Weightage - 15 Marks**

Group - 14: Preparation and applications of silanes and silicones, graphitic compounds. **- Weightage - 5 + 5 Marks**

Group - 15: Preparation and reations of hydrazine, hydroxylamine, phosphazenes. **- Weightage - 5 + 5 Marks**

Group - 16: Classification of oxides based on (i) Chemical behavriour and (ii) Oxygen content. **- Weightage - 5 Marks**

Group - 17: Inter halogen compounds and pseudo halogens. **- Weightage - 15 Marks**

2. Organometallic Chemistry:

Definition and classification of organometallic compounds, nomemclature, preparation, properties and applications of alkyls of 1,2 and 13 group elements. **Weightage - 15 Marks**

Organic Chemistry - I

1. Structural theory in organic Chemistry: - Weightage - 15 + 5 Marks

Types of bond fission and organic reagents (Electrophilic, Nucleophilic and free radical reagents including neutral moleculs like H_2O, NH_3 and $AlCl_3$)

Bond polarization:

Factors influencing the polarization of covalent bonds, electro nagativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance (or) mesomeric effect, application to (a) acidity of phenol and (b) acidity of carboxlic acids. Hyper conjugation and its application to stability of carbonium ions, free radicals and alkenes, carbanions, carbenes and nitrenes.

Types of organic reactions:

Addition - electrophitic - nucleophilic and free radical subsitution - electrophilic, nuleophilic and free radical. elimination - Examples (with mechanisms)

2. Alicyclic hydrocarbons (cycloalkanes) - Weightage - 15 Marks

Nomenclature, preparation by Freunds method, heating of dicarboxylic metal salts.

Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, shability of cycloalkanes - Baeyer's - Strain theory. Sachse and Mohr predictions.

Conformational structures of cyclobutane, cyclopentane, cyclohexane.

3. Benzene and its reactivity - Weightage - 15 + 5 + 5 Marks

Concept of resonance, resonance energy, heat of hydrogenation, heat of combustion of benzene, mention of c-c bond length and orbital picture of benzen.

Concept of aromaticity - aromaticity (definition), Huckel's rule - application to benzenoid (benzene, Napthalene) and non - Benzenoid compounds cyclopropeny! cation, cyclopentadienyl anion and tropylium cation.)

Reactions:

General mechanism of electrophilic substitution, mechanism of nitration. Friedel craft's alkylation and acylation. Orientation of aromatic substitution - definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and phenolic). Orientation effect of (i). Amino, methoxy and methyl groups (ii). Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups (iii) Halogens (explanation by taking mimimum of one example from each type).

4. Polynuclear hydrocarbons: - Weightage - 5 Marks

Structure of napthalene and anthracene (molecular orbita diagram and resonace energy) Any two methods of preparation of napthalene and reactivity towards electrophlic substution. Nitration and sulfonation as examples.

Additional Syllabus (Without Examination) :

Mathematical Concepts : Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation of functions like , maxima and minima. Partial differentation and reciprocity relations. Integration of some useful / relevant functions. Permulations and combinations. Factorials - Probability.

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COMPUTER SCIENCE **CSC 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

INFORMATION TECHNOLOGY AND MICROSOFT OFFICE

UNIT - 1

Development of computers and types; logical organization of digital computers memory: main memory, RAM, Cash, I/O units, secondary memory

Operating system: DOS commands, windows 98, 2000: working with files and folders running programs, using Recycle Bin

UNIT - 2

Ms-Office, MS-Word Basics

Headers and Footers, tables, Graphics, templates, Macros, Mail merge.

UNIT - 3

MS-Excel: work sheet, formatting, functions, charts, Graphics, worksheets as database linking.

UNIT - 4

Power Point: basics, crating Presenting, menus, toolbars, operating a presentation Creating a new slide, deleting a slide, copying a slide, slide numbering, saving closing and printing.

UNIT - 5

MS-Access: creating database, tables, queries, forms, reports, sorting, displaying and printing.

PRESCRIBED BOOK: Computers and commonsense IVth edition
AUTHOR: ROGER HUNT, JOHN SHELLY chapter (1,2,3,4,7)

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ECONOMICS **ECO 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

MICRO ECONOMICS

UNIT – I : Definitions, Adamsmith, Marashall, Robbins, Samuelson

® Micro, Macro

UNIT – II : Demand

® Meaning of Demand – Types of Demand Individual market demand

® Demand function, changes in demand

® Law of Demand

® Elasticity of Demand

® Methods

® Factors influencing elasticity of Demand

UNIT – III : Utility Analysis

Types if Utility

® Law of diminishining marginal utility

® Law of equimarginal utility

® Consumer surplus concepts

UNIT – IV : Indifferent curve analysis

® Properties of IC

® IC Map

® Consumer surples equilibrium

® Price, Income, Substitution effect

® Importance of IC

UNIT – V : Production

® Production function

® The law of variable propositions

® Law of Returns of scale

® Internal External Economics

TEXT BOOKS :

1. Academy Text
2. Different publications

® Kalayani

® Himalaya

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HISTORY **HIS 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

HISTORY & CULTURE INDIA

UNIT-1

Influence of Geography on History - Survey of the Sources - Pre-historic period - Paleolithic Mesolithic and Neolithic cultures - Role of technology. Indus valley

civilization - Its characteristic features - Vedic culture - Early and later Vedic periods - Post - Vedic period - Emergence of varna and caste system - Rise of new Religious Movements - Jainism and Buddhism in 6th Century B.C Impact on society and culture.

UNIT-2

A brief survey of political conditions in ancient India - Magadha, Alexander's invasion and Mauryas - Ashoka's dharma. Its nature and propagation - Mauryan Administration - Art and Architecture.

UNIT-3

Post - Mauryan period in North India - A brief political survey of Kushans, Guptas,

Puswabuthi and Rajputs: Polity and Administration - Social conditions - Caste System Position of Women - Economy - Indian Feudalism - Art Architecture - Education, Literature, Philosophy, Science and Technology.

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MATHEMATICS **MAT 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

DIFFERENTIAL EQUATIONS & SOLID GEOMETRY – 1

DIFFERENTIAL EQUATIONS

UNIT - 1

Formation of Differential equations, Differential equations of first order and first degree - Variables separable, Homogeneous differential equations, Equations reducible to homogeneous form.

(No question will be given in the examination)

Exact differential equations, integrating factors, Integrating factors of the form

(i) $\frac{1}{Mx+Ny}$ (ii) $\frac{1}{Mx-Ny}$ (iii) $\int_e f(x)dx$ (iv) $\int_e g(y)dx$ (v) $x^h y^k$

(1 short answer qeustion, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations of first order, Bernoulli's equations, Change of variables, Total differential equations, Simultaneous total differential equations, Equations of the form (i) Method of grouping (ii) Method of multipliers, Orthogonal trajectories.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Differential equations of the first order but not of the first degree - Equations solvable for Equations solvable for , Clairaut's equations and Equations reducible to Clairaut's form, Equations solvable for .

(2 short answer questions, 2 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 4

Planes: General equation of a plane - Normal form - Transformation to the normal form - Determination of a plane under given conditions (i) Plane passing through a given point (ii) Plane passing through three given points (iii) Plane in terms of its intercepts on the axes (intercepts form) - Angle between two planes - Perpendicular distance of a point from the given plane - Distance between parallel planes - Two sides of a plane - plane passing through the intersection two given planes - Angle bisectors of two planes - Pair of planes.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Lines: Equations of a line (i) General form (ii) Parametric form (iii) Symmetric form (iv) Two points form - Angle between a line and a plane. The condition that a given line may lie in a given plane - Coplanar lines. The condition that two given lines are coplanar.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Skew lines. The shortest distance between two skew lines. The length and equations of the line of shortest distance between two straight lines - Length of the perpendicular from a given point to a given line.

(1 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.
2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.
3. Ivan Niven, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY** 101N 2012-13 onwards I B Sc.

SYLLABUS

I SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

Unit I Vector Analysis (10):

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field. Vector integration, line, surface and volume integrals, Stoke theorem, Gauss theorem, and Greens theorem (statement only)

.

Unit II Mechanics of Particles(10)

Motion of variable mass system, motion of a rocket,multi-stage rocket. Collisions in two and three dimensions, impact parameter, scattering cross-section, Rutherford scattering

Unit III Mechanics of rigid bodies(10)

Definition of Rigid body, rotational kinematic relations, equation of motion for a rotating body, angular momentum and inertial tensor. Euler's equations , precession of a top, Gyroscope.

WAVES AND OSCILLATIONS

Unit IV Fundamentals of vibrations(12)

Simple harmonic oscillator, solution of the differential equation of simple harmonic Physical characteristics of SHM, energy of a simple harmonic oscillator, combination of two mutually perpendicular simple harmonic vibrations of same frequency, Lissajous figures

Unit V Damped and forced oscillations(12)

Damped harmonic oscillator,solution of the differential equation of damped oscillator. Power dissipation, logarithmic decrement, relaxation time, quality factor, differential equation of forced oscillator and its solution, amplitude resonance, velocity resonance

Unit VI Complex vibrations(6)

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave.

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POLITICS **POL 101N** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

1. Introduction: Definition, Scope and Importance of Political Science.
2. State - Nation and Civil Society
3. Sovereignty: Monism and Pluralism
4. Theories of Origin of the State: Social Contact and Evolutionary (Historical)
5. Concepts:
    a. Law: Sources of Law and Concept of Rule of Law
    b. Liberty and Equality - Their Relationship
    c. Theories and Kinds of Rights
6. Ideologies: Individualism, Fascism and Socialism

Reference Books:

1. Principles of Political science : AC Kapoor
2. Grammar of Politics : HJ Laski
3. Telugu Acadamy text book for I BA Politics
4. Political theory : Assirr vadam

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SPL. ENGLISH **ENG 101SN** 2012-13 onwards I B.A

SYLLABUS

I SEMESTER

SPECIAL ENGLISH

I. History of English Language : - F.T. Wood

a) The Evolution of standard English

b) Scandinavian Element

c) Latin Element

d) French Element

e) Word Formation (or) Growth of vocabulary.

f) Semantic changes (or) change of meaning.

II. POETRY : -

a) The Lyric

b) The Sonnet

c) The Ode

d) The Ballad

e) Dramatic monologue

f) The Elegy

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ZOOLOGY **ZOO 101N** 2012-13 onwards I B.Sc

SYLLABUS

I SEMESTER

BIOLOGY OF NON CHORDATES AND CELL BIOLOGY

UNIT I

1.0 Protozoa to Cnidaria

1.1. Phylum Protozoa: General characters and outline classification up to classes.
Type study: *Paramoecium caudatum* (structure, binary fission and conjugation)
Trypanosoma gambiense (structure, life history, pathogenesis, prophylaxis)

1.2. Phylum Porifera : General characters and outline classification up to classes.
Type study: *Sycon* (external features, canal system, cells, spicules, reproduciton)
Canal system in Sponges.

1.3. Phylum Cnidaria: General characters and outline classification up to classes.
Type study: *Obelia* (structure of colony, polyp, medusa and life history) Polymorphism in Cnidaria Corals and Coral reefs.

UNIT II

2.0 Platyhelminthes to Annelida

2.1.Phylum Platyhelminthes: General characters and outline classification up to classes.
Type study: *Fasciola hepatica* (structure; digestive, excretory and reproductive systems; life history and pathogenecity)

2.2 Phylum Nemathelminthes: General characters and outline classification up to classes.
Type study: *Ascaris lumbricoides* (structure, reproductive system, life history and pathogenecity)

2.3. Phylum Annelida: General characters and outline classification up to classes
Type study: Leech (external features, digestive, circulatory, excretory and reproductive systems)

UNIT III

3.0. Cell Biology

3.1 Electron Mictoscopic structure of an animal cell
3.2. Structure of Plasma membrane – Fluid-Mosaic model
Transport functions of plasma membrane - passive transport, active transport

UNIT IV

4.1 Structure and functions of Endoplasmic reticulum Golgi body, Ribosomes, Lysosomes and Mitochondria.

4.2. Chromosomes – Types and structure; Giant chromosomes - polytene and lamp brush chromosomes.

REFERENCE BOOKS

Biology of Invertebrates:

1. .The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. .Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. .Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. .Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. .Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. .A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. .A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. .Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

Cell Biology:

1. .Molecular Cell Biology. by Lodish, Berk, Kaiser, Scott.. Scientific American Books.
2. .Cell and Molecular Biology. by De Robertis & De Robertis : Saunders College.
3. .Cell Biology, Genetic Evolution and Ecology. by P.S.Varma and V.K. Agrawal; S.Chand and Co
4. .Molecular Biology. by Mohan P. Arora., Himalaya Publishing House Pvt.Ltd.
5. .Manual of Laboratory Experiments in Cell Biology. . Edward Gasque: (W.C. Brouh Publishers.
6. .Biomolecules. by Mohan P.Arora., Himalaya Publishing House Pvt.Ltd.
7. .Cell and Molecular Biology. .P.K.Gupta.
8. .Concepts of Cell Biology. - P.S.Verma and V.K.Agarwal
9. Biochemistry .U. Sathyanarayana and U. Chakrapani.
10. Biology .Campbell and Reece.
11. Molecular biology of the cell-Alberts et.,al
12. Cell Biology. by S.C. Rastogi
13. Cell Biology. By C.B. Powar, Himalayan Publications.

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GENERAL ENGLISH **ENG 102NA** 2012-13 onwards I DEGREE

SYLLABUS

II SEMESTER

GENERAL ENGLISH

Prose :

1. I Have a Dream
2. Letter to a Teacher

Poetry :

1. Song 36 from Gitanjali
2. Telephone conversation

Non - detailed:

1. How far is the River
2. The boy comes Home

Grammar&composition:

1. Punctuation
2. Curriculum vitae
3. One word substitutes
4. Dialogue writing
5. Intonation

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking I
   Published by
   Foundation Books Pvt. Ltd.,
   Cambridge House, New Delhi

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BOM **COM 203N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ORGANISATION AND MANAGEMENT

UNIT - 1

Stock Exchanges:

Stock exchange, functions and services, working of stock exchanges, role of SEBI in controlling capital market.

UNIT - 2

Management:

Management Meaning, significance management Vs administration - Functions of management - leadership- leader Vs manager - Traits of successful leaders, scientific management - features - Fayol's principles of management.

UNIT - 3

Planning:

Planning Meaning, significance, types of plans, decision making - steps in process decision making process.

UNIT - 4

Organizing:

Meaning - features - the process of organization - principles of organization - Elements of organizations - organization chart

UNIT - 5

Delegation of authority:

Meaning - Elements - principles - types - difficulties - delegation - guidelines for making delegation effectes - centralization decentrailzation - meaning. Difference between delegation and decentralization.

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Business Economics **COM 204N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ECONOMICS

Market structure and pricing

® Types of competition – perfect

® competition – monopoly

® Price discrimination

® Mono polistic competition – meaning and significance of pricing

® Price determination under different competitive market conditions.

Theories of distribution and business cycles

® Marginal productivity theory of distribution

® Theories of rent, interest, wages and profits.

® Phases of Business cycles.

Theories of International Trade

® Need for international Trade

® Comparative cost theory – ohlin's theory – Rent trade policy.

® Role of W.T.O.

Reference Books :

1.M.L. Jhingan – International Economics

2.Mithani – International Trade.

Text Book :

Telugu Academy Book

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FINANCIAL ACCOUNTING **COM 201N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

FINANCIAL ACCOUNTING

Chapter - 1 Errors and Rectification:

Types of errors - Errors disclosed by a trial balance - errors not disclosed by a trial balance - Rectification before and after preparation of final statemets of accounts - suspense account - effect of errors on profit.

Chapter - 2 Consignments:

Definition and meaning - Distinction between 'Consignment' and 'sale' - Accounting treatment in the books of the consignor and consignee - Valuation of consignment stock goods consigned at invoice price - Loss of stock (Normal and Abnormal)

Chapter - 3 Joint Venture Accounts:

Meaning and features - Accounting treatment - when one of the Co-ventures is appointed to manage the joint venture - when separate set of books are not maintained for recording joint venture transactions - when separate set of books are kept for the joint venture, memorandum joint venture account.

Chapter - 4 Depreciation - Provisions, Reserves:

Meaning of Depreciation - causes - objects for providing for depreciation – factors affecting depreciation, accounting treatment, methods of providing depreciation - straight line method - diminishing balances method - Annuity method.

Provisions and Reserves - Reserve fund - different types of provisions and Reserves.

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Fund. of Inform. Technology **COM 202N** 2012-13 onwards I B.Com

SYLLABUS

II SEMESTER

FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT - 1

M.S.Excel:

Features of M.S. Excel - spread sheet / work sheet work book, cell, cell pointer, cell address etc. Parts of M.S. Excel window saving, opening and closing work book - Insertion and deletion of work sheet - Entering and Editing data in work sheet - change - Formation - Auto fill - Formulas and its advantages, Referances: Relative absolute anaminea - functions meaning and advantages of functions, different types of functions available in Excel - Templates - charts - graphs - macros - meaning and advantages of macros, creation, editing and deletion of macros - Data sorting, futening, validation, consolidation, grassing, pivot table and pivot chart reports.

UNIT - 2

M.S. Access:

Data, Information, database, file record, fields, features, advantages and limitations of M.S.Access Application of M.s. Access - parts of M.S.Access window tables, forms queuis and reports.

UNIT - 3

M.S. Power Point

Features, advantages and application of M.S.Power Point - parts of M.S. Power Point window - menus and tool bars creating present actions through auto content wizard, templetes and manually, slide show - salling, opening and closeing a presentation - Inserting, editing and deleting slides - types of slides - slide views formatting - Inserting of objects and charts in slides.

Multi Media:

Meaning, purpose, usuage and application Images, Graphics, sunday and music.

UNIT - 4

Internet & E.Commerce:

Serllices available on Internet - WWW - & Commerce - meaning advantages and limitations, applications of & commerce - trading stocks on line, ordering products journals . books etc.

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CHEMISTRY **CHE 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

PHYSICAL CHEMISTRY - I

1. Liquid state: - Weightage - 15 + 5 Marks

Intermolecular forces. Dipole - dipole ; dipole - induced dipole ; induced dipole - induced dipole (London disperssion foces) interactions. Liquid crystals, the mesomorphic state, classification of liquid crystals into Smectic and Nematic.

2. Solid state: - Weightage - 15 + 5 + 5 Marks

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Definition of lattice point, space lattice, unit cell. Bravis lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Determination of crystal structure by Bragg's method and the powder method. Indexing of planes and structure of NaCl and KCl crystals.

Defects in crystals. Stoichiometric and non-strichiometric defects. Band theory of semiconductors. Extrinsic and intrinsic semi conductors, n-type and p-type semiconductors and their applications of photo electrochemical cells.

3. Solutions: - Weightage - 15 + 5 + 5 Marks

Liquid - liquid - ideal solutions, Raoult's law. Ideally dilute solutions, Henry'slaw. Non - ideal solutions, vapour pressure - composition and vapour pressure - temperature curves. Azeotropes - HCl - H_2O, ethanol - water, trimethylamine – water nicotine - water systems. Effects of impurity on consulate temperature. Immiscible liquids and steam distillation.

Nernst distribution law. Calculation of the partition co-efficient. Applications of distribution law.

GENERAL CHEMISTRY - I

1. Atomic structure and elementary quantum mechanics. - Weightage - 15 + 5 Marks

Black body radiation, plancks radiation law; photoelectric effect; Compton effect, deBroglie's hypothesis; Heisenberg's uncertainity principle; Postulates of quantum mechanics. Schrodinger wave equation; energy levels, wave functions and probability densities. Schrodinger wave equation for H-atom. Quantum numbers and their importance.

2. Chemical bonding: - Weightage - 15 + 5 Marks

Molecular orbital theory - LCAO method, construction of M.O diagrams for homo nuclear and hetero nuclear diatomic molecules [N_2, B_2, C_2, O_2, F_2, HCl, CO & NO]

3. Sterochemistry of carbon compounds: - Weightage - 15 + 5 + 5 Marks

Steroisomerism, steroisomers; enatiomers, diasteromers. Definition and examples. Conformational and configurational somerism. Definition, conformational somerism of ethane & n-butane. Enantiomers : Optical activity wave nature of light, plane polarised light, interaction with molecules, optical rotation and specific rotation. Chiral molecules - definition and criteria - absence of plane, center, and S_n axis of symmetry - asymmetric and disymmetric molecules. Example of asymmetric molecules (Glyceraldehyde, lactic acid, Alanine) and disymmetric molecules [trans - 1,2 - dichloro cyclopropane] Chiral centers: Definition - molecules with similar chiral carbons [tartaric acid], definition of mesomers. Molecules with dissimilar chiral carbons [2,3-dibromo pen- tane] Number of enantiomers & mesomers - caculations. D.L & R.S configuration for asymmetric & disymmetric molecules. Cahn - Ingold - Prelog rules. Racemic mixture, racemisation & resolution techniques.

Diasteromers: Definition - Geometrical isomerism with reference to alkenes - cis, trans & E,Z - configuration.

4. General principles of Inorganic qualitative analysis: Weightage 5 Marks

Solubility product, common ion effect, characteristic reactions of anions,seperation of cations into groups, group reagents, testing of cations.

Additional Syllabus (Without Examination) :

Computers : General introduction to computers, different components of a computer, hardware and software, input - output devices, binary numbers and arithmatic. Introduction to computer language, programming, operating systems.

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COMPUTER SCIENCE **CSC 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

PROCEDURAL ORIENTED PROGRAMMING LANGUAGE WITH 'C'

UNIT - 1

Introductory concepts

Fundamentals of 'C' language

UNIT - 2

Operators and Expressions

Data Input and Output

Preparing and running a complete C program

UNIT - 3

Control statements

Program structure

Functions

Arrays

UNIT - 4

Strings

Structures and unions

Files

Pointers

Prescribed Book:

1. Peter Norton, Introduction to Computers, Sixth edition, Tata McGraw Hill (2007)
2. Stephen G. Kochan, Programming in C, Third Edition, Perason Education (2007)

Reference Books:

1. Beyron S Gottfried, Programming with C, Second Edition, Tata McGraw Hill
2. Balaguruswamy. E, Fundamentals of Computing, TMH (2008)

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ECONOMICS **ECO 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

MICRO ECONOMICS

I. Cost curve & revenue curves

Short term cost curve
Long term cost curve
Revenue TR, MR, AR
Supply – function, curve, exceptions

II. Markets

Perfect competition
Monopoly
Monopolistic competition
Oligopoly
i) Price rigidity
ii) Price determination

III. The Theory of distribution, Marginal productivity theory

The theory of rent, classical – neo classical theories – Modern theory of rent
The theory of wages, classical – neo classical theories
The theory of Interest, classical-neo classical theories – J.M. Keynes liquidity preference theory
The theory of profits, classical – neo classical theories

REFFERENCE BOOKS :

1.micro Economic Analysis – M. L. Jhingan

TEXT BOOKS :

Micro Economics Analysis : Academy Book

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HISTORY **HIS 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

A brief political survey of south India - Sangham age - Satavahanas - Pallavas - Cholas - Chalukyas and Rashtra kutas - Kakatiyas and Vijayanagara - Polity and Adiministration, society, Economy art and Architecture.

UNIT-2

Invasions of Arabs, Gazanavids and Ghoris and Delhi sultanate - A brief political survey, polity and Administration under Delhi sultanate - Society composition of Rural society, Nobility - Status of women, Economic and Technological developments. Agriculture - Industry - Trade and commerce - Urbanisation, art and Architecture - Fine arts - Education and litrature.

UNIT-3

Impact of Islam on India society and culture - Bhakti and Sufi Movements - Emergence of composite culture.

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MATHEMATICS **MAT 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

DIFFERENTIAL EQUATIONS & SOLID GEOMETRY – 2

DIFFERENTIAL EQUATIONS

UNIT - 1

Higher order linear differential equations: Linear differential equations with constant coefficients, Solution of homogeneous linear differential equations of order n with constant coefficients, Solution of the non-hompgeneous linear differential equations with constant coefficients by means of polynomial operators. Methods of finding particular integral of $f(D)y=Q$ when $Q(x)$ is of the form i) be^{ax} ii) b sin ax or b cos ax iii) bx^k and $P(D) = D - a_0$, $a_0 0$ iv) bx^k and $P(D) = a_n D^n + a_{n-1} D^{n-1} + \ldots a1D$ v) $e^{ax} V$, where V is a function of x vi) be^{ax} and $P(a)=0$ vii) xV, where V is any function x

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations with non-constant coefficients - General solution in terms of nonsolution of the completary function, General by changing the dependentate variable, General solution by chaining independent variable, Method of variation of parameters, The cauchy - Euler equation.

System of linear differential equations - Solution of a system of linear equations with constant coefficients, An equivalent triangular system, Degenerate case : $p_1(D)p_4(D)-p_2(D)p_3(D)=0$

(2 short answer questions, 2 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 3

Spheres: Definition and equation of the sphere - Equation of the sphere through four given points - plane sections of a sphere. Intersection of two spheres - Equation of a circle. Sphere through a given circle - Intersection of a sphere and a line. Power of a point - Tangent line and tangent plane of a sphere - plane of contact. Polar plane. Pole of plane, Conjugate points, Conjugate planes.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 4

Spheres: Angle of intersection of two spheres. Conditions for two spheres to be orthogonal - Radical plane. Radical line. Radical centre - Coaxial system of spheres. Simplified form of a coaxal system of spheres. Limiting points of a coaxal system of spheres.

(1 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

The cone: Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve - Enveloping cone - Quadratic cone - Equations of cones with vertex at origin and homogeneous - Condition that the general equation of the second degree should represent a cone - Condition that a cone may have three mutually perpendicular generators - Intersection of a line and a quadric cone - Tangent lines and tangent plane at a point - Condition that a plane may touch a cone - Reciprocal cones - Intersection of two cones with a common vertex - Right circular cone - Equation of the right circular cone with a given vertex, axis and semi-vertical angle.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

The cylinder: Definition of a cylinder - Equation to the cylinder whose generators intersect a given conic and are parallel to a given line - Enveloping cylinder - The right circular cylinder - Equation of the right circular cylinder with a given axis radius.

(1 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjeneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.

2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.

3. Ivan Niven, Herbert, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY 102N** 2012-13 onwards I B Sc.

SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

UNIT I Mechanics of continuous media(8)

Elastic constants of isotropic solids and their relation, Poisson's ratio and expression for Poisson's ratio in terms of y, n and k. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, cantilever with an end load

UNIT II Central forces(12)

Central forces - definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force, gravitational field. (Definiton), motion under inverse square law, derivation of Kepler's laws,

UNIT III Special theory of relativity(10)

Galilean relativity, absolute frames, Michelson-Morley experiment, Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, mass-energy relation.

WAVES AND OSCILLATIONS

UNIT IV Vibrations of bars and pendulams(12)

Longitudinal vibrations in bars- wave equation and its general solution. Special cases (i) bar fixed at both ends ii) bar fixed at the mid point, torsional pendulum - measurements of rigidity modulus (experiment), compound pendulum - measurement of g. (experiment).

UNIT V Vibrating Strings (12)

Transverse wave propagation along a stretched string, general solution of wave equation and its significance, modes of vibration of stretched string clamped at both ends, overtones.

UNIT VI Ultrasonics(6)

Ultrasonics, properties of ultrasonic waves,production of ultrasonics by piezo electric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves by Sear's method. Applications of ultrasonic waves.

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POLITICS **POL 102N** 2012-13 onwards I B.A

SYLLABUS

II SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

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1. Forms of Government:
    a. Democracy: Direct and Indirect
    b. Unitary and Federal
    c. Parliamentary and Presidential system
2. Theory of Separation of Powers
3. Organs of Government
    a. Legislature: i. Unicameral and Bi-cameral
    ii. Powers and Functions
    b. Executive: i. Powers and Functions
    c. Judiciary: i. Powers and Functions
    ii. Independence of Judiciary and Judicial Review
4. Electorate and representation.

Books Recommended:

1. Principals of Political Science : Prof. A.C. Kapoor
2. Grammar of Politics : Laski H.J.
3. Substance of Politics : A. Appadorai
4. Political Theory : Ashirvadam
5. Political Theory : O P Gupta
6. Political ideologies : Baradat, Prentice Hall of India.

Their Origins and Impact.

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SPL. ENGLISH **ENG 102SN** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

SPECIAL ENGLISH

I. Drama :

a. Proposal - Anton Chekor

b. Mother's day - J.B. Priestley

II. Fiction

a. The Interview - Kushwant singh

b. The Gift of the Maji - O' Henry

c. The Tell – Tale heart - Edgar Allan poe.

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ZOOLOGY **ZOO 102N** 2012-13 onwards I B.Sc

SYLLABUS

II SEMESTER

BIOLOGY OF NON CHORDATES AND BIOMOLECULES

UNIT I

1.0 Arthropoda and Mollusca

1.1. Phylum Arthropoda: General characters and outline classification of up to classes
Type study: *Palaemon*(external features, appendages, respiratory, circulatory and excretory systems, ommatidium, statocyst, reproductive system) *Peripatus*- characters and significance.

1.2. Phylum Mollusca: General characters and outline classification of up to classes
Type study: Foot in Mollusca, sheel in Mollusca, peral formation, Torsien in gastropoda, Veliger & Glochidium.

UNIT II

2.0. Echinodermata and Hemichordata

2.1. Phylum Echinodermata: General characters and outline classification of up to classes.
Type study: Star fish (External features, water vascular system, pedicellariae, haemal and perihaemal systems and reproductive system)

2.2. General characters of Hemichordata : Structure and affinities of *Balanoglossus*

UNIT III

3.0. Biomolecules of the cell

3.1. Carbohydrates**:**
Classification of Carbohydrates - Monosaccharides, Disaceharides & polysacehacides.
Structures of Glucose and Fructose

3.2. Proteins:
Classification and structure of proteins
Amino acids: General properties, nomenclature

UNIT IV
4.0 Biomolecules of the Cell

4.1. Lipids:
Classification of lipids.
4.2. Nucleic acids:
Watson and Crick model of DNA, Chargaff.s rule.
Structure of RNA, Types of RNA - rRNA, tRNA and mRNA.

REFERENCE BOOKS

Biology of Invertebrates:

1. .The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. .Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. .Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. .Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. .Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. .A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. .A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. .Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

Cell Biology:

1. .Molecular Cell Biology. by Lodish, Berk, Kaiser, Scott.. Scientific American Books.
2. .Cell and Molecular Biology. by De Robertis & De Robertis : Saunders College.
3. .Cell Biology, Genetic Evolution and Ecology. by P.S.Varma and V.K. Agrawal; S.Chand and Co
4. .Molecular Biology. by Mohan P. Arora., Himalaya Publishing House Pvt.Ltd.
5. .Manual of Laboratory Experiments in Cell Biology. . Edward Gasque: (W.C. Brouh Publishers.
6. .Biomolecules. by Mohan P.Arora., Himalaya Publishing House Pvt.Ltd.
7. .Cell and Molecular Biology. .P.K.Gupta.
8. .Concepts of Cell Biology. - P.S.Verma and V.K.Agarwal
9. Biochemistry .U. Sathyanarayana and U. Chakrapani.
10.Biology .Campbell and Reece.
11.Molecular biology of the cell-Alberts et.,al
12. Cell Biology. by S.C. Rastogi
13. Cell Biology. By C.B. Powar, Himalayan Publications.

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GENERAL ENGLISH **ENG 201NA** 2015-16 onwards II DEGREE

SYLLABUS

III SEMESTER

GENERAL ENGLISH

Poetry:

1. The Solitary Reaper
2. The Road Not Taken

Prose:

1. Mr. Know All
2. A Talk on Advertisinng

Non-detailed

1. Gajar Halwa
2. My Brother, My Brother

Grammar

1. Lexical web
2. Homonyms
3. Importance of the sounds of vowels
4. Words often confused
5. Idioms
6. Correction of sentences (Articles-Concord-Tenses)
7. Stress

Prescribed Text books:

1. English for empowerment - Orient Black swan
2. Nurturing competence - Lorven publications
3. A course in listening and speaking II
   Published by
   Foundation Books Pvt. Ltd.,
   Cambridge House, New Delhi

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Business Statistics **COM 302N** 2015-16 onwards II B.Com

SYLLABUS

III SEMESTER

BUSINESS STATISTICS

UNIT - 1

Introduction to Statistics :

Meaning, defination, importance and limitations of statistics - Collection of data - Primary and secondary data - [Sampling Random - Non - Random causes] - Schedule and Questionaire - Frequency distribution - Tabulation -

Laboratory work : Diagram and graphic presentation of data - using computers (Excel)

UNIT - 2

Measures of Central Tendency :

Defination, objectives and characteristics of measures of central tendency, types of averages: Arthimetic mean, Geomentric mean, Harmonic mean, Median, Mode, Deciles, Perceutiles, Properties of averages and their applications

Laboratory work : Calculations of average using computers.

UNIT - 3

Measures of Dispersion :

Meaning, defination, properties of dispersion - Range quartile deviation - Mean deviation - Standard deviation - co-efficient of variation

Laboratory work : Calculation of dispersion using computers.

UNIT - 4

Measures of Skewness :

Skewness defination - Karl pearson’s and Bowley’s measures of skewness - Normal distribution

Laboratory work : Calcualtion of skewness using computers.

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FINANCIAL ACCOUNTING **COM 301N** 2015-16 onwards II B.Com

SYLLABUS

III SEMESTER

FINANCIAL ACCOUNTING

UNIT - I

Hire purchase system -Features, accounting treatment in the books of hire purchaser and hire vendor - Default and repossession, installment purchase system - Difference between hire purchase system and installment purchase system. Accounting treatment in the books of purchaser and vendor.

UNIT - II

Royalties - Features - Land lord - Lease holder, sub lease - Preparation of royalty analysis table - Accounting treatment in the books of land lord and lease holder.

UNIT - III

Single entry system - Features - books and accounts maintained - Recording the transactions - Ascertainment of profit - Pure single entry system - Convertion of single entry system into double entry system.

UNIT - IV

Non profit organisations - Features of non - profit - Entities - Accounting process - Preparation of summaries - Receipts and payments account meaning and special features - Procedure for preparation - uses and limitations - Income and expenditure account - Features - Procedure for preparation - Preparation of balance sheet.

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Financial Services - Banking and Insurance **COM 303N** 2015-16 onwards II B.Com

SYLLABUS

III SEMESTER

FINANCIAL SERVICES - BANKING AND INSURANCE

UNIT - 1

Instruction to Financial Services :

a) Meaning of financial services, structure of Indian financial system, importance of financial system for the economic development [Financial & Banking system parts]

b) Banking system : Defination of Bank, functions of commercial bank, branch banking, unit banking, correspondent banking - Group banking, deposit banking, mixed banking and investment banking, an overview of banking, banking sector reforms with special reference to prudential norms, ATMs, E-banking, credit cards, online and offshore banking etc., [working and operations]

c) Regional rural banks : Co - operative banks, NABARD, SFC, SIDBI.

UNIT - 2

a) Banker and customer defination and their relationship, types of customer and modes of operations procedure and precaution for opening an account, pass - book and its features. Types of deposits, rights, duties and obligations of the banker. [Application forms for opening accounts, cheque - books, pass - books, requisition slips for withdrawls and deposit, bank statement etc.,]

UNIT - 3

Loans and Advances :

a) Cheque, types of crossing the cheque, payment of cheque and consequencies of wrongful dishonour, collection of local and upcountry cheques, responsibility and liabilities of collecting banker and statutory protection to the collecting banker.

[crossed cheques - various modes]

UNIT - 4

Types of Loans and Advances :

Types of loans and advances, principles of sound lending policies, credit appraisals of various forms of loans and advances - modes of creating charges - lien, pledge, mortgage and hypothecation. [Documents required for sanction of loans and advances]

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Taxation **COM 304N** 2015-16 onwards II B.Com

SYLLABUS
III SEMESTER
TAXATION

Objective : To equip the students with the working knowledge of both direct and indirect taxes.

Unit – I

Introduction - Assessee - Assessment year - Previous year - Income - Person - Residential status and incidence of tax (problems) Agricultural income, income fully and partially exempted from income tax

Unit – II

Heads of income - Income from salaries - Allowances - Perquisites, Provident fund - Computation of income from salary (problems)

Unit – III

Income from house property - determination of annual rental value - deduction from income from house property (problems)

Unit – II

Profits and gains from business and profession - Expenses expressly allowed and dis allowed for deduction - computation of profits and gains from business and profession (problems)

Reference Books :

1. Students guide to income tax, written by singhania

2. A systamatic approach to income tax, written by Girish Ahuja and Ravi Gupta.

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BOTANY **BOT 201N** 2015-16 onwards II B.Sc

SYLLABUS

III SEMESTER

GYMNOSPERMS, ANATOMY AND PALAEOBOTANY

UNIT I

GYMNOSPERMS

1. General features of Gymnosperms
2. General account of Bennettitales
3. Morphology of vegetative and reproductive parts, Anatomy of root, stem and leaf, reproduction and life cycle of *Pinus* and *Gnetum*.
4. **Palaeobotany** - Types of fossils, Process of fossilisation,

UNIT - II

PLANT ANATOMY

1. Tissues and tissue systems
2. Root - Normal secondary growth; Abnormal secondary growth;
   e.g., *Tinospora,Boerhaevia*, *Dracaena.*
3. Stem - Normal secondary growth; Growth rings ; Sap wood and Heart wood, Periderm.

UNIT - III

1. Leaf : Internal structure of dicot, monocot and xerophytic leaves.
2. Wood structure : Teak wood, Rose wood, Neem, Terminalia

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COMPUTER SCIENCE **CSC 201N** 2015-16 onwards II B.Sc

SYLLABUS

III SEMESTER

OBJECT ORIENTED PROGRAMMING WITH JAVA

UNIT - I

1. Fundamentals of Object Oriented Programming
2. Java Evolution
3. Overview of Java Language
4. Constants, Variables and Data types.

UNIT - II

5. Operators and Expressions
6. Decision making, Branching and Looping
7. Classes, Objects and Methods

UNIT - III

8. Arrays and Strings
9. Interfaces : Multiple Inheritance
10. Packages : Putting classes together

UNIT - IV

11. Multi Threaded Programming
12. Managing Errors and Exceptions
13. Applet Programming
14. Managing Files in Java

PRESCRIBED BOOK :

1. E. Balagurusamy, Programming with Java A primer, 3e, Tata Mc-Graw Hill Company (2008) Chapters : 1to 14, 16

REFERENCE BOOKS :

1. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline series, Tata Mc-Graw Hill (2007).
2. Timothy Budd, understanding Object Oriented Programming with Java, Pearson Education (2007).
3. Java, Java and Object Oriented Paradigm, PHI (2007)
4. Deitel & Deitel. Java TM : How to Program, 7th Edition, PHI (2008)

For Merit Students

Graphics Programming, JDBC

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MACRO ECONOMICS **ECO 201N** 2015-16 onwards II B.A

SYLLABUS

III SEMESTER

MACRO ECONOMICS

Module – I : NATIONAL INCOME

1. Meaning, defination and importance of macro economics

2. National income meaning, definition

3. National income : GNP, NNP, GDP, NDP, Personal Income, Disposable Income (DI), Per Capita Income (PCI), Real national income (RNI)

4. Methods of Estimation of National Income

5. Measurements of national income in India

6. Flow of national income

Module – II : THEORIES OF EMPLOYMENT

1. Classical Theory of Employment - Say's law of markets

2. Keynesian theory of employment

3. Consumption function - APC, MPC, factors influencing consumption function Investement function

4. MEC and rate and rate of interest and the concept of multiplier

5. Accelerator - Applicability of the Keynesian theory to the developing countries

Module – III : ECONOMIC SYSTEMS :

1. Capitalistic economy

2. Socialist economy

3. Mixed economy

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HISTORY **HIS 201N** 2015-16 onwards II B.A

SYLLABUS

III SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

Establishment of Moughal empire - Sur interregnum - Brief survey of political history upto 1707 A.D. - Polity and administration - General conditions of the Mughal period i.e., Social, Nobility - Peasantry - Artisans - Slaves - Status of Women - Economy - Agriculture Industries, Trade and Commerce, Economy and Technology Development. Religion - Hindu, Muslim relations - compsite culture - Education, literature, art, architecture and fine arts. Decline and disintegration of Moughal empire.

UNIT-2

Rise of local states - Society - Economic conditions

Bengal - Outh - Punjab - Hyderabad - Kerala - Mysure - Hyder Ali and Tippu Sultan - Raya's of South India

Nayaka's of Mathura, Tanjore - Economic conditions - Trade and commerce Agriculture - Society and culture - Cultural life - Education - Christian missionaries.

UNIT-3

Rise of regional powers - Marathas - Shivaji - Administration - Sikhs

UNIT-4

Advent of European powers - Portuguese, Dutch, English and French

Expansion and consolidation of British empire - Wars - Diplomacy - Policies pursued - Subsidiary Alliance - Doctrine of Lapse - Revenue settlements - Permanent - Ryotware - Mahalwari systems

UNIT-5

Anti - Colonial upsurge - Peasant and tribal revolts - 1857 revolt - Causes and results

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MATHEMATICS **MAT 201N** 2015-16 onwards II B.Sc

SYLLABUS

III SEMESTER

ABSTRACT ALGEBRA AND REAL ANALYSIS – I

UNIT - 1

Groups - Binary operations, properties, definition of a group and elementary properties, finite groups and composition tables, Subgroups - algebra of subgroups, cosets, Lagrange's theorem for finite groups, order of an element in a group.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Normal subgroups - Definition, criteria for the existence of coset multiplication, necessary and sufficient conditions for a subgroup to be a normal subgroup, normalizer, centralizer, factor group. Homomorphism of groups - Definitions and elementary properties, image, kernel, fundamental theorem of homo-morphism, automorphisms.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Permutation groups - Permutation, group of permutations, cycles and cyclic notation, even and odd permutations, the alternating group, Cayley's theorem. Cyclic groups - elementary properties,subgroups of finite cyclic groups, the classification of cyclic groups.

(2 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS

UNIT - 4

Real numbers - The completeness properties of *R*, applications of the suprimum property.

(No questions is to be given in the examination)

Sequences - Sequence, method of defining sequences, range, subsequences, bounded sequences, limit of a sequence, convergent sequence, divergent sequences, algebra of convergent sequences, Cauchy's first theorem of limits, Cauchy's second theorem on limits, monotonic sequences, monotone convergence theorem, limit points of a sequence, Bolzano - Weierstrass theorem for sequences, Cauchy's general principle of convergence.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Infinite series - Series, Cauchy's general principle of convergence, geometric series, auxiliary series (p-series), comparision tests, limit comparision test, Cauchy's *n*th root test, D'Alembert's ratio test, Cauchy's condensation test, Cauchy's - Maclaurin's integral test, Alternating series, Leibnitz's test, Absolute convergent series, conditionally convergent series.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Limits and continuity - Limit of a function, Algebra of limits, one sided limits, infinite limits, standerd limits, continuity of function, algebra of continuous functions, properties of

continuous functions, Borel's theorem, Bolzano's theorem, intermediate value theorem, uniform continuity,uniform conitinuity theorem.

(2 short answer questions, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, John Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 201N** 2015-16 onwards II B Sc.

SYLLABUS
III SEMESTER
THERMODYNAMICS AND OPTICS

PART - A
THERMODYNAMICS

Unit I

1. Kinetic Theory of Gases : Deduction of Maxwell's law of distribution of molecular speeds - Transport phenomena- Explanation, derivation of Expression for Viscosity - Derivation of expressions for thermal conduction and diffusion of gases. (5 hours)

2. Thermodynamics :

a. Heat and work - Internal energy - Indicator diagrams work done in Isothermal and adiabatic processes - First law of thermodynamics - significance and applications of first law of thermodynamics - Second law of thermodynamics, different statements - Reversible and irreversible process - Carnot's reversible heat engine - Derivation of expression for efficiency of Carnot cycle - Carnot's theorem - Thermodynamic scale of temperature (10 hours)

b. Entropy-Introduction-entropy concept-entropy measurement-derivation of expressions for change in entropy in a reversible process and in an irrevesible process - Entopy - Temperature diagram - Expression for efficiency using T-S diagram (5 hours).

3. Thermodynamic Potentials and Maxwells Equations : Thermodynamic potentials - Derivation of Max wells thermodynamic relations - Derivation of Clausius - clapeyron equation using Maxwells thermodynamic relations - Two specific heats of a gas - Derivations for ratio (Cp/Cv)and difference (Cp-Cv) of two specific heats of a gas using Maxwells thermodynamic relations - Joule - Kelvin effect, Explanation - Derivation of expression for Joule - Kelvin coefficient using Maxwells thermodynamic relations. (15 hours)

PART - B
OPTICS

Unit II

4. Matrix Methods in Paraxial Optics : Introduction to Paraxial Optics - Matrix method - Effect of translation - Effect of refraction- System matrix, image plane equation of an optical system - application of matrix methods to simple optical systems 1. a thick lens 2. thin lenses in contact 3. two thin lenses separated by distance - cardinal points of lens system-explanation (10 hours)

5. Aberrations :

a. Aberration - Monochormatic aberration - spherical aberration - Methods of minimisation of spherical aberration - Coma - Astigmatism. (3 hours)

b. Chromatic aberration - Achromatic doublet - Removal of chromatic aberration (3 hours)

6. Interference :

a. The superposition principle - coherence - Condition of Interference of light - Interference by division of wave front- Fresnel's biprism - determination of wavelength of light - determination of thickness of a transparent material using biprism. Stokes law- change of phase on reflection (5 hours)

b.Interference by division of amplitude - the cosine law in reflectd light - colours of thin films - non reflecting thin films - determination of diameter of wire using wedge method - Newton's rings-explanation - experimental determination of wavelength of monochromatic light by using Newtons rings(5 hours).

NOTE : Problems should be solved at the end of every chapter of all units.

Textbooks

1. Optics by Ajay Ghatak. The McGraw - Hill companies.
2. Optics by subramaniyam and Brijilal.S.Chand & Co.
3. Fundamentals of Physics. Halllday/Resnick/Walker.C.Wlley India Edition 2007.
4. Optics and Spectroscopy. R. Murugeshan and Kiruthiga Siva Prasath.S.Chand & Co.
5. Second Year Physics - Telugu Academy
6. Modern Physics by R.Murugeshan and Kiruthiga Siva Prasath (for statistical Mechanics)S. Chand & Co.

Reference books

1. Modern Physics by G.Aruldhas and P.Rajagopal, Eastern Economy Education.
2. Berkeley Physics Course. Volume - 5. Statistical Physics by F.Relf. The McGraw - Hill Companies.
3. An Introduction to Thermal Physics by Daniel V.Schroeder.Pearson Education Low Price
4. Thermodynamics by R.C.Srivastava, Subit K.Saha & Abhay K.Jain Eastern Economy Edition.
5. Modern Engineering Physics by A.S. Vasudeva. S. Chand & Co. Publications.
6. Feyman's Lectures on Physics Vol. 1,2,3 &4. Narosa Publications.
7. Fundamentals of Optics by Jenkins A.Francis and White E. Harvey, McGraw Hill Inc.

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POLITICS **POL 201N** 2015-16 onwards II B.A

SYLLABUS

III SEMESTER

INDIAN GOVERNMENT AND POLITICS

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1. Evolution of Indian constitution - Nationalist movement and philosophical foundations

1. Salient features of Indian Constitution - Amending Procedure

2. Indian Federation - Union - State relations - Recent trends - Sarkari commission

3. Fundamental rights and Fundamental Duties - Constitutional Remedies with special references to writs - Directive principals of state policy.

4. President - Election - Powers and functions - Prime Minister - In the coalition era and council of Ministers.

5. Parliament - Composition, powers and functions.

6. Judiciary - Supreme court - Composition - Powers and functions - Judicial review and Judicial Activitism - PIL

Books Recommended :

1. Politics in India	:	Rajini Kothari
2. Indian constitution	:	M.V. Pylee
3. Indian constitution	:	Bakshi
4. Introduction to constitution of India	:	D.D. Basu
5. Indian Govt. and Politics	:	K.R. Acharya
6. Telugu Academi	:	Bharata Prabhutwamu - Rajikiyalu

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SPL. ENGLISH **ENG 201SN** 2015-16 onwards II B.A.

SYLLABUS

III SEMESTER

SPECIAL ENGLISH

POETRY :

1) One Day I wrote her Name - D.H. Spenser
2) The Canonization - John Donne
3) The School boy - William Blake

SHORT QUESTIONS :

a) Elizebethan poetry
b) Silver poets of the 16th century
c) Elizebethan sonnets
d) 17th century poetry
e) Cavalier or caroline poetry
f) Verse satire in the restoration era
g) Pre - Romantic poets

ESSAY :

1) Of youth and age - Francis Bacon
2) Dream children - A Reverie - Charles lamb

SHORT QUESTIONS :

a) What is an essay ?
b) Origin of the essay
c) The Aphoristic essay
d) The critical essay
e) The periodical and social essay
f) The personal essay

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ZOOLOGY **ZOO 201N** 2015-16 onwards II B.Sc

SYLLABUS

III SEMESTER

BIOLOGY OF CHORDATES

UNIT I

1. General organisation of chordates
2. Salient features of Urochordata
3. Structure and life history of *Herdmania*
4. Salient features of Cephalochordata
5. General characters of cyclostomes

UNIT II

1. General characters and classification of fishes upto the level of subclasses
2. *Scoliodon* - External features, respiratory system, heart and brain
3. Types of scales in fishes
4. Migration in fishes
5. General characters and classification of extant amphibians upto orders level
6. *Rana* - External features, respiratory system, heart, brain
7. Parental care in amphibians

UNIT III

1. General characters and classification of extant reptiles upto orders
2. *Calotes* - External features, respiratory system, heart
3. Key for identification of poisonous snakes
4. Snake bite and first aid

UNIT IV

1. General characters and classification of Aves upto super orders
2. *Columba* - External features, feathers, respiratory system, heart, brain
3. Migration of birds
4. Flight adaptations
5. General characters and classification of mammals upto subclasses
6. Dentition in mammals

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GENERAL ENGLISH **ENG 202NA** 2015-16 onwards II DEGREE

MODEL PAPER

IV SEMESTER

GENERAL ENGLISH

Poetry:

1. Refugee Mother and Child
2. I Will Embrace Only the Sun

Prose:

1. On shaking Hands
2. No Man is an Island

Non - detailed:

1. Never - Never Nest
2. Refund

Grammar

1. Consonants and their sounds
2. Correction of Sentences (Question tags, Modals, Prepositions, Articles)
3. Curriculum Vitae
4. Letter writing
5. Stative verbs
6. Intonation

Prescribed text books :

1. English for Empowerment - Orient Black Swan
2. Nurtusing competences - Lorven Publications
3. A course in Listening and speaking II
   (Foundation Books Pvt. Ltd., Cambridge House, New Delhi)

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Business Statistics **COM 402N** 2015-16 onwards II B.Com

SYLLABUS

IV SEMESTER

BUSINESS STATISTICS

UNIT - V

Types of correlation : Meaning, defination and use of correlation - Types of correlation - Karl Pearson's correlation co-efficient - spearman's rank correlation - Probable error - Lab work : Calculation of correlation by using computers.

UNIT - VI

Regression Analysis : Meaning and utility of Regression analysis, comparison between correlation and regression - Regression equations - Interpretation of regression co-efficient - Lab work : Calculation of regression by using computers.

UNIT - VII

Analysis of time series : Meaning and utility of time series analysis - Components of time series, measurement of trend and seasonal variations - Utility of decomposition of time series - Decentralization of data - Calculating of trend and seasonal variation using computers.
Lab work : Computing second Degree parabola trend and seasonal variations by using computers.

UNIT - VIII

Index numbers : Meaning, defination and importance of index numbers - Methods of construction of Index numbers - Price index numbers - Quantity index numbers - Tests of Adequacy of index numbers - Deflating index numbers - Cost of index numbers - Limitation of index numbers

Lab work : Calculation of index numbers using computers.

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FINANCIAL ACCOUNTING **COM 401N** 2015-16 onwards II B.Com

SYLLABUS

IV SEMESTER
FINANCIAL ACCOUNTING

Unit - I

Partnership accounts - Features, deed, types of partners - Fixed and fluetuating capital methods, appropriations of profits - Admission of a new partner - treatment of goodwill - Revaluation of assets and liabilities, adjustments of capitals - Retirement of a partner - death of a partner.

Unit - II

Dissolution of firms - Mode of settlement of accounts. When one partner insolvent - Garner Vs Murry.

Unit - III

Featurers, classification of shares and debentures - Issue of shares - Minimum subscription - Issue at premium and discount - Call in arrears - Call in advances - Over subscription - Forefeature and reissue of shares.

Unit - IV

Redemption of debentures, various methods of redemption of debentures.

Final accounts of Joint stock companies.

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COM 403N 2015-16 onwards II B.Com

SYLLABUS

IV SEMESTER

FINANCIAL SERVICES - BANKING AND INSURANCE

UNIT - I

Financial Markets : Indian money market - Characteristics, structure composition [call and notice money market, treasure bills market, CDs, CPs, short - term bill market, mmmFs and DFHI] problems and reforms in Indian money markets [CDs, CPs, treasury bills]

UNIT - II

Financial Services: Indian capital market - composition growth of primary and secondary markets, differences between primary and secondary markets, capital market reforms and NBFCs in capital markets, Stock - Exchange, NSE, OTCEL, online trading and Role of SEBI.

UNIT - III

Types of insurance and its regulations:

a) Definition, meaning of insurance and reinsurance, principles of insurance, kinds of insurance, advantages of insurance, globalization of insurance and insurance sector reforms in India.

b) Life Insurance : Practical aspects of life insurance, procedure for issuing of life insurance policies, issue of duplicate policies, nomination, surrender value, policy loans, assignment, revivals and claim settlement [formats of types of insurance]

UNIT - IV

Non - Life insurance: Types of products and scope of fire insurance, marine insurance, health insurance, social insurance and rural insurance, regulation of insurance in India - Insurance act 1938 and IRDA 1999. [formats of non - life insurance]

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Taxation **COM 404N** 2015-16 onwards II B.Com

SYLLABUS

IV SEMESTER
TAXATION

Objective : To equip the students with the working knowledge of both direct and indirect taxes.

UNIT - I

Capital gains - long term and short term capital gains - Cost of acquisition - Cost of improvement - Cost inflation index - Sale consideration - Deductions under sec.54 (problems)

UNIT - II

Income from other sources - Tax laibility of dividend, interest, rent and casual income etc., - Deductions under sec.57 (problems)

UNIT - III

Clubbing of income, set off and carry forward of losses (Problems) deductions to be made in computation of total income (sec.80)

UNIT - IV

Assessment of an individual and computation of tax liability of an individual only - Rates of income tax - Education less - Surcharge (problems)

UNIT - V

Wealth tax act 1957 - Charge of wealth tax - Valuation date - Location of assets - Assets - Meaning - Deemed assets - Exempted assets - Net wealth - computation of net wealth - Valuation of assets - Return of wealth and procedure of assessment - Time limit for completion of assessment (problems).

Reference Books :

1. Direct taxes - Law and practice - Vinod K. Singhavia (Tax Mann)
2. Systems approach to income tax - Ahuja and Ravi Gupta.

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BOTANY **BOT 202N** 2015-16 onwards II B.Sc

SYLLABUS

IV SEMESTER

Plant Ecology - Bio Diversity - Bio Technology - Horticulutre and Tissue Culture

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UNIT - I

Plant Ecology & Environment :

1. Atmosphere, light, temperature, soil and biota

2. Population ecology : Growth curves, ecotypes, ecads.

UNIT - II

Plant Ecology & Biodiversity :

3. Community Ecology : Community characterstics, frequency, density, cover, life forms, biological spectrum and Ecological succession - Hydrosere, xerosere.

4. Vegetation types of India - Biodiversity, forests and grass lands.

UNIT - III

Biotechnology - Tissue culture, Horticulture :

5. Concept and methods of r-DNA technology and its application in agriculture, medicine and industry, somatic hybridization, cybrids.

6. History and development in plant tissue culture, methods of culture of shoot tip, anther,ovary and embryo, their importance.

7. Horticulture - Definition and brief history of Horticulture

Methods - Cutting, grafting, layering

Plants propogated by seperation

Plants propogated by division

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CHEMISTRY **CHE 202N** 2015-16 onwards II B.Sc

SYLLABUS

IV SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

UNIT - I

PHYSICAL CHEMISTRY

1. Phase Rule : Concept of phase, component, degrees of freedom. Phase equilibrium of one component : Water system. Phase equilibrium of two component system solid - liquid equilibrium. Simple eutectic diagram of Pb-Ag system, desilverization of lead. Solid solutions - Compound with congruent melting point - Mg-Zn system, Compound with incongruent melting point - NaCl Water system. Freezing mixtures.

Weightage : 15+5

2. Thermodynamics : The first law of thermodynamics - Statement definition of internal energy and enthalpy. Heat capacities and their relationship. Joules law - Joule Thompson coffient calculation of W, q dv and dH for the expansion of perfect gas under isothermal and adiabetic conditions for reversible process. State function - Kirchhoff's equation.

Second law of thermodynamics. Different statement of the law Carnot cycle and its efficiency Carnot theorem. **Weightage : 15+5+5**

3. Electro Chemistry : Debye - Huckel - Onsager equation for strong electrolytes (elementary treatment only). Definition of transport number, its determination by Hittorf's method. aplication of conductivity its measurements - determination of dissociation constant (ka) of an acid, determination of solubility product of a sparingly soluble salt, conductometrictitrations. Types of reversible electrodes - Hydrogen electrode.

Weightage : 15+5+5

UNIT - II

GENERAL CHEMISTRY

1. Molecular symmetry : Concept of symmetry in chemistry - symmetry elements. Rotational axes. Planes of symmetry and types of planes. Improper rotational axis of symmetres. Inversion centre, identity element. The symmetry operations of a molecule form a group. Flow chart for the identification of molecular point group.

Weightage : 5

2. Theory of Quantitative analysis :

a) Principles of Volumetric analysis : Theories of acid - base, red - ox, complexometric, iodometric and precipitation titrations, choice of indicators for these titrations.

b) Principles of Gravimetric analysis : Precipitation, coagulation, peptization, coprecipitation, Post precipitation, digestion, filtration and washing of precipitate, drying and ignition

precipitation from homogeneous solutions, requirements for gravimetric analysis. **Weightage : 15+5**

3. Evaluation of Data : Theory of errors, ideas of significant figures and its importance, accuracy - Methods of expressing precission - Standard deviation and confidence limit. **Weightage : 15**

4. Introductory treatment to :

a) Pericyclic reactions : Definition of Pericyclic reactions as concerted reactions. Definition of HOMO and LUMO orbitals in the ground state and exited state with examples (ethane, 1, 3 - but diene and 1, 3, 5 hexa triene) Frontier molecular orbital theory and overlapping of HOMO and LUMO orbitals during pericyclic reactions symmetry consideration. Types of pericyclic reactions - Thermal and photo chemical - Electrocyclic reactions disrotatory and conrotary overlap - Cyclo addition and sigma tropic reaction - Supra and antera overlap with one examples.

Weightage : 15

b) Synthetic Strategies : Terminology - Disconnection (dix), Symbol, Synthon, Synthetic Equivalent (SE), Functional Group Inter Conversion (FGI), Linear, Convergent and Combinatorial syntheseis. Target molecule (TM). Retro synthesis of the following molecules.

1) Acetophenone
2) Cyclohexene
3) Phenylethyl bromide. **Weightage : 5**

c) Asymmetric synthesis (Chiral) : Definition, enantiometric excess, streospecific reaction - dehalogination of 1, 2 - dibromide by I - Stereo selective reaction - Definitions - Example - Acid catalysed dehydration of 1 - phenyelpropanol. **Weightage : 5+5**

Additional syllabus (without examination)

Origin of waste water, types, water pollutants and their effects. Sources of water pollution - Domestic, industrial, agricultural soil and radioactive waste as sources of pollution. Objectives of anlysis - Parameter for analysis - Colour, turbidity, total solids, conductivity, aciditity, alkalinity, hardness, chloride, sulphate, floride, silica, phosphates and different forms of nitrogen. Heavy metal pollution - Public health significane of cadmium, chromium, copper, lead, zinc, manganese, mercury and arsenic. General survey of instrumental technique for the analysis of heavy metals in aqueous systems. Measurements of DO, BOD and COD.Pesticides as water pollutants and analysis. Water pollution laws and standards.

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COMPUTER SCIENCE **CSC 202N** 2015-16 onwards II B.Sc

SYLLABUS

IV SEMESTER

DATA STRUCTURES IN JAVA

UNIT - I

1. Introduction and overview
2. String Processing

UNIT - II

3. Stacks
4. Queues

UNIT - III

5. Linked Lists
6. Sorting Methods

UNIT - IV

7. Searching methods
8. Trees

Prescribed Text Book :

1. Robert Lafore, Data Structures and Algorithms in Java, Second Edition, Pearson Education (2008)

Reference Book :

1. Adam Drozdek, Data Structures and Algorithms in Java, Second Edition, Cengage Learning (2008)
2. John R. Hubbard, Anita Hurry, Data Structures with Java, Pearson Edition (2008)
3. Samatha, Classic Data Structures, PHI (2005)

For Merit Students Only

Graphs and their representations

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COMPUTER SCIENCE **CSC 202N** 2015-16 onwards II B.Sc

SYLLABUS

IV SEMESTER

DATA STRUCTURES IN JAVA

UNIT - I

1. Introduction and overview

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MACRO ECONOMICS **ECO 202N** 2015-16 onwards II B.A

SYLLABUS

IV SEMESTER

MACRO ECONOMICS

Module - I

MONEY AND THEORIES OF MONEY :

1. Meaning, functions and classification of money
2. Gresham's law - RBI classification of money
3. M1, M2, M3, M4 Theories of money.
3. Fisher's quantity theory of money
4. Cambridge approach (Marshall, Pigoue, Robertsan and Keynes)

Module - II

BANKING, STOCK MARKET AND INSURANCE :

1. Functions of Commercial Banks
2. The process of Credit Creation
3. Concept of Non Banking Finance Companies (NBFCs)
4. Concept of SEBI - Stock Market
5. Meaning, functions and importance of Stock Market
6. Primary and Secondary markets, concepts a) Shares b) Debentures c) Insurance
7. Types of Insurance - Life Insurance and General Insurance
8. Functions of the Reserve Bank of India
9. Methods of Credit Control - Quantitative and Qualitative methods.

Module - III

INTERNATIONAL ECONOMICS :

1. WTO (World Trade Organisation)
2. IMF (International Monitery Fund)
3. IBRD (International Bank for Reconstruction and Development)

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ELECTRONICS **ELE 202N** 2015-16 onwards II B.Sc

SYLLABUS

IV SEMESTER

OPRATIONAL AMPLIFIER AND COMMUNICATION

UNIT - 1

Operational Amplifiers : Block diagram of Op - Amp, Op - Amp parameters, common mode rejection ratio (CMRR), slew rate, virtual ground, inverting and non inverting - amplifiers

Applications of Op-Amps : Summing amplifiers, voltage regulator, logarithmic amplifier, sine wave generator and square wave generator.

UNIT - 2

Communications : Need for modulation, types of modulation amplitude, frequency & phase modulation, amplitude modulation - side bands, modulation index, square law diode modulation, demodulation and detection.

Frequency modulation - Simple frequency modulator, ratio detection of FM waves, advantages of frequency modulation and super hetrodyne receiver.

Note : Sloving related problems in all units

Text Books :

1. Operational amplifier and linear integrated circuit - Ramakanth.A.Gayakward
2. Electronic communication - D. Roddy & J. Coolean.

Reference Books :

1. Electronic communication system - George Kennedy
2. Operational amplifier and linear integrated circuit - K. Lal Kishore.
3. Electronic devices and circuits - Millman and Halkias - Tata MC Graw Hill (TMH)
4. Micro electronics - J. Millman and A.Grabel - TMH
5. Operational Amplifiers and linear integrated circuits - Ramakant A. Gayakward - Prentice Hall of India (PHI)
6. Operational Amplifiers and linear integrated circuits - K. Lalkishore - Pearson education
7. Analog electronics - L.K. Maheswari and M.M.S Anand - PHI
8. Applied electronics - R.S. Sedha - S.Chand & Co.
9. Principles of electronics - V.K. Mehta & K.K. Dey - S. Chand & Co.,
10. A first course in electronics - A. A. Khan & K. K. Dey - PHI
11. Electronics communication systems - George Kennedy & Bernard David - TMH
12. Electronic communication - D. Roddy & J. Coolen - PHI
13. Principles of electronic communication system - Louis E. Frenzel - TMH

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HISTORY **HIS 202N** 2015-16 onwards II B.A

SYLLABUS

IV SEMESTER

UNIT - 1

Factors for social change - Christian missionaries - Western education - Emergence of new middle class - Growth of press

UNIT - 2

Socio - Religious reform movements - Brahma Samaj - Arya Samaj - Theosophical society - Rama Krishna Mission - Aligarh movement

UNIT - 3

Self respect movements - Jyothiba Phule - Narayan Guru - Periyaar and B.R. Ambedkar

UNIT - 4

Indian National movement - Factors for the growth of Nationalism - Indian National Congress - Three phases of freedom struggle - Revolutionary movement - Peasant and workers movement

UNIT - 5

Leaders of modern India - Dadabhai Naoroji - Gopala Krishna Gokhale - Balagangadhara Tilak - Mahatma Gandi - V.D. Savarkar - Bhagat Singh - Chandrasekhara Ajad

UNIT - 6

Emergence of communal trends - Partition of India - Integration of Prineely states into Indian union.

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MATHEMATICS **MAT 202N** 2015-16 onwards II B.Sc

SYLLABUS

IV SEMESTER

ABSTRACT ALGEBRA AND REAL ANALYSIS - 2

ABSTRACT ALGEBRA

UNIT - 1

Rings - Defination and basic properties, commutative ring, ring with unity, Boolean ring, division ring, field, subring, subfield. Integral domains - divisors of zero, integral domain, characteristic of a ring.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Ideals - Left, right and two sided ideals, algebra of ideals, principal ideal, principal ideal ring, maximal ideals, prime ideals, quotient ring. Homomorphism of rings - definition and elementaryproperties, range and kernal of a homomorphism, fundamental theorem of homomorphisms.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Polynomial rings - Polynomials in an indeterminate, polynomial ring, the evaluation of homomorphisms, division algorithm for polynomials, polynomial equation, irreducible polynomials, Eisenstein theorem, ideal structure of a polynomial ring, unique facterisation in a polynomial ring.Euclidean ring and examples.

(2 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS UNIT - 4

Differentiation - Derivative of a function, algebra of derivable functions, increasing and decreasing functions, Darboux's theorem, Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, L 'Hospital's rules, Taylor's generalized mean value theorem, Maclaurin's theorem, expansions of some basic functions.

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Riemann integration - Partitions, Riemann sums, lower and upper Riemann integrals, Riemann integral, a necessary and sufficent condition for R-integrable, some classes integrable functions, algebra of integrable functions, fundamental theorem of integral calculus.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Riemann integration - Integral as the limit of a sum, first mean value theorem of integral calculus, Bonnet's mean value theorem of integral calculus, second mean value theorem of integral calculus, integration by substitution, integration by parts.

(1 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc.Mathematics,Vol. II,SCHAND& Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, Hohn Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 202N** 2015-16 onwards II B Sc.

SYLLABUS

IV SEMESTER

THERMODYNAMICS AND OPTICS

PART - A
THERMODYNAMICS

UNIT I

1. Low Temperature Physics :

Liquefaction of gases using Joule - Kelvin effect - Porous plug experiment - Distinction between: Joules expansion, Adiabatic expansion and Joule, Thomson's expansion - Expression for Joule Thomson cooling - Adiabatic demagnetization - Derivation of expression for fall in temperature - Liquefaction of Helium by Kaptizas method - principle of Refrigeration - Refregerant - Vapour Comperssion type. (8 hours).

2. Quantum theory of Radiation :

a. Classical theory of radiation: Introduction - Black body - Fery's black body - Distribution of energy in the spectrum of a black body(Lummer and Pringheim Experiment) - Statements of Wien's displacement law, Wien's law, Raleigh - Jeans law (3 hours)

b. Quantum theory of radiation: Introduction- Planck's law - Plank's Hypothesis- Derivation of Plank's Radiation law- deduction of Wien's law, Releigh Jeans law, Wiens displacement law from Planck's law. Pyrometers- Types of pyrometers - Disappearing filament optical pyrometer - determination of solar constant - Amstangstroms pyroheliometer- Temperature of Sun. (7 hours).

3. Statistical Thermodynamics :

Introduction to statistical mechanics - Statistical equilibrium - Probability, theorems in statistical thermodynamics - Maxwell - Boltzmann distribution law (Statement and expression only) - Application to ideal gas. Quantum Statistics - Phase space, Fermi - Dirac distribution law (Statement and expression only) - Application to electron gas, Bose - Einstein distribution law (Statement and expression only) - Application to photon gas - Comparsion of three statistics (7hours).

PART - B
OPTICS

UNIT - II

4. Diffraction :

Fraunhofer diffraction, Fraunhofer diffraction due to a single slit and double slit. The diffraction grating - Normal incidence - determination of wavelength of light - Fresnel diffraction - Fresnel half period zones - Zone plate - comparison of zone plate with convex lens (10 hours).

5. Polrization and Double Refraction :

Polarised light, Brewsters law - Malus law - Phenomenon of double refraction in calcilte - Construction and working of Nicol prism- applications of Nicol prism - Quarter & Half wave plate - Statement of optical activity (10 hours).

6. Lasers fiber optics and Holography :

Spontaneous, stimulated emission - Laser principle - Population inversion - Einstein coefficents - Types of lasers, He - Ne and Ruby lasers and the application of lasers. Introduction, Principle of Optical fiber - types of optical fibre, rays - Fiber materials - Basic principles of holography - Gabor Hologram and its limitations, Holography applications.(8 hours)

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POLITICS **POL 202N** 2015-16 onwards II B.A

SYLLABUS

IV SEMESTER

INDIAN GOVERNMENT & POLITICS

1. Party system - National and Regional parties - INC, BJP, CPI, CPIM, BSP. TDP, TRS, DMK, TMC - Coaliation politics.
2. Election commission - Powers and functions - Recent Electrol Reforms.
3. State Govt - Governer - C.M. - Council of ministers - Powers and functions
4. Social & Economic factors in Indian politics - Language, Religion, Caste and regional identities.
5. Political corruption - Kinds of defections - Causes and remedies - Lokayuktha
6. Challenges to National integration - Communalism, Terrorism and Regionalism
7. 73, 74 Constitutional Amendments.

Books Recommended :

1. Politics in India	:	Rajini Kothari
2. Indian constitution	:	M.V. Pylee
3. Indian constitution	:	Bakshi
4. Introduction for constitution of India	:	D.D. Basu
5. Indian Govt. and Politics	:	K.R. Acharya
6. Telugu Academi	:	Bharata Prabhutwamu – Rajikiyalu
7. Telugu Academi	:	Bharata Rajayagamu

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SPL. ENGLISH **ENG 202SN** 2015-16 onwards II B.A.

SYLLABUS

IV SEMESTER

SPECIAL ENGLISH

NOVEL :

1) Pride and Prejudice - Jane Austen

SHORT QUESTIONS :

a) The origin of the novel
b) The structure of the novel
c) Purpose and teaching of the novel
d) The Eighteenth century novel
e) The Ninteenth century novel

DRAMA :

1) Othello

SHORT QUESTIONS :

a) Religious plays
b) The moralities
c) Comedy of manners
d) Shakespeare as a dramatist
e) The heroic tragedy

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ZOOLOGY **ZOO 202N** 2013-14 onwards II B.Sc

SYLLABUS

IV SEMESTER

EMBROLOGY, ECOLOGY AND ZOOGEOGRAPHY

UNIT - I

1. Gametogenesis

2. Fertilisation

3. Types of eggs

4. Types of cleavages

UNIT - II

1. Development of frog upto gastrulation and formation of primary germ layers.

2. Foetal membranes of chick - Formation and functions

3. Placenta - Development, types and functions

UNIT - III

1. Biogeochemical cycles - Nitrogen cycle, Carbon cycle, Phosphorus cycle

2. Habitat & Ecological niche.

3. Community interactions - competition, predation, mutualism, commensalism and parasitism.

4. Ecological pyramids

5. Ecological succession - Primary and secondary succession - seral stages, climax community with examples.

UNIT - IV

1. Population - Growth curves, population density, dispersal

2. Growth of human population and its control

3. Population regulating mechanisms - biotic & abiotic

4. Zoogeography - Fauna of Oriental region, Australian region and Ethiopian region

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BOTANY **BOT 301N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

TAXONOMY, ECONOMIC BOTANY, MEDICINAL BOTANY

UNIT-I

1. Taxomy of Angiosperms- History, Principles and types of classification.
2. Benthem and Hooker , Englar and Prantle systems of classifications.
3. A brief account of current concepts of Taxonomy,cytotaxonomy and anatomy in relation to taxonomy.

UNIT-II

4. Annonaceae, Rutaceae, Caesalpinaceae, Cucurbitaceae, Umbelliferae, Amaranthaceae, Euphorbiaceae.

UNIT-III

5. Food plants ; Rice, Maize, Sugarcane.
6. Fibers ; Cotton
7. Vegetable oils : Ground nut, coconut.
8. Wood yielding plants : Teak, Sandal wood.
9. Spices : General account of Turmeric, Zinger, Piper.
10. Beverages : Tea, Coffee.
11. Rubber yielding plants : Rubber.
12. Medicinal Plants: General account of Datura, Vinca, Ocimum, Emblica, Rauwolfia, carum carvi. Medical systems : Ayurveda, Homeopathy and Naturopathy.

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BOTANY **BOT 401N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

PLANT PHYSIOLOGY & GENETICS

UNIT - 1

1. Plant water relations; Importance of water to plant life, diffusion, imbibition, osmosis, plasmolysis. Absorption of water, Ascent of sap, Transpiration and factors affecting stomatal movement.
2. Transport of organic substances; structure of phloem, mechanism of phloem transport, source, sink relationship, factors affecting translocation.
3. Photosynthesis ; Chloroplast structure, pigments, action spectra and Emerson's experiments,

   i.e red drop and enhancement effects, photophosphorylation, Calvin cycle, c4 cycle, CAM path way, photorespiration.

UNIT - 2

4. Mendalian inheritance, laws of segregation and independent assortment, back cross, test cross.
5. Gene inter actions; incomplete dominance, epistasis, complementary genes, duplicate genes.
6. Linkage,crossing over

UNIT - 3

7. Structure of gene.
8. Chromosomal mutations - structural and numerical, point mutations, induced mutations.

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CHEMISTRY **CHE 301N** 2015-16 onwards III B.Sc.,

MODEL PAPER

V SEMESTER

ORGANIC AND PHYSICAL CHEMISTRY

Unit - 1 (Organic Chemistry)

1. Nitrogen Compounds **Weightage : 15 marks = 1, 5 marks =**

2Amines (Aliphatic and Aromatic) : Nomenclature, classification into 1^0,2^0,3^0 amines and quarternary ammonium compounds. Preparative methods - 1. Hoffman's bromamide reaction (mechanism) 2. Reduction of Amides and Schmidt reaction. Physical properties and basic character - Comparative basic strength of Ammonia, methyl amine, dimethyl amine, trimethyl amine and aniline - Comparative basic strength of aniline, N - methyl aniline and N, N - dimethyl aniline, steric effects and substituent effects. Chemical properties : a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation

e) Reaction with Nitrous acid of 1^0,2^0,3^0 (Aliphatic and aromatic amines). Electrophilic substitutions of Aromatic amines - Bromination and its applications and Nitration and its applications. Diazotization, Diazonium salts - Preparation and its applications.

2. Heterocyclic Compounds **Weightage : 15 marks = 1, 5 marks = 2**

Introduction and Defination : Simple 5 membered ring compounds with one hetero atom Ex. Furan, Thiophene and Phyrrole. Aromatic character - 6 - Electron system (four - electrons from two double bonds and a pair of non - bonded electrons from the hetero atom). Resonance structures : Indicating electron surplus carbons and electron deficient hetero atom. Explanation of feebly acidic character of pyrrole, electrophillic substitution at 2 or 5 position, halogenation, nitration and sulphonation under mild conditions. Reactivity of furan as 1, 3 - diene, Diels alder reaction (one example). Sulphonation of thiophene preparation of furan, pyrrole and thiophene from 1, 4 - Dicarbonyl compounds only, Paul - Knorr synthesis, structure of pyridine, Basicity - Aromaticity - Comparision with pyrrole - One method of preparation and properties - Reactivity towards Nucleophilic substitution reaction - Chichibabin reaction.

3. Carbohydrates **Weightage : 15 marks = 2, 5 marks = 3**

Monosaccharides: All discussion to be confined to (+) glucose as an example of aldo hexoses and (-) fructose as example of ketohexoses. Chemical properties and structural elucidation : Evidences for straight chain pentahydroxy aldehyde structure (Acetylation, reduction to n- hexane, cyanohydrin formation, reduction of Tollen's and Fehling's reagents and oxidation to gluconic and saccharic acids). Number of optically active isomers possible for the structure, configuration of glucose based on D-glycerlaldehyde as primary standard (no proof for configuration is required). Evidence for cyclic structure of glucose (Some negative aldehydes tests and mutarotation). Cyclic structure of glucose. Determination of cyclic structure (Pyranose structure, anomeric carbon and anomers). Proof for the ring size (methylation, hydrolysis and oxidation reactions). Different ways of writing pyranose structure (Haworth formula and chair conformational formula). Structure of fructose : Evidence of 2 - Ketohexose structure (formation of penta acetate, formation of cyanohydrin its hydrolysis and reduction by HI to give 2 - Carboxy n-hexane).

Same osazone fromation from glucose and fructose. Hydrogen bonding in osazones, cyclic structure for fructose (Furanose structure and Haworth formula). Interconversion of Monosaccharides : Aldopentose to aldo hexose - eg : Arabinose to D -

Glucose, D- Mannose (Kiliani - Fischer method). Epimers, Epimerisation - Lobry de Bruyn van Ekenstein rearrangement. Aldohexose to Aldopentose eg: D- glucose to D - Arabinose by Ruff's degradation. Aldohexose (+ glucose) to ketohexose (- fructose), and Ketohexose (fructose) to aldohexose (Glucose).

4. Amino acids and proteins **Weightage : 15 marks = 1, 5 marks = 1**

Introduction: Definition of amino acids, Classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Essential and non essential amino acids with examples. Methods of synthesis : General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, Valine and Leucene) by following methods : a) From halogenated carboxylic acid b) Malonic ester synthesis c) strecker's synthesis. Physical properties : Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point. Chemical properties : General reactions due to amino and carboxyl groups - Structure and nomenclature of peptides and proteins.

Unit - 2 (Physical Chemistry) **Weightage : 15 marks = 1, 5 marks = 2**

Photochemistry : Differences between thermal and photochemical processes. Laws of photochemistry - Grothus - Drapper's law and Strak - Einstein's law of photochemical equivalence. Quantum yield. Photochemical reactions of hydrogen - chlorine, hydrogen - bromine reactions. Jablonski diagram depicting various processes occuring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing). Photosensitized reactions - Energy transfer process (simple example).

Additional Syllabus

Mass Spectroscopy : Basic Prinicipals - Molecular ion / parent ion, fragment ions / daughter ions. Theory - Formation of parent ions. Representation of mass spectrum. Identification of parent ion, (M+1), (M+2), base peaks (relative and abundance 100%). Determination of molecular formula - Mass spectra of ethyl benzene, acetophenone, n - butyl amine and l - propanol.

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CHEMISTRY **CHE 401N** 2015-16 onwards III B.Sc.,

SYLLABUS

V SEMESTER

CHEMISTRY AND INDUSTRY

UNIT - I : Drugs **Weightage : 15 marks = 3, 5 marks = 4**

1. Introduction : Drug, disease (defination), Historical evolution, Sources - Plants, Animal synthetic, Biotechnology and human gene therapy.
2. Terminology : Pharmacy, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmaco kinetics (ADME, Receptors - brief treatment) Metabolities and Antimetabolities.
3. Nomenclature : Chemical name, Generic name and Trade names with examples.
4. Classification : Classification based on structures and therapeutic activity with one example each.
5. Synthesis : Synthesis and therapeutic activity of the following drugs., L - Dopa, Chloroquin, Omeprazole, Albuterol and Ciprofloxacin.
6. Drug Development : Pencillin, Separation and Isolation, structures of different pencillins.
7. HIV - AIDS : Immunity - Prevention of AIDS. Drugs available - Examples with structures : PIS : Indinavir (Crixivan), Nelfinavir (Viracept), NNRTIS : Efavirenz (Susrtiva), Nevirapine (Viramune) NRTIs : Abacavir (Ziagen), Lamivudine (Epivir, 3TC) Zidovudine (Retravir, AZT, ZDV).
8. Preparation, properties, biological activity and side effects : Eg. Paracetamol, Sulpha methoxazole (Tablets)

9 Formulations :

i. Need of conversion of drugs into medicine. Additives and their role (brief account only)
ii. Different types of formulations.

UNIT - II : Pesticides **Weightage : 15 marks = 1, 5 marks = 2**

1. Introduction to Pesticides - Types - Insecticides, Fungicides, Herbicides, Weedicides, Rodenticides, plant growth regulators, Pheremones and Hormones. Brief discussion with examples, structure and uses.
2. Synthesis and present status of the following.
   DDT, BHC, Malathion, Parathion, Endrin, Baygon, 2, 4 - D and Endo - Sulphon.

UNIT - III : Green Chemistry **Weightage : 15 marks = 1, 5 marks = 3**

Introduction : Definition of green chemistry, need of green chemistry, basic principles of green chemistry.

Green synthesis : Evaluation of the type of the reaction

i) Rearrangements (100% atom economy)
ii) Addition reaction (100% atom economy), Pericyclic reactions (no byproduct)

a) Selection of Solvent :

i) Aqueous phase reactions
ii) Reactions in ionic liquids
iii) Solid supported synthesis
iv) Solvent free reactions (solid phase reactions)

b) Green catalysts :

i) Phase transfer catalysts (PTC)
ii) Biocatalysts

c) Microwave and ultrasound assisted green synthesis :

i) Aldol condensation

ii) Cannizzaro reaction
iii) Diels - Alder reaction
iv) Strecker synthesis
v) Willaimson synthesis
vi) Dieckmann condensation

UNIT - IV : Material Science **Weightage : 15 marks = 1, 5 marks = 1**

Super conductivity, characteristics of super conductors, Meissner effect, types of super conductors and applications.

Nano materials : Synthetic techniques, bottom - up - sol - gel method, top - down - electro deposition method. Properties and applications of nano - materials. Composites - Definition, general characteristics, particle reinforce and fiber reinforce and composites and their applications.

Additional Syllabus

Chemo informatics : Introduction - The domain of Chemistry - A Chemist's fundamental questions - The scope of Chemo informatics - Learning in Chemo informatics - Major tasks - Representation of the objects - Data - Learning - History of Chemo informatics - Structure data basis - Quantitative structural activative relationships - Molecular modeling - Structure elucidation - Chemical rections and synthetic design - Teaching Chemo informatics.

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BUSINESS LAWS **COM 501N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

CONTRACT ACT

a) Defination - Essentials of a valid contact, types of contracts

b) Offer and acceptance - Essentials of valid offer and acceptance and revocation of offer and acceptance

c) Consideration - Essentials of valid consideration

d) Capacity of contract. Special rules and regarding minor

e) Consent - Free consent, coercion, undue influence, fraud, misrepresentation and mistake

UNIT - II

DISCHARE OF A CONTRACT

a) Illegal and immoral agreements - Agreements opposed to public policy

b) Various modes of discharge of contract, remedies for breach of contracts.

UNIT - III

SPECIAL CONTRACTS

a) Contract of indemnity and guarantee, rights and liabilities of security, Discharge of security

b) Bailment contracts, agency contracts, creation and termination of agency, various modes types of agents, rights and duties of agents and principal.

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AUDITING **COM 502N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION TO AUDITING

Auditing : Meaning - Defination - Evolution - Objectives - (a) Primary objectives (b) Secondary objectives - Importance

UNIT - II

TYPES OF AUDIT

Based on ownership : Proprietorship, partnership, companies, trusts, co - operative societies - Government Departments.

Based on Time : Interim, final, continuous

Based on objectives : Independent, financial, internal, cost, tax, Government secretarial

UNIT - III & IV

PLANNING OF AUDIT AND CONTROL

Auditor : Qualifications and disqualifications - Qualities - Appointment and re - appointment - Remuneration - Removal - Rights - Duties - Liabilities.

UNIT - IV : Audit planning - Engagement letter - Audit programme - Audit note book - Audit papers - Audit work book. Audit contents - Audit markings - Internal check - Internal control (sales, purchase - Fixed assets - Cash book - Pay roll) - Accounting and controls and sampling in Audit.

SYLLABUS

V SEMESTER

UNIT - I

Introduction - Limitations of Financial Accounting - Emergence of Management Accounting - Definition and scope - Role of Management Accountant - Controller - Functions - Managerial services - Management information system (theory).

UNIT - II : BUDGETORY CONTROL

Budgets - Meaning - Budgetory control - Objectives, advantages, limitations - Essentials of budgets and budgetory control - Types of budgets - Sales budgets, cash budget - Flexible budgets (problems).

UNIT - III : WORKING CAPITAL

Management of working capital - importance - Factors influencing working capital requirement (problems).

UNIT - IV

Funds flow statement - Meaning, importance - Statement showing changes in working capital - funds from operations, - preparation of funds flow statement (problems).

UNIT - V : CASH FLOW STATEMENT

Cash flow statement - Meaning - Importance, differences between funds flow statement and cash flow statement - Cash from operations - Preparation of cash flow statement (problems).

Reference Books:

1. Management accounting - Man, Mohan and Goyal
2. Advanced management accounting - Sarma and gupta

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C M A **COM 504N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION

Nature and scope of Cost Accounting and Management Accounting - Limitations of Financial Accounting - Objectives of Cost Accounting - Cost Accounting Vs. Financial Accounting - Cost Accounting Vs. Management Accounting - Advantages and limitations of Cost Accounting - Installation of Costing System (theory only).

UNIT - II

ELEMENTS OF COST

Elements of cost - Classification of cost - Problems on cost sheet and tenders (problems).

UNIT - III

MATERIALS

Direct and indirect material, material control - Functions of the purchase department - Stock levels - EOQ - Methods of material issues - FIFO, LIFO, Base stock method, Simple average, Weighted average methods (problems).

UNIT - IV

LABOUR

Direct and indirect lalour - Time keeping and time booking - Methods of wage payments - Time wage, piece wage, Halsey, Rowan, Taylor's differential piece rate - Merrieck method (problems)

UNIT - V

OVER HEADS - MEANING

Different methods of classification - Allocation and apportionment of over heads - Machine hour rate - Primary distibution and secondary distibution - Different methods (problems).

Reference Books :

1) Cost Accountancy - Jain and Narang
2) Cost Accounting - Dutt
3) Cost Accounting - Maheswari

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C A **COM 505N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

Accounting Standards : International and Indian Accounting Standard - Importance and need for Accounting Standards (theory only).

UNIT - II

Valuation of Shares : Necessity for valuation of shares, methods of valuation of shares. Net assets method, yield method (or) market value method, earning capacity method, Duel method. (Excluding problems with valuation of good will)

UNIT - III

Valuation of Goodwill : Needs and methods - Normal profit method, super profits method, capitalization method.

UNIT - IV

Issue of Bonus shares : Criteria of issue for bouns shares. Accounting treatment.

UNIT - V

Amalgamation, absorption and Internal reconstruciton : Amalgamation - In the nature of merger and purchase - Calculation of purchase consideration - Treatment in the books of transferor and transferee.

Internal reconstruction - Accounting treatment - Preparation of final statement after reconstruction.

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A C A **COM 506N** 2015-16 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I : The accounts of holding companies - I

The nature of holding companies - Legal requirements for a holding company - Scheudule VI of the comapnies Act and subsidiary companies - Preparation of consolidated balance sheet - Cancellation of investement account - Minority interest (including problems).

UNIT - II : The accounts of holding companies - II

Cost of acquiring control or good will - Capital reserve - Preference share capital in subsidary companies - Debentures in subsidiary companies - Preacquisition profits / losses - Inter company transactions - Unrealised profit on stock - Revaluation of assets - Bonus shares - Treatment of dividend received from subsidiary company (including problems related to single subsidiary company)

UNIT - III : Accounts of electrical companies - I (Double - Accounting system)

Meaning of Double - Account system - Revenue account and net revenue account - Capital account (receipts and expenditure on capital account) and general balance sheet (including problems)

UNIT - IV : Accounts of electricity companies - II

Replacement of an asset. Important provisions of Indian Electricity Act 1910. Electricity Supply Act 1948 and the company Act 1956. Formats of relevant accounts - Calculation of reasonable return and disposal surplus. Preparation of net revenue account and balance sheet (including problems).

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COMPUTER SCIENCE **CSC 202N** 2015-16 onwards II B.Sc

SYLLABUS

IV SEMESTER

DATA STRUCTURES IN JAVA

UNIT - I

1. Introduction and overview
2. String Processing

UNIT - II

3. Stacks
4. Queues

UNIT - III

5. Linked Lists
6. Sorting Methods

UNIT - IV

7. Searching methods
8. Trees

Prescribed Text Book :

Robert Lafore, Data Structures and Algorithms in Java, Second Edition, Pearson Education (2008)

Reference Book :

1. Adam Drozdek, Data Structures and Algorithms in Java, Second Edition, Cengage Learning (2008)
2. John R. Hubbard, Anita Hurry, Data Structures with Java, Pearson Edition (2008)
3. Samatha, Classic Data Structures, PHI (2005)

For Merit Students Only

Graphs and their representations

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ECONOMICS **ECO 301N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

Module- 1

Meaning of economic growth and development measures of Economic development - GNP, PQL and HDI factors influencing economic development - Blanced andunbalanced growth - Choice of Techniques - Labour intensive and capital intensive technique - Sustainable development.

Module- 2

Basic features, Basic demographic futures, size and growth of population - Age and sex composition rural and urban population - Occupational distribution. Population policy - Poverty, income inequalities and unemployment causes and consequences - Current five year plan - Objectives. New economic reforms - Libarlization, privatization and globalization in India - Andhra Pradesh economy

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ECONOMICS **ECO 401N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

Module - I : Public Finance and Taxation

Meaning and scope of public finance - Distinction between public and private finance - Principle of maximum social advantage - Public good V/s private goods - Sources of public revenue - a) Taxes b) Administrative revenues c) Commercial revenues d) Gifts and grants e) Deficit finance - Canons of the taxation - Impact, shifting and incidence of taxation - Effects of the taxation - The concept of VAT.

Module - II : Public Expenditure and Public Debt

Meaning and classification of public expenditure - Reasons for the growth of public expenditure - Wagnar's law effects of public expenditure on production - Public debt - Classification of public debt - Govt. subsidies in India.

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HISTORY **HIS 301N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

HISTORY OF MODERN WORLD (1453 - 1848)

UNIT - I

Characteristics, features of renaissance - Significance of reformation and counter reformation movements in Europe - Geographical discoveries.

UNIT - II

Rise of colonialism, Mercantilism and commercial revolution - Emergence of modern world economy.

UNIT - III

Age of revolutions - Glorious revolution (1688) - American revolution (1776) - French revolution (1789) - Napoleon Bonaparte - Achievements and down fall - Vienna congress - 1830, 1848 French revolutions.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Chainese civilization - Shintoisam - Buddisam

2) Boxer revolution

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HISTORY **HIS 401N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

HISTORY AND CULTURE OF ANDHRA PRADESH - SYLLABUS (FROM SATAVAHANAS TO 1857)

UNIT - I

Influence of Geographical features on history, sources - Growth and spread of Jainism and Buddhism and their contribution to Art and Architecture.

UNIT - II

The Qutub Shahis - A brief survey of Political History - Society, Economy and Culture. The Asaf Jahis - A brief survey of their political History - Society, Economy and Culture - Salarjung Reforms.

UNIT - III

Andhra under Colonial rule : Coming of European merchant companies - Conquest of Andhra by the British - Early uprising - Administration.

UNIT - IV

Land revenue settlements - Agrarian conditions - Famines - Impact of Industrial Revolutions on Andhra Economy - Sir Thomas Munroe - Impact of 1857 Revolt in Andhra.

Andhra under British rule - Madras native association - 1879 - Rampa rebellion - Rekapalli rebellion

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Buddhist sites in Andhra Pradesh

2) Kakatiya's Architecture

V.S.R. & N.V.R. COLLEGE , TENALI

AUTONOMOUS NAAC B

B.Sc. DEGREE EXAMINATION, MODEL PAPER (MAT 401)

(Examination at the end of fifth semester w.e.f. 2015-2016)

MATHEMATICS (MODERN APPLIED ALGEBRA)

Time : 3 Hours **Max.Marks : 70**

PART - I (8 × 2 = 16 Marks)

SHORT ANSWER QUESTIONS

Answer any 8 questions. Each question carries 2 marks.

1. Is the cancellation law $A \cup B = A \cup C \Rightarrow B = C$ true ? If not give example.
2. If $f : A \to B, g : B \to C$ are two onto functions, then prove that $g \circ f : A \to C$ is also onto.
3. Define peano axioms.
4. Prove by induction that $n < 2^n$.
5. Define partial ordering relation on a set.
6. Give an example of an equivalence relation.
7. Define a finite state machine.
8. Give the state diagram of the following machine.

Present state	Next state 0	Next state 1	Output 0	Output 1
s_1	s_3	s_2	0	0
s_2	s_1	s_4	1	0
s_3	s_2	s_1	1	1
s_4	s_4	s_3	1	0

9. Write ALGOL expressions for the following mathematical expressions

   i) $\pi(r-p)^2$ ii) $\frac{-b+\sqrt{b^2-4ac}}{2a}$

10. Write the mathematical expressions for the following ALGOL expressions

    i) $A - B + C \uparrow D \times E$ ii) sqrt $(s \times (s-a) \times (s-b) \times (s-c))$

11. In any Boolean algebra, prove that $a \wedge x = 0$ and $a \vee x = 1$ imply $x = a'$
12. Draw the block diagram of $(A_1 \wedge A_2) \vee (A_1' \wedge A_2')$.

PART - II (6 × 9 = 54 Marks)

LONG ANSWER QUESTIONS

Answer all questions. Each question carries 9 marks.

13a. Prove that a function is left invertiable iff it is one one.

Or

13b. Find a necessary and sufficient condition for $S + T = S \cup T$ where $S + T = (S \cup T') \cap (S' \cup T)$.

14a. Define addition in $[P, \sigma]$ by $m + n = \sigma^m(n)$. Then for all $m, n \in P$, prove that $m + n = n + m$.

Or

14b. If $f : S \to S$ is a function then show that $f^m \circ f^n = f^{m+n}$ for all $m, n \in P$.

15a. Let $(S, \leq)$ be a poset. Prove that every subset of S can have at most one *glb* and at most one *lub*.

Or

15b. If ρ is reflexive and transitive then show that $\rho \wedge \bar{\rho}$ is an equivalence relation on a set S.

16a. Prove that the relation of covering is reflexive and transitive.

Or

16b. Minimize the number of states in the following machine.

Present state	Next state		Output	
	a_0	a_1	a_0	a_1
1	2	2	1	0
2	3	3	1	0
3	4	4	1	0
4	4	4	0	1
5	5	6	1	1
6	6	5	1	1

17a. Give detailed explanation of three types of constants allowed in ALGOL.

Or

17b. Two one-dimensional arrays X and Y each contain 50 elements. Write the ALGOL program to compute

$LX = \sqrt{\sum_{j=1}^{50} X_j^2}$ (Length of the vector X), $LY = \sqrt{\sum_{j=1}^{50} Y_j^2}$ (Length of the vector Y),

$\text{INPROD} = \sum_{j=1}^{50} X_j Y_j$ (Inner product of X and Y)

18a. In any Boolean algebra, if $a \wedge x = a \wedge y$ and $a \vee x = a \vee y$, then prove that $x = y$.

Or

18b. Show that $[(p \Rightarrow q) \wedge (q \Rightarrow r)] \Rightarrow (p \Rightarrow r)$ is a tautology.

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V.S.R. & N.V.R. COLLEGE , TENALI

AUTONOMOUS NAAC B

B.Sc. DEGREE EXAMINATION, MODEL PAPER (MAT 301)

(Examination at the end of fifth semester w.e.f. 2015-2016)

MATHEMATICS (LINEAR ALGEBRA)

Time : 3 Hours Max.Marks : 70

PART - I (8 × 2 = 16 Marks)

SHORT ANSWER QUESTIONS

Answer any 8 questions. Each question carries 2 marks.

1. Define a vector space.
2. If S and T are two subsets of a vector space $V(F)$ then show that $S \subseteq T \Rightarrow L(S) \subseteq L(T)$.
3. Show that the vectors $(1, 2, 1), (2, 1, 0), (1, -1, 2)$ form a basis for $\mathbb{R}^3$.
4. Define quotient space of a vector space.
5. If $T : V_3(\mathbb{R}) \to V_2(\mathbb{R})$ is defined as $T(x_1, x_2, x_3) = (x_1 - x_2, x_1 + x_3)$, prove that T is a linear transformation.
6. Define null space and nullity of a linear transformation.
7. Show that a linear transformation T from a vector space $U(F)$ into a vector space $V(F)$ is nonsingular iff $T : U \to V$ is one one.
8. Find the matrix of the linear transformation $T : \mathbb{R}^2 \to \mathbb{R}^2$ defined by $T(x, y) = (4x - 2y, 2x + y)$ relative to the basis $\{(1, 0), (0, 1)\}$.
9. Define an inner product space.
10. State and prove triangle inequality.
11. If α, β are two vectors in a real inner product space such that $\|\alpha\| = \|\beta\|$ then show that $\alpha + \beta, \alpha - \beta$ are orthogonal.
12. State Parsvel's identity.

PART - II (6 × 9 = 54 Marks)

LONG ANSWER QUESTIONS

Answer all questions. Each question carries 9 marks.

13a. Prove that the necessary and sufficient condition for a nonempty subset W of a vector space $V(F)$ to be a subspace of V is that $a, b \in F, \alpha, \beta \in W \Rightarrow a\alpha + b\beta \in W$.

Or

13b. Let W_1 and W_2 be two subspaces of a vector space $V(F)$. Then prove that $W_1 \cup W_2$ is a subspace of $V(F)$ iff $W_1 \subseteq W_2$ or $W_2 \subseteq W_1$.

14a. If $V(F)$ is a finite dimensional vector space, then prove that any two bases of V have the same number of elements.

Or

14b. If W_1 and W_2 are two subspaces of a finite dimensional vector space $V(F)$ then prove that $\dim(W_1 + W_2) = \dim W_1 + \dim W_2 - \dim(W_1 \cap W_2)$.

15a. If T is a linear transformation from a vector space $U(F)$ into a vector space $V(F)$ and U is finite dimensional then prove that rank (T) + nullity (T) = dim U.

Or

15b. Show that the mapping $T: \mathbb{R}^3 \to \mathbb{R}^3$ defined by $T(x, y, z) = (x + 2y - z, y + z, x + y - 2z)$ is a linear transformation. Find its rank, nullity and verify rank T + nullity T = dim $\mathbb{R}^3$.

16a. State and prove fundamental theorem of linear transformations of vector spaces.

Or

16b. Let $T: \mathbb{R}^3 \to \mathbb{R}^2$ be a linear transformation defined by $T(x, y, z) = (2x + y - z, 3x - 2y + 4z)$. Obtain the matrix of T relative to the bases $B_1 = \{(1, 1, 1), (1, 1, 0), (1, 0, 0)\}$, $B_2 = \{(1, 3), (1, 4)\}$.

17a. State and prove Schwarz's inequality.

Or

17b. If α, β are two vectors in a unitary space, then prove that
$4(\alpha, \beta) = \|\alpha + \beta\|^2 - \|\alpha - \beta\|^2 + i\|\alpha + i\beta\|^2 - i\|\alpha - i\beta\|^2$

18a. State and prove Bessel's inequality.

Or

18b. Apply the Gram-Schmidt process to the vectors $\{(2, 1, 3), (1, 2, 3), (1, 1, 1)\}$ to obtain an orthonormal basis for $V_3(\mathbb{R})$ with the standard inner product.

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PHYSICS **PHY 301N** 2015-16 onwards III B.Sc.,

SYLLABUS

V SEMESTER

ELECTRICITY, MAGNETISM AND ELECTRO MAGNETISM

UNIT - I : ELECTROSTATICS

1. Gauss law and its applications : Gauss law statement, Electric field due to uniformly charged sphere, an infinite sheet of charge conducting plane, Mechanical force on a charged conductor.

Electric potential definition, Relation between electric intensity and electric Potential, Equipotential surfaces, Potential due to charged sphere and electric dipole.

2. Capacitance: Capacity definition, Capacity of spherical capacitor, Cylindrical condenser, Capacity of parallel plate condenser with and without dielectric between the plates, Electric energy stored in a charged condenser, Force between plates of condenser, Altracted disc electrometer construction and working to determine potential difference.

UNIT - II : DIELECTRICS AND MAGNETISM

1. Dielectrics: Atomic view of dielectrics, Gauss's law in dielectrics, definitions of Electric displacement and electric polarization, Relation between **D**, **E** and **P**, Relation between dielectric constant and susceptibility, Boundary conditions.

2. Magnetism and electromagnetic induction: Magnetic shell, Field due magnetic shell, Potential due to magnetic shell, Equivalence of electric circuit and magnetic shell, Biot savart's law, calculation of **B** due to long straight wire, a Circular current loop. Faraday's laws -Lenz's law, Expression for induced EMF, Self and Mutual Inductance (Statements), coefficient of coupling (Statement), Calculation of self inductance of a long solenoid, Energy stored in magnetic field.

Reference Books:

1. Electricity Berkeley Physics series
2. Electricity and Magnetism Brijlal and Subrammanayam
3. Physics, Vol-II Halliday and Resnik
4. Unified Physics Vol-III Jai Prakash & Co

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PHYSICS **PHY 401N** 2015-16 onwards III B.Sc.,

SYLLABUS

V SEMESTER

MODERN PHYSICS

UNIT - I : SPECTROSCOPY

1. Atomic physics : Spectra of Hydrogen, drawbacks of Bohr's atomic model, spector of Alkali atoms, Spectral terms, Selection Rules, L-S and J-J Couplings. Zeeman effect, Paschen back effect (basic idea).

X - Ray spectra : Week spectra, Continuous spectrum and its dependence on voltage, Duane Hunt's law, Properties of X-rays, Practical applications of X-rays. Mosley's law, its importance, Derivation on the basis of Bohr's theory of atom.

2. Molecular physics:

Raman effect : Characteristics of Raman Effect, Experimental Study of Raman effect, Stokes and anti-Stokes lines, Quantum theory of Raman Effect, Applications of Raman effect.

Spectroscopic Techniques : Single beam spectrophotometer, Double beam spectrophotometer.

UNIT - II : QUANTUM THEORY

1. Photoelectric effect : Photoelectric effect, Experimental study of photoelectric effect, characteristics of photoelectrons, Fundamental laws of photoelectric emission, Einstein's photo-electric equation and Millikan's experimental verification.

2. Matter waves and wave particle duality : De Broglie's hypothesis for matter waves: wavelength of matter waves. Properties of matter waves, Expression for group velocity, Relation between group velocity and wave velocity. Davission and Germer's electron diffraction experiment, G.P. Thomson experiment.

Uncertainty principle : Heisenberg's uncertainty principle, Relation for p and x its extension to energy and time. Experimental illustration of Consequence of uncertainty relation.

principle : Gamma ray microscope, Diffraction at a single slit, Particle in a box.

Reference Books:

1. Introduction of Atomic Spectra H.F.White
2. Spectroscopy Straughen and Walker
3. Physics of Atom Wher and Richards
4. Elements of Modern Physics Patil
5. Introduction to Modern Physics H.S.Mani and G.K.Mehta
6. Prospective of Modern Physics A.Beiser
7. Unified Physics Vol-IV Jai Prakash & Co

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POLITICS **POL 301N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

POLITICAL THOUGHT

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1. Introduction to the study of Political Thought.

2. Ancient Greek Political Thought - Plato and Aristotle.

3. Machiavelli

4. Hobbes, Locke and Rousseau

5. Bentham and J.S. Mill

*** Human Rights (For Academically Bright Students)**

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POLITICS **POL 401N** 2015-16 onwards III B.A

SYLLABUS

V SEMESTER

PRINCIPALS OF PUBLIC ADMINISTRATION

1. Meaning, Scope and Importance of Public Administration - Relation with Political Science, Sociology and Economics.

2. Public administration and Private administration, differences and similarities - The importance of Public administration in developing Nations.

3. E. Goverance : a) CARD b) E - SEVA c) SMART. Admn

4. a) Classical approach - Luther Gulick and Lyndal Urwick
   b) Human relations approach - Elton Mayo
   c) Ecological approach - F.W. Riggs
   d) Socio - Pyschological approach - MC Gregor and Abharam Maslow

5. Line and Staff agencies.

*** RTI Act 2005 (For Academically Bright Students)**

Books Recommended :

1. Public administration theory & practice - Mohit Bhattacharya
2. Public administration theory & practice - Awasthi and Maheshwari
3. New Horizons of Public administration - Prof. Mohit Bhattacharya
4. Public administration theory & practice - M.P. Sarma
5. Prabhutva Palana Shastram - Telugu Academy

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SPL. ENGLISH **ENG 301NS** 2015-16 onwards III B.A.,

SYLLABUS

V SEMESTER

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1. Drama: Samson Agonistes (Detailed)

2. Fiction: The Financial Expert (Non Detailed)

Further Reading (Advanced Reading) :

1. Dr. Faustus - Marlowe

2. Duchess of Malfi - Webster

3. Coolie - Mulk Raj Anand

4. Kanthapura - Raja Rao

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SPL. ENGLISH **ENG 401NS** 2015-16 onwards III B.A.,

SYLLABUS

V SEMESTER

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1. History of English language:

1. Origin of language
2. Indo European family of language
3. Grimm's law
4. Verner's law

2. History of literature:

1. Age of Chaucer
2. Age of Shakespeare
3. Age of Milton
4. Age of Dryden
5. Age of Pope and Johnson
6. Age of wordsworth
7. Age of Tennyson
8. Age of Hardy
9. Modern age.

3. Figures of speech:

1. Simile
2. Metaphor
3. Metonymy
4. Synecdoche
5. Pessonification
6. Apostrophe
7. Climax
8. Bathos and anticlimax
9. Hyperbole or Exaggeration
10. Pun

Further Reading (Advanced Reading) :

1. A History of the English language - Albert G. Baugh

2. Modern Applied Linguistics (An Introduction) - N. Krishnaswamy

3. A Glossory of Litery Terms - M.H. Abraham

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ZOOLOGY **ZOO 301N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

ANIMAL PHYSIOLOGY

Unit - I

1.1. PHYSIOLOGY OF DIGESTION :

1.1.1. Types of digestion – Extra and Intracellular

1.1.2. Digestion of carbohydrates, proteins and lipids

1.1.3. Gastrointestinal hormones – Control of digestion

1. 2. PHYSIOLOGY OF RESPIRATION :

1.2.1. Types of respiration – External and Internal

1.2.2. Structure of mammalian lungs and gaseous exchange

1.2.3. Transport of oxygen – Formation of oxyhemoglobin and affinity of hemoglobin for oxygen, and oxygen - haemoglobin dissociation curves.

1.2.4. Transport of carbondioxide – Chloride shift – Bohr's effect

Unit - II

2.1. PHYSIOLOGY OF CIRCULATION :

2.1.1. Open and closed circulation

2.1.2. Structure of mammalian heart and its working mechanism – Heart beat and cardiac cycle myogenic and neurogenic hearts

2.1.3. Regulation of heart rate – Tachycardia and Bradycardia

2.2. PHYSIOLOGY OF EXCRETION :

2.2.1. Definition of excretion

2.2.2. Forms of Nitrogenous waste materials and classification of animals on the basis of excretory products

2.2.3. Gross organization of mammalian excretory system and structure of kidney

2.2.4. Structure of nephron and formation of urine - Counter - current mechanism

Unit - III

3.1. PHYSIOLOGY OF MUSCLE CONTRACTION :

3.1.1. Ultra-structure of skeletal muscle

3.1.2. Sliding filament mechanism of muscle contraction

3.1.3. Chemical changes during muscle contraction – Role of calcium, ATP utilization and its replenishment

3.2. PHYSIOLOGY OF NERVE IMPULSE :

3.2.1. Structure of nerve cell

3.2.2. Nature of nerve impulse – Resting potential and action potential, properties of nerve impulse, threshold value, refractory period, all or none response.

3.2.3. Structure of synapse – Mechanism of synaptic transmission – Electrical and chemical transmissions

Unit - IV

4.1. PHYSIOLOGY OF ENDOCRINE SYSTEM :

4.1.1. Pituitary gland and its hormones

4.1.2. Hormones of pineal gland, thyroid, parathyroid, thymus, adrenal and pancreas

4.1.3. Endocrine control of mammalian reproduction – Male and female hormones – Hormonal control of menstrual cycle in humans

4.2. PHYSIOLOGY OF HOMEOSTASIS :

4.2.1. Concept of homeostasis and its basic working mechanism

4.2.2. Mechanism of homeostasis – Giving three illustrations viz., hormonal control of glucose levels, water and ionic regulation by freshwater and marine animals, and temperature regulation in man.

FOR GIFTED STUDENTS ONLY

1. Keymograph operation
2. Demonstration of blood circulation (e.g., frog)
3. Effect of hormones on reproduction in man

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ZOOLOGY **ZOO 401N** 2015-16 onwards III B.Sc

SYLLABUS

V SEMESTER

AQUACULTURE

Unit – I : Introduction

1. Scope and definition of aquaculture 2. Categories of aquaculture
3. Types of fisheries

Unit – II : Seed collection, production and transport

1. Collection from natural resources
2. Production by induceed breeding (Indian major carps only)
3. Bandh breeding
4. Hatchery design and management
5. Seed transport

Unit – III : Management of fish ponds and fish nitrution

1. Nursery pond management 2. Stocking pond management
3. Nutritional requirements 4. Supplementary feeding

Unit – IV : Fish pathology

1. Viral diseases
   a. Viral Haemorrhagic Speticemia (VHS) b. Infectious Pancreatic Necrosis (IPN)
   2. Bacterial diseases
   a. Vibriosis b. Bacterial Gill Disease
3. Fungal diseases
   a. Branchyomyeosis b. Saprdigiasis
4. Parasitic diseases
   a. Whirling disease b. Gyrodactylosis c. Argulosis

Unit – V : Harvesting

1. Fishing gear 2. Fishing craft

Unit – VI : Post harvesting technology

1. Reasons for fish decay 2. Need for preservation
3. Methods of preservation

Unit – VII : Fish byproducts

1. Fish manure 2. Isinglass 3. Fish glue
4. Fish oils 5. Fish skin and fins 6. Artificial pearls

FOR GIFTED STUDENTS ONLY

FIELD STUDY

1. Visit to fish breeding centre
2. Visit to culture ponds
3. Visit to shrimp hatchery

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BOTANY **BOT 302NP** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

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1. Technical description and identification of the plants of the following families

Annonaceae, Rutaceae, Caesalapinaceae, Cucurbitaceae, Umbelliferae, Rubiaceae, Asteraceae, Sapotaceae, Asclepiadaceae, Lamiaceae, Amaranthaceae, Euphorbiaceae, Poaceae.

2. Utilization of plants

Botanical name, family, morphology of useful product, uses of the plants included in theory syllabus.

3. Palynology

Study of pollen grains of *Hibiscus*, *Acacia* and grass.

4. Embryology - slides

T.S. of anther showing archesporial cells
T.S. of anther showing pollen tetrads
T.S. of anther showing pollen grains
Dicot embryo
Monocot embryo
Orthotropous ovule
Anatropous ovule
Compylotropous ovule

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BOTANY **BOT 302N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

TAXONOMY, EMBRYOLOGY AND PALYNOLOGY

UNIT - I

1. Rubiaceae, Asteraceae, Sapotaceae, Asclepiadaceae, Acanthaceae, Lamiaceae, Orchidaceae, Poaceae.

UNIT - II

2. General account of palynology and its importance with special reference to the pollengrains of Hibiscus, Acacia and grass
3. Microsporogenesis.
4. Megasporogenesis,types of embryosacs and development of monosporic, bisporic and tetrasporic types.

UNIT - III

5. Endosperm; types and development.
6. Embryogeny; development of dicot and monocot embryos.
   Polyembryony

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BOTANY **BOT 402N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

PLANT PHYSIOLOGY, SEED TECHNOLOGY AND CELL BIOLOGY

UNIT - 1

1.Respiration : Aerobic and Anaerobic respiration, glycolysis, Kreb's cycle, electron transport system, factors affecting respiration.

2. Nitrogen metabolism : Protein synthesis.

UNIT - II

3. Growth and Development : Deffinition,development kinetics of growth.

4. Plant growth hormones : History and discovery of plant hormones. Auxins, Gibberlins, Cytokinins, Absessic acid and Ethylene - Mechanism of action.

5.Seed Technology : Seed dormancy, seed viability, seed germination, physiological aspects of germination.

UNIT - III

6. Structure and functions of cell organelles - Ultra structure of cell membrane, ultra structure of Nucleus.

7. Chromosome structure and organization, types of chromosomes, functions of chromosomes.

8. DNA structure, replication of DNA, genetic code

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CHEMISTRY **CHE 302N** 2015-16 onwards III B.Sc.,

SYLLABUS

VI SEMESTER

INORGANIC AND PHYSICAL CHEMISTRY

UNIT - I

1. Co-ordination chemistry **Weightage : 15 marks = 2, 5 marks = 3**

IUPAC nomenclature, bonding theories - Review of Werner's theory and Sidgwick's concept of co-ordination, valence bond theory, geometries of co-ordination numbers 4 (Tetrahedral and square planar) and 6 (Octahedral) and its limitations ; crystal filed theory - splitting of d - orbitals in octahedral, tetrahedral and squareplanar complexes - Low spin and high spin complexes - Factors affecting crystal field splitting energy, merits and demerits of crystal field theory. Isomerism in coordination compounds - Structural isomerism and stereo isomerism - Stereochemistry of complexes with 4 and 6 coordination numbers.

2. Spectral and magnetic properties of metal complexes **Weightage : 5 marks = 2**

Electronic absorption spectrum of ion. Types of magnetic behaviour, spin only formula, calculation of magnetic moments, experimental determination of magnetic susceptibility - Gouy method.

3. Stability of metal complexes **Weightage : 15 marks = 1, 5 marks = 1**

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

4. Hard and soft acids bases (HSAB) **Weightage : 5 marks = 3**

Classification, Pearson's concept of hardness and softness, application of HSAB principles - Stability of compounds / complexes, predicting the feasibility of a reaction.

UNIT - II

1. Chemical kinetics **Weightage : 15 marks = 1, 5 marks = 2**

Rate of reaction, factors influencing the rate of a reaction - Concentration, temperature, pressure, solvent, light, catalyst. Experimental methods to determine the rate of reaction. Definition of order and molecularity. Derivation of rate constants for first, second, third and zero order reactions and examples. Derivation for time of half change. Methods to determine the order of reactions. Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy. Theories of reaction rates - Collision theory -

Derivation of rate constant for bimolecular reaction. The transition state theory (elementary treatment).

2. Catalysis **Weightage : 15 marks = 2, 5 marks = 1**

Homogenious and heterogeinous catalysis, caparision with examples. Kinitics of specific acidscatalysid rections, inversion of cane sugar, kinitics of specific base catalysed conversion of acetone to di acetone alcohol. Acid and Base catalysed reactins - hydrolysis of esters, mutarotation of glucose. Catalytic activity at he surfaces. Mechanisms of heterogeneous catalysis. Lang muir - Hinsheiwood mechanism.

Enzyme catalysis: Classification, characteristics of enzyme catalysis - kinitics of enzyme catalysed reactions - nichaelis menten law, significance of nichaelis constant (km) and maximum velocity (v max). Factors affecting enzyme catalysis - effect of temperature, PH concentration and inhibitior atalytic effiency - mechanism of oxidation of ethanol by alcohol dehydrogenace.

Additional Syllabus

Bioinorganic Chemistry :

Metals in medicine : Introduction and overview - Metal deficiency and disease - Toxic effects of metals - Survey of metals used for diagnosis and chemotherapy – Platinum anticancer drugs - A case study.

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CHEMISTRY **CHE 402N** 2015-16 onwards III B.Sc.,

MODEL PAPER

VI SEMESTER

CHEMISTRY AND INDUSTRY

UNIT - I : Chromatography **Weightage : 15 marks = 1, 5 marks = 2**

Classification of chromatography methods, principles of differential migration adsorption phenomenon, nature of adsorbents, solvent systems, R*f* values, factors effecting R*f* values.

a. Paper chromatography : Principles, R*f* values, experimental procedures, choice of paper and solvent systems, developments of chromatogram - ascending, desscending and radial. Two dimensional chromatography, applications.

b. Thin layer chromatography (TLC) : Advantages, principles, factors effecting R*f* values. Experimental procedures. Adsorbents and solvents. Preparation of plates. Development of the chromatogram. Detection of the spots. Applications.

c. Column chromatography : Principles, experimental procedures, stationary and mobile phases, separation technique. Applications.

d. High performance liquid chromatography (HPLC) : Principles and applications.

e. Gas liquid chromatography (GLC) : Principles and applications.

UNIT - II : Spectrophotometry **Weightage : 15 marks = 1, 5 marks = 2**

General features of absorption - Spectroscopy, Beer - Lambert's law and its limitations, transmittance, absorbance and molar absorptivity. Single and double beam spectrophotometers. Application of Beer - Lambert law for quantitative analysis of

i) Chromium in
ii) Manganese in manganous sulphate
iii) Iron (III) with thiocyanate.

UNIT - III : Molecular Spectorscopy **Weightage : 15 marks = 2, 5 marks = 3**

1. Electronic Spectroscopy : Interaction of electromagnetic radiation with molecules and types of molecular spectra. Potential energy curves for bonding and antibonding molecular orbitals. Energy levels of molecules . Selection rules for electronic spectra. Types of electronic transistions in molecules effect of conjugation. Concept of chromophore.

2. Infra red spectroscopy : Energy levels of simple harmonic oscillator, molecular vibration spectrum, selection rules. Determination of force constant. Qualitative relation of force constant to bond energies. An harmonic motion of real molecules and energy levels. Modes

of vibrations in polyatomic molecules. Characteristic absorption bands of various functional groups. Finger print nature of infrared spectrum.

3. Raman spectroscopy : Concept of polarizability, selection rules, pure rotational and pure vibrational Raman spectra of diatomic molecules.

4. Proton magnetic resonance spectroscopy (1H - NMR) : Principles of nuclear magnetic resonance, equivalent and non - equivalent protons, position of signals. Chemical shift, NMR splitting of signals - Spin - Spin coupling, coupling constants. Applications of NMR spectra with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1, 1, 2 - tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT - IV : Macro molecules **Weightage : 15 marks = 2, 5 marks = 3**

Classification of polymers, chemistry of polymerization, chain polymerization, step polymerization, coordination polymerization - Molecular weight of polymers of numberaverage and weight average molecular wieghts, degree of polymerization, determination of molecular weight of polymers by viscometry, osmometry and light scattering methods.Kinetics of free radical polymerization, derivation of rate law. Preparation and industrial applications of polyethylene, PVC, Teflon, polyacrylonitrile, terelene and nylon - 66. ntroduction to biodegradability.

Additional Syllabus

Introduction to Bioorganic Chemistry : Basic considerations - Proximity effects in organic Chemistry. Molecular adaptations - Molecular recognition and the supramolecular level.

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BUSINESS LAWS **COM 601N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

SALE OF GOODS ACT

a) Contract of sale, difference between sale and agreement to sell

b) Rights of unpaid seller

c) Conditions and warranties - Meaning - Express and implied conditions and warranties

UNIT - II

COMPANY ACT - 1956

a) Management of companies - Directors - Qualifications, disqualifications, appointment - Removal, rights and duties.

b) Company meetings and resolutions

c) Various kinds of winding up of a company

d) Doctrine of ultravires - Doctrine of indoor management

UNIT - III

CONSUMER PROTECTION ACT - 1986

a) Defination of the term consumer, unfair trade practices, restrictive trade practices and compeainant - Rights of consumer

UNIT - IV

ESSENTIAL COMMODITIES ACT - 1955

a) Defination - Objectives - Powers to control production - Supply - Distribution - Penalities for violation.

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AUDITING **COM 602N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

VOUCHING

Meaning - Vouching of cash and trading transcations - Investigation, verification and valuation of assets and liabilities.

UNIT - II

AUDIT OF FINANCIAL STATEMENTS

Receipts - Payments - Sales - Purchases - Fixed assets - Investements - Personal Ledger - Inventories - Capital and reserves - Other assets - Other liabilities.

UNIT - III

AUDIT OF INSTITUTIONS

Partnership - Manufacturing and other companies - Non - trading concerns.

UNIT - IV

INVESTIGATION AND AUDIT REPORT

INVESTIGATION : Meaning - Pre - requisites - Difference between investigation and auditing.

AUDIT REPORT : Contents - Preparation of audit report - Qualified report

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A M A **COM 603N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

CAPITAL BUDGETING

Capital Budgeting - Meaning - Need - Different methods - Traditional methods - Pay back method - Average rate of return - Time adjusted methods - Net present values method - Profitability index method - Internal rate of return (problems).

UNIT - II

MARGINAL COSTING - I

Marginal costing - Meaning - Advantages - Limitations - Absorption costing Vs. Marginal costing - Product mix - Make or buy decision - Techniques for decision making (problems)

UNIT - III

MARGINAL COSTING - II

Break - Even - Analysis - Break - Even - Chart - Meaning - Assumption - Advantages - Limitations - Calculation of Break - Even - Point - Margin of safety - Cost - Profit volume - Ratio (P.V.Ratio) (problems)

UNIT - IV

STANDARD COSTING

Standard costing - Meaning - Advantages - Limitations - Variances - Material variances - Labour variances (problems)

Reference Books :

1. Cost and Management Accounting - Jain and Narang
2. Management Accounting - Sarma and Gupta
3. Management Accounting - Maheswari and Gupta

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C M A **COM 604N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

CONTRACT COSTING AND JOB COSTING

Features - Costing process, work certified - Work uncertified - Completed conctracts - Incomplete contracts - Calculation of profit or loss.

UNIT - II

PROCESS COSTING

Features - Treatment of normal and abnormal losses - Preparation of process cost accounts - (excluding equivalent products and inter process profits) (problems).

UNIT - III

FINANCIAL STATEMENTS

Features - Limitations - Need - Meaning - Objectives - Financial statements - Preparation - Different methods (problems)

UNIT - IV

RATIO ANALYSIS

Meaning - Advantages - Limitations - Calculation of profit and loss A/c. ratios - Balance sheet ratios - Combined ratios - Interpretation of ratios - Preparation of Financial Accounts with the help of ratios (problems).

REFERENCE BOOKS

1) Cost and Management Accounting - Jain and Narang

2) Management Accounting - Sarma and Gupta

3) Cost Accounting – Maheswari

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C A **COM 605N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I

BANK ACCOUNTS

Books and registers to be maintained by banks - Slip system of posting - Rebate on bills discounted - Shedules of advances - Non performing assets - Legal provisions relating to preparation of final accounts.

UNIT - II

ACCOUNTS OF INSURANCE COMPANIES

Life insurance companies - Preparation of revenue account, Profit and Loss account, Balance sheet and Valuation balance sheet.

UNIT - III

FIRE CLAIMS

Accounting treatment, calculation of loss of stock, average clause.

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A C A **COM 606N** 2015-16 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I : Accounting for price level changes (Inflation Accounting)

Introduction, limitations of historical accouting, methods of accounting for price level changes, current cost accounting - Methods. Preparation of income statement, cost balance sheet under CCA / CCB (including problems).

UNIT - II : Human Resource Accounting

Definition, objectives, approaches, assumptions, advantages, limitations of H.R.A. H.R.A. in India, Human Resource Cost Accounting, historical cost accounting, replacement, cost method, opportunity cost method (theory only).

UNIT - III : Social Responsibility Accounting

Meaning, nature of social responsibility, need, objectives, accounting concept and objectives of social responsibility, indicators of social performance (theory only).

UNIT - IV : Liquidation of companies

Scope, contributory, preferential payments, preference dividend, statement of affairs and deficiency / surplus account. Liquidator's final statement of account. Liquidator's remuneration (including problems).

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III B.Sc.(Computer Science): VI Semester : Paper 302N (2015 – 16 onwards)

Title: Operating Systems - Syllabus

Unit – 1: OS Fundamentals and Structure of OS.

Introduction – What operating systems do – Computer – System organization – Computer system architecture – Operating system structure – Operating system operations : Process management – Memory management, storage management, protection and security – Distribution systems – Computing environments.

System structures – Operating system services – User operating system interface – System calls – Types of system calls – System programs – Operating system structure – System boot. Process concept – Process scheduling – Operations on processes – Inter process communication – Examples of IPC systems – Communication in client server systems.

Unit – 2 : Multithreading and process synchronization.

Multithreaded programming – Multithreading models – Thread libraries – Threading issues – Operating system examples. Process scheduling – Basic concepts – Scheduling criteria – Scheduling algorithms – Multiple process scheduling – Thread scheduling – Operating system examples. Process synchronization – The critical section problem – Peter's solution – Synchronization hardware – Semaphores – Classic problems of synchronization – Monitors – Synchronization examples. Deadlocks – System model – Deadlock characterization – Methods for handling deadlocks – Deadlock prevention – Deadlock avoidance – Deadlock detection – Recovery from deadlock.

Unit – 3 : Memory management strategies.

Memory: Management strategies – Swapping – Contiguous memory allocation – Paging – Structure of the page table – Segmentation. Virtual – Memory management – Demand paying – Page replacement. File system – File concept – Access methods – Directory structure – Protection.

Unit – 4 : File systems and I / O management.

Implementing file systems – File system structure - File system implementation – Directory implementation – Allocation methods – Free space management – Efficiency and performance – Recovery. Secondary storage structure – Overview of mass – Storage structure – Disk structure – Disk attachment – Disk scheduling – Disk management – Swap space management – RAID structure. I / O systems – Overview – I / O hardware – Application I / O interface – Kernel I / O subsystem – Transforming I / O requests to hardware operations.

FOR MERIT STUDENTS :

Security: - The security problem, User authentication, Program threats

Prescribed Text Book:

3. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating system principles, Seventh Edition, Wiley India Edition (2007)
   Chapters (1 to 13, 19, 21)

Reference Book:

13. William Stallings, Operating systems Internals and design principles, Fifth Edition, Pearson education (2007).
14. Andrew S Tanenbaum, Modern operating systems, Second Edition, Pearson Education.
15. Archer Harris J, Operating systems, Schaum outline series, Tata McGraw Hill (2006).
16. Davis and Raj Kumar, Operating systems A systematic view, Sixth Edition, Pearson Education (2007).
17. Bhatt, Introduction to operating systems: Concept and practice, Second Edition, PHI (2008).
18. Stallings, Operating systems – Internals and Design principles, Fifth Edition, PHI (2007).

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III B.Sc.(Computer Science): VI Semester : Paper 402N (2015 – 16 onwards)

Title: Web Technologies - Syllabus

Unit: I

Introduction: HTML, XML and the World Wide Web.
HTML: Basic HTML, The Document body, Text, Hyperlinks, Adding more formatting, Lists, Tables, Using colors and images, Images.
More HTML: Multimedia objects, Frames, Forms – towards interactivity, The HTML document head in detail, XHTML – An evolutionary markup.
Cascading style sheets: Introduction, Using styles: Simple examples, Defining your own styles, Properties and values in styles, Style sheets – A worked example, Formatting blocks of information, Layers.

Unit: II

An introduction to Java Script: What is dynamic HTML, Java Script, JavaScript - the basics, Variables String manipulation, Mathematical functions, Statements, Operators, Arrays and Functions.
Objects in Java Script: Data and objects in Java Script, Regular expressions, Exception Handling, Built in objects, Events.
Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, writing to a different frame, Rollover buttons, Moving images.

Unit: III

Programming in Perl Script : Why Perl ?, On-Line Document, The Basic Perl Program, Scalars, Arrays, Control Structures
Active Server Pages and Java: Active Server Pages, Java.
XML: Defining Data for Web applications: Basic XML, Document type definition, XML schema, Document Object Model, Presenting XML.

Unit: IV

Good Design: Structure, Tables versus Frames, Accessibility, Internationalization, Exercises.
Useful Software: Web browsers, Perl, Web servers, mod_perl, Databases, Accessing your ISP, Exercises.
Protocols: Protocols, IP and TCP, Hyper Text Transfer Protocol, Common Gateway interface, The Document Object Model, Introducing the Document Object Model, Exercises.
Case Study : The plan, the data.**FOR MERIT STUDENTS :**
CGI scripting : Introduction to CGI, developing CGI applications.

Prescribed Text Book:

3. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007).

Reference Book:

5. Paul S. Wang Sanda S. Katila, An Introduction to Web Design Plus Programming, Thomson (2007).
6. Robert W. Sebesta, Programming the World Wide Web, Third Edition, Pearson Education (2007).

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ECONOMICS **ECO 302N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

Module - I :

Indian agriculture - Industry and service sector - Nature and importance - Trends in agriculture and productivity - Factors determining productivity rural and credit, micro finance and self help groups (SHGS) - Agricultural price policy and food security.

Structure and growth of Indian industry - Industrial policies - 1948, 1956, 1991 growth and problems of small scale industries - FEMA - Disinvestment policy, Direct foreign investement, growing, importance of service sector in India.

Module - II : A.P. State Economy

GSDP - Sectoral of contribution and trends - Population trends - Dconographic dividend - Agricultural sector - Land use - Croping pattern - SEZ ;

Module - III : Planning - Objectives and Development

Books References :

1. G.M. Meier - Leading issues in Economic development
2. Reserve Bank of India - Hand Book of statistics on Indian Economy
3. Dhingra - Indian Economy
4. Datta and Sanbaram - Indian Economy
5. M.P. Todaro - Economic development
6. Telugu Academy pulications
7. Yojana

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ECONOMICS **ECO 402N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

Module - I :

Theories of International Trade - Inter - Regional and International trade - Importance of International trade - Theories of International trade - Theory of absolute advantage theory - Comparative cost theory - Hecksher and Ohilin theory - Terms of trade

Module - II : Protection and balance of payments - Forign trade in India

Tariffs - Meaning and defination of tariffs - Tariffs and their effects - Balance of payments - Disequilibrium in balance of payments - Measures to correct disequilibrium - Recent exim policy - WTO Impact trade in Agriculture products in India.

Books for reference:

1. B.P. Tyagi - Public Finance
2. H.T. Bhatia - Public Finance
3. J. Baghawathi - International Trade
4. C.D. Kindle Barger - International Economics
5. Telugu Academy publications
6. Yojana

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HISTORY **HIS 302N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

HISTORY OF MODERN WORLD (1815 - 1945 AD)

UNIT - I

Industrial revolution and rise of capitalism - Unification movements in Germany and Italy. Meizi restoration and modernisation of Japan.

UNIT - II

World between 1914 - 1945 - Rivalry among colonial powers - Imperialist hegemony - Asia after 1850 - Uropeon countries imperialism in Asia - fareast - Japan - Cheina - America opendoor policy Causes and consequences of first world war - World between the World Wars - League of nations, Fascism in Italy, Nazism in Germany, Militarism in Japan - Communist movements in Russia and China.

UNIT - III

Causes and consequences of Second World War - UNO

UNIT - IV

Post Second World War developments - Cold War - Rise of the third block.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Nationalism - Nationalist movements in Asia and Africa

2) 1911 - China revolution

3) Globalisation

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HISTORY **HIS 402N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

HISTORY AND CULTURE OF ANDHRA PRADESH SYLLABUS FROM 1870 TO 1956

UNIT - I

Social Reform and Literary Movements : Veeresalingam, Raghupathi Venkata Ratnam Naidu, Gurajada Appa Rao, Kommarraju Venkata Lakshmana Rao, Non Brahmin, Adi Andhra, Dalit, Self respect movements - New literary movements - Gurram Jashua, Boyi Bhimanna, Viswanath Satyannarayana, Rayaprolu Subba Rao, Sri Sri

UNIT - II

Freedom movement in Andhra : Vandemataram, Home rule, Non co - operation, Alluri Sitrarama Raju - Rampa Rebellion 1922 - 24 - Civil disobedience and Quit India Movements - Women participation in freedom movement. Revolutionary Associations in Andhra.

Political consciousness in Telangana : Nizam Andhra Mahasabha, Hyderabad state Congress, Razakars, Police Action and Accession of Telengana into Indian union.

UNIT - III

Leftist movements in Andhra and Telangana : Peasant armed struggel - Tribal uprisings - Komaram Bhimu - Bhoodan movement.

UNIT - IV

Movement for Seperate Andhra State : Andhra Mahila sabha - Sree Bagh Pact - Martyrdom of Potti Sreeramulu - Formation of Andhra State, 1953 - Visalandhra movement - State's re - organisation commission - Gentlemen's agreement - Formation of Andhra Pradesh in 1956.

History after formation of Andhra Pradesh - 1969 Jai Telengana movement - 1972 Jai Andhra movement.

ADVANCED TOPICS TO THE MERIT STUDENTS

1) Separate Andhra movement
2) Separate Telangana movement
3) Sri Krishna Report

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III B.Sc. VI SEM - MATHEMATICS : SYLLABUS (MAT 302N)

(With effect from the academic year 2015-2016)

MATRIX ALGEBRA AND VECTOR CALCULUS

MATRIX ALGEBRA

UNIT-1

Rank of a matrix – Rank of a matrix, elementary transformations, elementary matrix, equivalence of matrix, reduction to normal form, row and column equivalence of matrices, rank of a product of matrices, inverse of a matrix by using elementary transformations.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-2

Linear equations – System of linear equations, system of homogeneous linear equations, linearly independent solutions of homogeneous linear equations, condition for consistency for a system of nonhomogeneous linear equations, condition for a system of *n* equations in *n* unknowns to have a solution, methods of solving equations.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-3

Eigen values and Eigen vectors – Eigen values, Eigen vectors, properties of eigen values, nature of characteristic roots, relations between characteristic roots characteristic vectors, Cayley-Hamilton theorem.

(**2 short answer question, 2 long answer questions will be given in the examination)**

VECTOR CALCULUS

UNIT-4

Vector functions – Vector function of a scalar variable, derivative of a vector function.

Differential operators – Point functions, limit, continuity, directional derivative, gradient, level surface, angle between two surfaces, divergence, solenoid, curl, irrotational, differential operators, second order differential operators.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-5

Vector integration – Integration of vector function, line integral, surface integral, volume integral and problems on these integrals.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-6

Integral transformations – Gauss's divergence theorem, some deductions of Gauss's divergence theorem, Green's theorem in a plane, Green's identities, Stooke's theorem and problems on these theorems.

(**2 short answer question, 2 long answer questions will be given in the examination)**

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B. Sc. Mathematics, Vol. III, DEEPTI PUBLICATIONSTenali.

REFERENCE BOOK

1. A. R. Vasista, Matrices, Krishna PrakashanMandir, Meerut-250002.
2. V. VenkateswaraRao and others, A text book of B. Sc. Mathematics, Vol. III, S Chand & Co.
3. Shanti Narayana, Matrices, S. Chand & Co., New Delhi.
4. Shanti Narayana and P. K. Mittal, Text Book Vector Analysis, S. Chand & Co., New Delhi.
5. S. C. Mallik and SavithaArora, Mathematical Analysis, Wiley Estern Ltd.,
6. Murray. R. Spiegel, Vector Analysis, Schaum Series Publishing Company.

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III B.Sc. V SEM - MATHEMATICS : SYLLABUS (MAT 402N)

(With effect from the academic year 2015-2016)

NUMERICAL ANALYSIS

UNIT-1

Finite differences : Finite differences, difference operators – Algebraic properties of $\Delta, E,$ Symbolic relations and separation of symbols, Differences of a polynomial, Fundamental theorem of difference calculus – One or more missing terms – Factorial notation – Methods of representing a polynomial a factorial notation, Differences of zero.

(**3 short answer question, 2 long answer questions will be given in the examination)**

UNIT-2

Interpolation with equal intervals : Derivation of Newton Gregory formula for forward and backward interpolation and problems on them.

(**1 short answer question, 2 long answer questions will be given in the examination)**

UNIT-3

Central difference interpolation formula : Gauss's forward formula for equal intervals – Gauss's backward formula – Gauss's third formula – Stirling's formula – Bessel's formula – Everett's formula and problems on the above formulae.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-4

Interpolation with unequal intervals : Divided differences – Newton's formula – Lagrange's formula – Relation between divided differences and ordinary differences – problems on Lagrange and Newton's formula.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-5

Numerical differentiation : Derivatives using forward difference formula – Derivatives using backward difference formula – Derivatives using central difference formula – Maxima and minima of a tabulated function.

(**2 short answer question, 2 long answer questions will be given in the examination)**

UNIT-6

Numerical integration : The Trapezoidal rule – Simpson's 1/3 rule – Simpson's 3/8 rule – Weddle's rule – Romberg's integration.

(**2 short answer question, 2 long answer questions will be given in the examination)**

PRESCRIBED BOOK

Dr. A. Anjaneyulu, MODERN APPLIED ALGEBRA, DEEPTI PUBLICATIONS, Tenali.

REFERENCE BOOK

G. Birkhoff and T.C. Bartee MODERN APPLIED ALGEBRA, Mc. Graw-Hill Book Company, New York, 1970.

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PHYSICS **PHY 302N** 2015-16 onwards III B.Sc.,

SYLLABUS

VI SEMESTER

ELECTRICITY, ELECTROMAGNETIC WAVES AND ELECTRONICS

UNIT - III : Electricity, Electromagnetic Waves and Electronics

1. Varying currents and alternating currents : CR circuit, LR circuit, Growth and decay of currents, LCR circuit - Critical damping (qualitative).

Relation between current and voltage in pure R, C and L Circuits, Vector diagrams, L C R series and parallel circuits, Power factor, Q -factor.

2. Maxwell's equations and electromagnetic waves : Basic laws in integral form, Derivation of Maxwell's equations in differential form, Maxwell's wave equation of Plane electromagnetic waves, Production of electromagnetic waves (Hertz experiment), Poynting theorem.

UNIT-IV : Electronics

1. Semiconductors : PNP and NPN transistors, definations of CB,CE,CC configurations, input and output characteristics of NPN transistor with commen emitter configuration, hybrid parameters (definitions), Transistor as an amplifier, RC Coupled amplifier (qualitative), Phase shift oscillator (qualitative).

2. Digital principles : Binary arithmetics, Logic gates using discrete components, Truth tables, Half and full adders, De Morgan's theorems: Statement and Proof.

Reference Books :

1. Electricity and electronics Tayal

2. Electricity and Magnetism Brijlal and Subrammanayam

3. Electricity and Magnetism V.M.Smith

4. Digital Electronics Malvino

5.Unified Physics Vol-III Jai Prakash & Co

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POLITICS **POL 302N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

POLITICAL THOUGHT

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1. Western Political Thought : Hegal, T.H. Green and Karl Marx
2. Ancient Indian Political Thought
   a) Sources of Ancient Indian Political Thought
   b) Manu - Varna Dharma and Danda Nethi
   c) Kautilya
3. Modern Indian Political Thought
   a) Gandhi - Ahimsa and Satyagraha
   b) Nehru - Democratic Socialism
   c) Dr B.R. Ambedkar - Anhilation of Caste
   d) MN Roy - Radical Humanism
   e) J.P. - Total Revolution

*** Anti caste or self respect movements in India (A brief study)**
(For Academically Bright Students)

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POLITICS **POL 402N** 2015-16 onwards III B.A

SYLLABUS

VI SEMESTER

PRINCIPALS OF PUBLIC ADMINISTRATION

1. Principles of Organisation - Hierarchy, Span of control, Co-ordination, unity of command, Delegation of authority, Centralisation and Decentralisation.

2. Decision Making Theory - Herbert A. Simon

3. Financial Administration - Budget - Principles - Budgetary process - Comptroller and Auditor General.

4. Public Relations - Meaning and Importance

*** Women Empowerment (For Academically Bright Students)**

Books Recommended :

1. Prof. Mohit Bhattacharya : Public Administration, Theory & Practice
2. Chitra Ramachandram : Indian Public Administration
3. R.K. Arora : Indian Administration
4. Bharatadesa Palana : Telugu Academy

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SPL. ENGLISH **ENG 302NS** 2015-16 onwards III B.A.,

SYLLABUS

VI SEMESTER

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1. Drama: A Mid summer Nights Dream. (Detailed)
2. Drama: The Apple Cart. (Non - Detailed)

Further Reading (Advanced Reading) :

1. Hamlet - William Shakespeare

2. Henry IV - Part II - William Shakespeare

3. Pygmalion - G.B. Shaw
4. Murder in the Cathedral - T.S. Eliot

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SPL. ENGLISH **ENG 402NS** 2015-16 onwards III B.A.,

SYLLABU

VI SEMESTER

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1. History of English Language :

1. Characteristics of old English.
2. Characteristics of middle English.
3. Characteristics of modern English.
4. American English.
5. Indian words in English.
6. English as an international language.

2. History of literature : (Contribution of authors)

1. Chaucer
2. Spenser
3. Marlowe
4. Alexander Pope
5. John Keats
6. Charles Dickens
7. Mathew Arnold
8. T.S. Eliot.

3. Figures of speech :

1. Oxymoron
2. Litotes or understatement
3. Zeugma
4. Epigram
5. Irony
6. Antithesis
7. Paradox
8. Onomatopoeia
9. Alliteration
10. Euphemism

Further Reading (Advanced Reading) :

1. A background to the study of English literature - Birjadish Prasad

2. A History of English literature - Arthur Compton Rickett

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ZOOLOGY **ZOO 302N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

GENETICS, ANIMAL BIOTECHNOLOGY AND ORGANIC EVOLUTION

Unit - I

1.0. Genetics :

1.1. Genetic interactions – Incomplete dominance, co-dominance and epistasis

1.2. Identification of DNA as the genetic material – Griffith's experiment and hershey- Chase experiment

1.3. Human karyo typing, barr bodies, Lyon's hypothesis and amniocentesis

1.4. Chromosomal disorders – Autosomal and Allosomal

Unit - II

2.0. Animal Biotechnology :

2.1. Scope of biotechnology, cloning, vectors - Characters of vectors, plasmids

2.2. Gene cloning- Enzymatic cleavage of DNA, restriction endonucleases and ligation

2.3. Transgenesis and production of transgenic animals (Fish and Goat)

2.4. Application of stem cell technology in cell based therapy (Diabetes and Parkinson's disease)

Unit III

3.0. Organic Evolution :

3.1. Genetic basis of evolution, gene pool, gene frequencies, Hardy - Weinberg's law, forces of destabilization - natural selection, genetic drift, mutations, isolation and migration

3.2. Speciation – Allopatric and sympatric

FOR GIFTED STUDENTS ONLY

1. Protein synthesis
2. Human genome project
3. Cloning

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ZOOLOGY **ZOO 302NP** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

Animal Physiology :

1.0. Identification of organic substances - Carbohydrates, proteins and lipids

2.0. Unit oxygen consumption in an aquatic animal (fish or crab) – Demonstration only

3.0. Qualitative analysis of ammonia, urea and uric acid

4.0. Demonstration of salivary amylase

Genetics :

5.0. ABO blood group identification

6.0. Problems based on blood grouping

7.0. Karyo typing of human chromosomes (Human karyo typing figure on paper should be cut into different sets of chromosomes and students are asked to arrange in an order and comment on the idiogram)

8.0. Identification of genetic syndromes given on charts or photographs

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ZOOLOGY **ZOO 402N** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

CLINICAL SCIENCE

Unit - I

1.0. Hematology :

1.1. Blood composition and functions
1.2. Blood groups (ABO, Rh & MN) and transfusion problems
1.3. Blood diseases – Anaemia, leukemia, leucocystosis and leucopaenia
1.4. Biopsy and Autopsy - Clinical importance only
1.5. Cholesterol and its significance in cardio vascular problems
1.6. Blood sugar levels and diabetes

Unit - II

2.0. Immunology :

2.1. Types of immunity - Innate and acquired
2.2. Antigens - Haptenes and epitopes and their properties
2.3. Ig G - Structure and biological properties
2.4. Hypersensitivity - Immediate and delayed

Unit - III

3.0. Important Human Parasites :

3.1. Blood parasites - Structure, life cycle and clinical significance of *Plasmodium*
3.2. Intestinal parasites – Structure, life cycle and clinical significance of *Entamoeba hystolytica, Taenia solium, Ancylostoma duodenale* and *Enterobius vermicularis*

FOR GIFTED STUDENTS ONLY

BIOMEDICAL TECHNOLOGY

1. Diagnostic imaging	-	X - Ray
		CAT Scan
		MRI Scan
2. Monitoring bodies vital functions	-	ECG
		EEG
		ELISA

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ZOOLOGY **ZOO 402NP** 2015-16 onwards III B.Sc

SYLLABUS

VI SEMESTER

Aquaculture & Fisheries :

1.0 . Identification of important freshwater and marine edible fishes (Any five)

2.0. Identification of important edible prawn / crab / lobster / oyster (Any five)

Field Work :

Filed work is compulsory. Field trip to local fisheries / aquaculture unit is to be conducted and certified felid note book should be submitted at the time of practical examination. Five marks are allotted for the certified field record.

Clinical Science :

3.0. Identification of the following protozoan parasites :

3.1. *Entamoeba hystolitica*

3.2. *Giardia intestinalis*

3.3. *Plasmodium* - any two stages

4.0. Identification of the following helminth parasites :

4.1. *Taenia solium* – Entire, scolex and matured proglottid

4.2. *Enterobius vermicularis*

4.3. *Ancylostoma duodenale* – Male and female

5.0. Blood cell counting (RBC & WBC)

6.0. Estimation of hemoglobin (Sahli's method)

Animal Biotechnology :

7.0. Identification of vectors (Charts or photographs)

8.0. Identification of genetic disorders (Charts or photographs)

9.0. Identification of transgenic animals (Charts or photographs)

2015-18 Batch Syllabus

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GENERAL ENGLISH **ENG 101C** 2015-16 onwards I DEGREE

SYLLABUS

I SEMESTER

GENERAL ENGLISH

Prose :

1. The Conjurer's revenge
2. The best investement I ever made

Poetry :

1. Ode to Autumn
2. Dover beach

Non - detailed:

1. Little girls are wiser than men (short story)
2. Merchant of venice

Grammar & Composition:

1. Tenses
2. Synonyms and Antonyms
3. Correction of sentences
4. Writing the English words from Trascription
5. Writing the correct transcription of English words
6. Stress

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking - I
   Published by
   Foundation Books Pvt. Ltd., Cambridge house, New Delhi

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Business Economics **COM 104C** 2015-16 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ECONOMICS - I

Module – I Introduction

→ Economic activities

→ Distinction between economic and non - economic

→ Scope, Significance, and nature of economics

→ Micro, Macro – normative and positive economic analysis.

Module – II Demand, Utility analysis and theory of Production

→ Meaning of the demand – Types of demand, individual, company market.

→ Industry demand, Derived demand – Demand function

→ Law of demand – Law of diminishing marginal utility – Law of equi – Marginal utility

→ Consumer's surplus – Elasticity of Demand – Factors influencing elasticity of demand.

→ Law of production – Law of variable proportion theory - Returns to scale – Internal and external economies.

→ Cost – output relations. Cost function and concepts – Law of supply.

Module – III Indifferent curve analysis

→ Properties of indifferent curve

→ Indifferent curve map

→ Consumer surplus equilibrium

→ Price, income, substitution effect

→ Importance of indifferent curve

Reference Books :

1. Academy Book

2. Micro Analysis by vaiash

3. M.L. Jhingah

4. C.P. Chopra

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Business Statistics **COM 103C** 2015-16 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS STATISTICS - I

UNIT - 1

Introduction to Statistics :

Meaning, defination, importance and limitations of statistics - Collection of data - Primary and secondary data - [Sampling Random - Non - Random causes] - Schedule and Questionaire - Frequency distribution - Tabulation -

Laboratory work : Diagram and graphic presentation of data - using computers (Excel)

UNIT - 2

Measures of Central Tendency :

Defination, objectives and characteristics of measures of central tendency, types of averages: Arthimetic mean, Geomentric mean, Harmonic mean, Median, Mode, Deciles, Perceutiles, Properties of averages and their applications

Laboratory work : Calculations of average using computers.

UNIT - 3

Measures of Dispersion :

Meaning, defination, properties of dispersion - Range quartile deviation - Mean deviation - Standard deviation - co-efficient of variation

Laboratory work : Calculation of dispersion using computers.

UNIT - 4

Measures of Skewness :

Skewness defination - Karl pearson’s and Bowley’s measures of skewness - Normal distribution

Laboratory work : Calcualtion of skewness using computers.

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FINANCIAL ACCOUNTING **COM 101C** 2015-16 onwards I B.Com

SYLLABUS

I SEMESTER

FINANCIAL ACCOUNTING - I

Chapter - 1 Introduction to Accounting

History of Accounting - Accounting theory - Definition and meaning - Book - Keeping and Accounting - Scope of Accounting - Objectives of Accounting - Basic accounting concepts, users of accounting information - Advantages and Limitations. Functions of an accountant - Double entry system - Single entry system, Classification of accounts - Accounting process. Journal - Ledger - Trial Balance.

Chapter - 2 Subsidiary Books

Introduction - Advantages of Subsidiary Books. Types of Subsidiary Books - Cash - Books

Chapter - 3 Bank Reconciliation Statement

Cash book - pass book - need - Reasons for difference between cash book and pass book balances - Method of preparation of BRS - Favourable balance - preparation of BRS (overdrafts) preparation of BRS (from cash book and pass book directly)

Chapter - 4 Preparation of Trial Balance, Final Statements of Accounts:

Introduction - Importance of Trial Balance - Objectives - advantages - limitations - Final accounts of sole trader. Capital and Revenue expenditure - Trading Account - Manufacturing account - Profit and Loss account - Balance Sheet - Final accounts with adjustments.

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Fund. of Inform. Technology **COM 102C** 2015-16 onwards I B.Com

SYLLABUS

I SEMESTER

FUNDAMENTALS OF INFORMATION TECHNOLOGY - I

UNIT - 1

Introduction to Computers

Definition, charcteristics and limitations of computers - Elements of computers - Hard ware - CPU - Primary and Secondary Memory - Input and output devices.

UNIT - 2

Modern communications:

Communications - FAX, voice mail, and information services - Email - creation of e-mail id - group communication - Tele conferencing - video conferencing - File exchange - Band width - modem - Network topologies - Network types CAN, MAN, WAN and their architecture.

UNIT - 3

Operating Systems

Meaning, definition, functions and types of operating systems - Booting process - DOS - Internal and External commands - wild cards - Windows operating system - Desktop, start menu - Control panel, windows accessories.

UNIT - 4

M.S. Office:

Word processing - meaning and features of word processing - Advantages and applications of word processing - Parts of M.S.Word - Toolbars - creating - saving and closing a document - Opening and editing a document - moving and copying a text - Applying bullets and numbering - Insertion of objects - Date and time, Headers and Footers and Page Breaks - Spelling and Grammer checking - Mail Merge meaning – Aav Perpox - Creating merged letters.

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BOTANY **BOT 101C** 2015-16 onwards I B.Sc

SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, CRYPTOGAMS

UNIT I
20 hours

Diversity of microbes.

Introduction to Microbiology

1. Viruses: structure, replication & transmission, diseases: Ex. TMV, yellow vein clearing & controlling measures.
2. Bacteria - structure, nutrition, reproduction diseases - citus canker, leaf blight of rice
3. Cyanobacteria - life history of *Oscillatoria, Nostoc, Anabaena*- Economic, importance / pathogen, symptoms and control.

UNIT - II
20 hours

4. Algae: general account, economic inportance.
5. Structure, reproduction, life history and systematic position of *Oedogonium Vaucheria, Chara, Ectocarpus & Polysiphonia.*

UNIT - III
20 hours

Fungi:

6. General characters and out lines of classification of fungi
7. Structure, reproduction and life history of *Albugo, Peziza, Puccinia Alternaria*.

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CHEMISTRY **CHE 101C** 2015-16 onwards I B.Sc

SYLLABUS

I SEMESTER

INORGANIC CHEMISTRY & ORGANIC CHEMISTRY

Inorganic Chemistry - I

1-P- block elements:

Group - 13: Synthesis and structure of diborane and higher boranes (B_4H_{10} and B_5H_9) boron - nitrogen compounds ($B_3N_3H_6$ and BN) **- Weightage - 15 Marks**

Group - 14: Preparation and applications of silanes and silicones, graphitic compounds. **- Weightage - 5 + 5 Marks**

Group - 15: Preparation and reations of hydrazine, hydroxylamine, phosphazenes. **- Weightage - 5 + 5 Marks**

Group - 16: Classification of oxides based on (i) Chemical behaviour and (ii) Oxygen content. **- Weightage - 5 Marks**

Group - 17: Inter halogen compounds and pseudo halogens. **- Weightage - 15 Marks**

2. Chemistry of nobel gases :

General preparation, structure, bonding and reactivity of xenon oxides halides and oxy halides. **- Weightage - 15 Marks**

Organic Chemistry - I

1. Structural theory in organic Chemistry: - Weightage - 15 + 5 Marks

Types of bond fission and organic reagents (Electrophilic, Nucleophilic and free radical reagents including neutral moleculs like H_2O, NH_3 and $AlCl_3$)

Bond polarization:

Factors influencing the polarization of covalent bonds, electro nagativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance (or) mesomeric effect, application to (a) acidity of phenol and (b) acidity of carboxlic acids. Hyper conjugation and its application to stability of carbonium ions, free radicals and alkenes, carbanions, carbenes and nitrenes.

Types of organic reactions:

Addition - electrophitic - nucleophilic and free radical subsitution - electrophilic, nuleophilic and free radical. elimination - Examples (with mechanisms)

2. Alicyclic hydrocarbons (cycloalkanes) - Weightage - 15 + 5 Marks

Nomenclature, preparation by Freunds method, heating of dicarboxylic metal salts. Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, shability of cycloalkanes - Baeyer's - Strain theory. Sachse and Mohr predictions. Conformational structures of cyclobutane, cyclopentane, cyclohexane.

3. Benzene and its reactivity - Weightage - 15 + 5 + 5 Marks

Concept of resonance, resonance energy, heat of hydrogenation, heat of combustion of benzene, mention of c-c bond length and orbital picture of benzen. Concept of aromaticity - aromaticity (definition), Huckel's rule - application to benzenoid (benzene,

Napthalene) and non - Benzenoid compounds cyclopropeny! cation, cyclopentadienyl anion and tropylium cation.)

Reactions:

General mechanism of electrophilic substitution, mechanism of nitration. Friedel craft's alkylation and acylation. Orientation of aromatic substitution - definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and phenolic). Orientation effect of

(i). Amino, methoxy and methyl groups (ii). Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups (iii) Halogens (explanation by taking mimimum of one example from each type).

4. Polynuclear hydrocarbons: - Weightage - 5 Marks

Structure of napthalene and anthracene (molecular orbital diagram and resonace energy) Any two methods of preparation of napthalene and reactivity towards electrophlic substution. Nitration and sulfonation as examples.

Additional Syllabus (Without Examination) :

Mathematical Concepts : Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation of functions like , maxima and minima. Partial differentation and reciprocity relations. Integration of some useful / relevant functions. Permulations and combinations. Factorials - Probability.

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COMPUTER SCIENCE **CSC 101C** 2015-16 onwards I B.Sc

SYLLABUS

I SEMESTER

FUNDAMENTAL OF COMPUTER AND OFFICE AUTOMATION

UNIT - 1

Introduction : Identification of peripherals of a computer and assembling and dissembling of a personal computer.

Memory : Main memory, RAM, Cash, I/O units, secondary memory

Operating system : DOS commands, windows 98, 2000: working with files and folders running programs, using Recycle Bin

UNIT - 2

Ms-Office, MS-Word Basics

Headers and Footers, tables, Graphics, templates, Macros, Mail merge.

UNIT - 3

MS-Excel: work sheet, formatting, functions, charts, Graphics, worksheets as database linking.

UNIT - 4

Power Point: basics, crating Presenting, menus, toolbars, operating a presentation

Creating a new slide, deleting a slide, copying a slide, slide numbering, saving closing and printing.

UNIT - 5

MS-Access: creating database, tables, queries, forms, reports, sorting, displaying and printing.

PRESCRIBED BOOK: Computers and commonsense IVth edition

AUTHOR: ROGER HUNT, JOHN SHELLY chapter (1,2,3,4,7)

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ECONOMICS **ECO 101C** 2015-16 onwards I B.A

SYLLABUS

I SEMESTER

MICRO ECONOMICS

Module – I Introduction

® Economic activities

® Distinction between economic and non - economic

® Scope, Significance, and nature of economics

® Micro, Macro – normative and positive economic analysis.

Module – II Demand, Utility analysis and theory of Production

® Meaning of the demand – Types of demand, individual, company market.

® Industry demand, Derived demand – Demand function

® Law of demand – Law of diminishing marginal utility – Law of equi – Marginal utility

® Consumer's surplus – Elasticity of Demand – Factors influencing elasticity of demand.

® Law of production – Law of variable proportion theory - Returns to scale – Internal and external economies.

® Cost – output relations. Cost function and concepts – Law of supply.

Module – III Indifferent curve analysis

® Properties of indifferent curve

® Indifferent curve map

® Consumer surplus equilibrium

® Price, income, substitution effect

® Importance of indifferent curve

Reference Books :

1. Academy Book

2. Micro Analysis by vaiash

3. M.L. Jhingah

4. C.P. Chopra

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HISTORY **HIS 101C** 2015-16 onwards I B.A

SYLLABUS

I SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT - 1

Influence of Geography on History - Survey of the Sources - Pre-Historic period - Paleolithic Mesolithic and Neolithic cultures - Role of technology. Indus valley civilization - Its characteristic features.

Unit - 2

Vedic culture : Sources of material for the history of Aryans - Features of the Rigvedic culture - Later Vedic culture - Emergence of varna and caste system.

UNIT - 3

Rise of new religious movements : Causes and resucts Jainism - Parsvanath - Mahaveera and his teachings - Contribution of Jainism.

Buddhism : Life and teachings of Buddha.

UNIT - 4

History of Magadha upto Nandas - Alexander's invasion and its results.

Mauryan Period : Sources of Mauryan history - Chandra Gupta Maurya - Ashoka andhis dharma - Mauryan Administration - General conditions in Mauryan period.

Unit - 5

Post - Maurya period in North India - A brief survey of Kushans - Kaniska.

Gupta Period : Chandra Gupta - Samudra Gupta - Chandra Gupta II - Golden age of Gupta period - Gupta's administration - Fahien - Harshavardana - Hiuen - Tsang.

Rajputs : Origin - Political history - General conditions in Rajput period - Literature and fine arts under Rajputs.

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MATHEMATICS **MAT 101C** 2015-16 onwards I B.Sc

SYLLABUS

I SEMESTER

DIFFERENTIAL EQUATIONS, NUMBER THEORY & SOLID GEOMETRY

DIFFERENTIAL EQUATIONS

UNIT - 1

Formation of Differential equations, Differential equations of first order and first degree - Variables separable, Homogeneous differential equations, Equations reducible to homogeneous form.

(No question will be given in the examination)

Exact differential equations, integrating factors, Integrating factors of the form

(i) $\frac{1}{Mx+Ny}$ (ii) $\frac{1}{Mx-Ny}$ (iii) $\int_e f(x)dx$ (iv) $\int_e g(y)dx$ (v) $x^h y^k$

(1 short answer question, 1 long answer question will be given in the examination)

UNIT - 2

Linear differential equations of first order, Bernoulli's equations, Change of variables, Total differential equations, Simultaneous total differential equations, Equations of the form (i) Method of grouping (ii) Method of multipliers, Orthogonal trajectories.

(2 short answer questions, 1 long answer question will be given in the examination)

NUMBER THEORY

UNIT - 3

Divisibility, Division algorithm, Greatest common divisor, Euclidean algorithm, Least common multiple, Primes, Fundamental theorem of arithmetic, The number of divisors and their sum of a positive integer.

(2 short answer questions, 1 long answer question will be given in the examination)

SOLID GEOMETRY

UNIT - 4

Planes: General equation of a plane - Normal form - Transformation to the normal form - Determination of a plane under given conditions (i) Plane passing through a given point (ii) Plane passing through three given points (iii) Plane in terms of its intercepts on the axes (intercepts form) - Angle between two planes - Perpendicular distance of a point from the given plane - Distance between parallel planes - Two sides of a plane - plane passing through the intersection two given planes - Angle bisectors of two planes - Pair of planes.

(2 short answer questions, 1 long answer question will be given in the examination)

UNIT - 5

Lines: Equations of a line (i) General form (ii) Parametric form (iii) Symmetric form (iv) Two points form - Angle between a line and a plane. The condition that a given line may lie in a given plane - Coplanar lines. The condition that two given lines are coplanar.

(1 short answer question, 1 long answer question will be given in the examination)

UNIT - 6

Skew lines. The shortest distance between two skew lines. The length and equations of the line of shortest distance between two straight lines - Length of the perpendicular from a given point to a given line.

(2 short answer questions, 1 long answer question will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.
2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.
3. Ivan Niven, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY 101C** 2015-16 onwards I B Sc.

SYLLABUS
I SEMESTER
MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

Unit I Vector Analysis (10):

Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field. Vector integration, definitions of line integral, surface integral and volume integrals, Stoke theorem, Gauss theorem, and Greens theorem (statements only)

.

Unit II Mechanics of Particles(10)

Motion of variable mass system (explanation and theory), motion of a rocket, multi-stage rocket. Collisions in two dimensions and three dimensions, definitions of impact parameter and scattering cross-section, determination of scattering cross - section using Rutherford scattering.

Unit III Mechanics of rigid bodies(10)

Definition of Rigid body, rotational kinematic relations, equation of motion for a rotating body, definitions of angular momentum and inertial tensor. Euler's equations and its determination in three dimensions, precession of a top, description and working of a Gyroscope.

WAVES AND OSCILLATIONS

Unit IV Fundamentals of vibrations(12)

Simple harmonic oscillator, derivations of differential equation of simple harmonic oscillator and its solution, physical characteristics of Simple Harmonic Motion, derivation of energy of a simple harmonic oscillator, combination of two mutually perpendicular simple harmonic vibrations of same frequency, uses of Lissajous figures.

Unit V Damped and forced oscillations(12)

Damped harmonic oscillator, derivation of differential equation of damped harmonic oscillator and its solution. Power dissipation, logarithmic decrement, relaxation time, quality factor. Forced harmonic oscillator, derivation of differential equation of forced harmonic oscillator and its solution, amplitude resonance, velocity resonance .

Unit VI Complex vibrations(6)

Fourier theorem, statement and evaluation of Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave.

Textbooks

1. Berkeley Physics Course. Vol.1, **Mechanics** by C. Kittel, W. Knight, M.A. Ruderman - *Tata-McGraw hill Company Edition 2008*.

2. **Fundamentals of Physics**. Halliday/Resnick/Walker *Wiley India Edition 2007*.

3. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy *Orient Longman*.

4. **First Year Physics** - *Telugu Academy*.

5. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, *New Age International*.

6. **College Physics-I**. T. Bhimasankaram and G. Prasad. *Himalaya Publishing House*.

7. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. *McGraw Hill*.

8. **Waves and Oscillations**. N. Subramaniyam and Brijlal *Vikas Publishing House Private Limited*.

Reference Books

1. **Fundamentals of Physics** by Alan Giambattista et al *Tata-McGraw Hill Company* Edition, 2008.

2. **University Physics** by Young and Freeman, *Pearson Education, Edition 2005*.

3. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman *Pearson Education Eleventh Edition*.

4. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies*.

5. **Mechanics**. Hans & Puri. *TMH Publications*.

6. **Engineering Physics**. R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications*.

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POLITICS **POL 101C** 2015-16 onwards I B.A

SYLLABUS

I SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

1. Introduction: Definition, Scope and Importance of Political Science.
2. State - Nation and Civil Society
3. Sovereignty: Monism and Pluralism
4. Theories of Origin of the State: Social Contact and Evolutionary (Historical)
5. Concepts:
    a. Law: Sources of Law and Concept of Rule of Law
    b. Liberty and Equality - Their Relationship
    c. Theories and Kinds of Rights
6. Ideologies: Individualism, Fascism and Socialism

Reference Books:

1. Principles of Political science : AC Kapoor
2. Grammar of Politics : HJ Laski
3. Telugu Acadamy text book for I BA Politics
4. Political theory : Assirr vadam

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SPL. ENGLISH **ENG 101CS** 2015-16 onwards I B.A

SYLLABUS

I SEMESTER

SPECIAL ENGLISH

I. History of English Language : - F.T. Wood

a) The Evolution of standard English

b) Scandinavian Element

c) Latin Element

d) French Element

e) Word Formation (or) Growth of vocabulary.

f) Semantic changes (or) change of meaning.

II. POETRY : -

a) The Lyric

b) The Sonnet

c) The Ode

d) The Ballad

e) Dramatic monologue

f) The Elegy

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ZOOLOGY **ZOO 101C** 2015-16 onwards I B.Sc

SYLLABUS

I SEMESTER

ANIMAL DIVERSITY - NON CHORDATES

Unit - I

1.1 Brief history, Significance of Diversity of Non Chordates

1.2 **Protozoa**

1.2.1 General characters

1.2.2 Classification of Protozoa up to classes with examples

1.2.3 *Elphidium* (type study)

1.3 **Porifera**

1.3.1 General characters

1.3.2 Classification of Porifera up to classes with examples

1.3.3 *Sycon* – External Characters, Types of cells,

1.3.4 Skelton in Sponges

1.3.5 Canal system in sponges

Unit - II

2.1 **Coelenterata**

2.1.1 General characters

2.1.2 Classification of Coelenterata up to classes with examples

2.1.3 *Obelia* - External Characters, Structure of Polyp and Medusa

2.1.4 Polymorphism in coelenterates

2.1.5 Corals and coral reef formation

2.2 **Platyhelminthes**

2.1.1 General characters

2.1.2 Classification of Platyhelminthes upto classes with examples

2.1.3 *Fasciola hepatica* - External Characters, Excretory system, Reproductive System, Life History and pathogenicity

Unit - III

3.1 **Nemathelminthes**

3.1.1 General characters

3.1.2 Classification of Nemathelminthes up to classes with examples

3.2 **Annelida**

3.2.1 General characters

3.2.2 Classification of Annelida up to classes with examples

3.2.3 *Hirudinaria granulosa* - External Characters, Digestive System, Excretory System and Reproductive System

3.2.4 Coelomoducts

3.2.5 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost

Unit - IV

4.1 **Arthropoda**

4.1.1 General characters

4.1.2 Classification of Arthropoda up to classes with examples

4.1.3 Prawn - External Characters, Appendages, Respiratory system and Circulatory System

4.1.4 *Peripatus* - Structure and affinities

4.2 Mollusca

4.2.1 General characters

4.2.2 Classification of Mollusca up to classes with examples

4.2.3 Pearl formation in Pelecypoda

4.2.4 Torsion in gastropods

Unit - V

5.1 Echinodermata

5.1.1 General characters

5.1.2 Classification of Echinodermata up to classes with examples

5.1.3 Water vascular system in star fish

5.2 Hemichordata

5.2.1 General characters

5.2.2 Classification of Hemichordata up to classes with examples

5.2.3 *Balanoglossus* - Structure and affinities

5.3 Non-Chordata larval forms

5.3.1 Amphiblastula

5.3.2 Ephyra

5.3.3 Trochophore

5.3.4 Nauplius

5.3.5 Glochidium

5.3.6 Bipinnaria

5.3.7 Tornaria

REFERENCE BOOKS

1. The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .

2. Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.

3. Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.

4. Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.

5. Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.

6. A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.

7. A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.

8. Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

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GENERAL ENGLISH **ENG 102C** 2015-16 onwards I DEGREE

SYLLABUS

II SEMESTER

GENERAL ENGLISH - II

Prose :

1. I Have a Dream
2. Letter to a Teacher

Poetry :

1. Song 36 from Gitanjali
2. Telephone conversation

Non - detailed:

1. How far is the River
2. The boy comes Home

Grammar&composition:

1. Punctuation
2. Curriculum vitae
3. One word substitutes
4. Dialogue writing
5. Intonation

Text book:

1. English 2. Work
   (selections from poetry and prose)
   Published by
   Macmillan India limited
2. Building competency
   (A course in reading and writing English)
   Published by
   Maruthi publications.
3. A course in listening and speaking I
   Published by
   Foundation Books Pvt. Ltd.,
   Cambridge House, New Delhi

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HISTORY **HIS 102C** 2015-16 onwards I B.A

SYLLABUS

II SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT - 1

Sangam Age : Nature and characters of the Sangam literature.
Tamil kingdoms of the South.
General conditions of the Sangam age.

Satavahana period : Origin, founder, captial of the Andhra Satavahanas - Gowthami putra Satakarni - General conditions of the Satavahana age.

Palavan period : Origin - Brief history of Palavas - Contribution of Palavas to the history and culture of the South India.

Chola period : Raja Raja - Rajendra Chola - Achievements of Cholas - Cholas administration.

Chalukya period : Pulakesin II - Vengi Chalukyas - A brief history of Rashrakutas.

UNIT - 2

Kakatiyas period : Ganapathi Deva - Rudrama Devi - Pratapa Rudra II - Conditions in Kakatiya period - Contribution of Kakatiyas to arts and literature.

Vijayanagar period : Origin - Devaraya II - Krishna Devaraya - Fall of Vijayana empire - Contribution of Vijayanagara rulers to arts and literature.

UNIT - 3

Invasion of Arabs and its effects - Mahammad Ghajani's invasions - Mohammad of Ghor invasions.

Slave dynasty : Qutubuddin Aibak - Iltutmish - Sultana Razia - Balban.

Khilji dynasty : Jalaluddin - Allauddin Khilji - Conquests - Allauddin Khilji's administration.

Tughlak dynasty : Ghiasuddin - Mohommad Bin Tughlak and his reforms.

UNIT - 4

Impact of Islam on Indian culture - Bhakti and sufi movements.

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MATHEMATICS **MAT 102C** 2015-16 onwards I B.Sc

SYLLABUS

II SEMESTER

DIFFERENTIAL EQUATIONS, NUMBER THEORY & SOLID GEOMETRY

DIFFERENTIAL EQUATIONS

UNIT - 1

Higher order linear differential equations: Linear differential equations with constant coefficients, Solution of homogeneous linear differential equations of order n with constant coefficients, Solution of the non-hompgeneous linear differential equations with constant coefficients by means of polynomial operators. Methods of finding particular integral of $f(D)y=Q$ when $Q(x)$ is of the form i) be^{ax} ii) b sin ax or b cos ax iii) bx^k and $P(D) = D - a_0$, $a_0 0$ iv) bx^k and $P(D) = a_n D^n + a_{n-1} D^{n-1} + \ldots a1D$ v) $e^{ax} V$, where V is a function of x vi) be^{ax} and $P(a)=0$ vii) xV, where V is any function x

(3 short answer questions, 1 long answer question will be given in the examination)

UNIT - 2

Linear differential equations with non-constant coefficients - General solution in terms of nonsolution of the completary function, General by changing the dependentate variable, General solution by chaining independent variable, Method of variation of parameters, The cauchy - Euler equation.

System of linear differential equations - Solution of a system of linear equations with constant coefficients, An equivalent triangular system, Degenerate case :

$p_1(D)p_4(D)-p_2(D)p_3(D)=0$

(1 short answer question, 1 long answer question will be given in the examination)

NUMBER THEORY

UNIT - 3

Congruent modulo a positive integer, Residue classes, Linear congruences, solution of linear congruence, number of incongruent solutions, Euler's - function, Fermat's theorem, Euler's theorem, Wilson's theorem, Lagrange's theorem.

(1 short answer question, 1 long answer question will be given in the examination)

SOLID GEOMETRY

UNIT - 4

Spheres: Definition and equation of the sphere - Equation of the sphere through four given points - plane sections of a sphere. Intersection of two spheres - Equation of a circle. Sphere through a given circle - Intersection of a sphere and a line. Power of a point - Tangent line and tangent plane of a sphere - plane of contact. Polar plane. Pole of plane, Conjugate points, Conjugate planes.

(2 short answer questions, 1 long answer question will be given in the examination)

UNIT - 5

Spheres: Angle of intersection of two spheres. Conditions for two spheres to be orthogonal - Radical plane. Radical line. Radical centre - Coaxial system of spheres. Simplified form of a coaxal system of spheres. Limiting points of a coaxal system of spheres.

(1 short answer question, 1 long answer question will be given in the examination)

UNIT - 6

The cone: Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve - Enveloping cone - Quadratic cone - Equations of cones with vertex at origin and homogeneous - Condition that the general equation of the second degree should represent a cone - Condition that a cone may have three mutually

perpendicular generators - Intersection of a line and a quadric cone - Tangent lines and tangent plane at a point - Condition that a plane may touch a cone - Reciprocal cones - Intersection of two cones with a common vertex - Right circular cone - Equation of the right circular cone with a given vertex, axis and semi-vertical angle.

(2 short answer questions, 1 long answer question will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjeneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.
2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.
3. Ivan Niven, Herbert, Herbert S. Zuckerman, An introduction to the Theory of Numbers, Wiley Eastern Ltd.

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PHYSICS **PHY 102C** 2015-16 onwards I B Sc.

SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

UNIT I Mechanics of continuous media(8)

Elastic constants of isotropic solids (Y, K and n), derivation of relation between elastic constants (Y, K and n), Poisson's ratio and expression for Poisson's ratio in terms of Y, K and n. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, cantilever with an end load .

UNIT II Central forces(12)

Central forces, definition of central forces with examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force, gravitational field (definiton), motion under inverse square law, Kepler's laws statements, derivation of Kepler's laws.

UNIT III Special theory of relativity(10)

Relativity (definition), frames of references , difference between inertial and non - inertial frames of reference, Galilean transformations, absolute frames of reference, Michelson-Morley experiment, postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, mass-energy relation.

WAVES AND OSCILLATIONS

UNIT IV Vibrations of bars and pendulams(12)

Longitudinal waves(definition only), properties of longitudinal waves, velocity of longitudinal vibrations in bar, longitudinal vibrations of a bar (i) bar fixed at both ends ii) bar fixed at the mid point, torsional pendulum - measurements of rigidity modulus (experiment), compound pendulum - measurement of acceleration due to gravity (experiment).

UNIT V Vibrating Strings (12)

Transverse waves, properties of transverse waves, difference between longitudianl and transverse waves, transverse wave propagation along a stretched string, wave equation - general solution of wave equation, simple harmonic solution of wave equation, velocity of transverse waves along a stretched string, modes of vibration of stretched string clamped at both ends, harmonics and overtones, laws of transverse vibrations (laws only).

UNIT VI Ultrasonics(6)

Ultrasonics, properties of ultrasonic waves, production of ultrasonics by piezo electric method, production of ultrasonics by magnetostriction method, detection of ultrasonic waves - piezo - electric method, Kundt's tube and sensitive flame methods, determination of wavelength and velocity of ultrasonic waves by Sear's method. Applications of ultrasonic waves.

Textbooks

1. Berkeley Physics Course. Vol.1, **Mechanics** by C. Kittel, W. Knight, M.A. Ruderman - *Tata-McGraw hill Company Edition 2008.*

2. **Fundamentals of Physics**. Halliday/Resnick/Walker *Wiley India Edition 2007*.

3. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy *Orient Longman*.

4. **First Year Physics** - *Telugu Academy*.

5. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, *New Age International*.

6. **College Physics-I**. T. Bhimasankaram and G. Prasad. *Himalaya Publishing House*.

7. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. *McGraw Hill*.

8. **Waves and Oscillations**. N. Subramaniyam and Brijlal *Vikas Publishing House Private Limited*.

Reference Books

1. **Fundamentals of Physics** by Alan Giambattista et al *Tata-McGraw Hill Company* Edition, 2008.

2. **University Physics** by Young and Freeman, *Pearson Education, Edition 2005*.

3. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman *Pearson Education Eleventh Edition*.

4. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies*.

5. **Mechanics**. Hans & Puri. *TMH Publications*.

6. **Engineering Physics**. R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications*.

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POLITICS **POL 102C** 2015-16 onwards I B.A

SYLLABUS

II SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

1. Forms of Government:
    a. Democracy: Direct and Indirect
    b. Unitary and Federal
    c. Parliamentary and Presidential system
2. Theory of Separation of Powers
3. Organs of Government
    a. Legislature: i. Unicameral and Bi-cameral
        ii. Powers and Functions
    b. Executive: i. Powers and Functions
    c. Judiciary: i. Powers and Functions
        ii. Independence of Judiciary and Judicial Review
4. Electorate and representation.

Books Recommended:

1. Principals of Political Science : Prof. A.C. Kapoor
2. Grammar of Politics : Laski H.J.
3. Substance of Politics : A. Appadorai
4. Political Theory : Ashirvadam
5. Political Theory : O P Gupta
6. Political ideologies : Baradat, Prentice Hall of India.
   Their Origins and Impact

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SPL. ENGLISH **ENG 102CS** 2015-16 onwards I B.Sc

SYLLABUS

II SEMESTER

SPECIAL ENGLISH - II

I. Drama :

a. Proposal - Anton Chekov

b. Mother's day - J.B. Priestley

II. Fiction

a. The Interview - Kushwant Singh

b. The Gift of the Maji - O' Henry

c. The Tell – Tale heart - Edgar Allan poe.

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ZOOLOGY PRACTICALS **ZOO 102CP** 2015-16 onwards I B.Sc

SYLLABUS

II SEMESTER

ANIMAL DIVERSITY - CHORDATES

Unit - I

1.1 General characters of Chordata

1.2 Prochordata

1.2.1 Salient features of Cephalochordata

1.2.2 Structure of *Branchiostoma*

1.2.3 Affinities of Cephalochordata

1.2.4 Salient features of Urochordata

1.2.5 Structure and life history of *Herdmania*

1.2.6 Significance of Retrogressive metamorphosis

Unit - II

2.1 Cyclostomata

2.1.1 General characters of Cyclostomata

2.1.2 Comparision of the *Petromyzon* and *Myxine*

2.2 Pisces

2.2.1 General characters of Fishes

2.2.2 Classification of fishes up to sub - class level with examples

2.2.3 *Scoliodon* - External features, Digestive system, Respiratory system, Heart, Brain

2.2.4 Migration in Fishes

2.2.5 Types of Scales

2.2.6 Dipnoi

Unit - III

3.1 Amphibia

3.1.1 General characters of Amphibian

3.1.2 Classification of Amphibia upto orders with examples.

3.1.3 *Rana hexadactyla* - External features, Digestive system, Respiratory system, Heart, Brain

3.2 Reptilia

3.2.1 General characters of Reptilia

3.2.2 Classification of Reptilia upto orders with examples

3.2.3 *Calotes* - External features, Digestive system, Respiratory system, Heart, Brain

3.2.4 Identification of Poisonous snakes and Skull in reptiles

Unit - IV

4.1 Aves

4.1.1 General characters of Aves

4.1.2 Classification of Aves upto subclasses with examples.

4.1.3 *Columba livia* - External features, Digestive system, Respiratory system, Heart, Brain

4.1.4 Migration in Birds

4.1.5 Flight adaptation in birds

Unit - V

5.1 Mammalia

5.1.1 General characters of Mammalia

5.1.2 Classification of Mammalia upto sub - classes with examples

5.2 Comparision of Prototherians, Metatherians and Eutherians

5.3 Dentition in mammals

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GENERAL ENGLISH **ENG 201C** 2016-17 onwards II DEGREE

SYLLABUS

III SEMESTER

GENERAL ENGLISH

Unit - I

Prose :

1. M.K. Gandhi : Shyness My Shield (From the story of My Experience with Truth)
2. Alexis C. Madrigal : Why People Really Love Technology : An Interview with Genevieve Bell

Unit - II

Poetry :

1. Gabriel Okara : Once upon a Time
2. Seamus Heaney : Digging

Unit - III

Short Story :

1. Jhumpa Lahiri : The Interpreter of Maladies
2. Shashi Deshpande : The Beloved Charioteer

Unit - IV

One act play

Gurajada Appa Rao : Kanyasulkam, translated by C. Vijayasree and T. Vijaya Kumar (Acts I & II)

Unit - V

Language activity

1. Classroom and laboratory activities
    - i. JAM sessions
    - ii. Note taking
    - iii. Reporting for the media
    - iv. Expansion of an idea
2. Classroom activity
    - i. Transformation of sentences (Simple - Complex - Compound sentences)
    - ii. Note making
    - iii. Report writing
    - iv. Writing for the media

Note : In classroom instruction it may be ensured that the theoretical and practical components of CSS - II complement the language activity in this Semester.

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BANKING - THEORY AND PRACTICE **COM 303C** 2016-17 onwards II B.Com

SYLLABUS

III SEMESTER

BANKING - THEORY AND PRACTICE

Unit-I: Introduction :

Meaning & Definition of Bank – Functions of Commercial Banks – Kinds of Banks - Central Banking Vs. Commercial Banking.

Unit-II: Banking Systems :

Unit Banking , Branch Banking, Investment Banking- Innovations in banking – E banking - Online and Offshore Banking , Internet Banking - Anywhere Banking - ATMs - RTGS.

Unit-III: Banking Development :

Indigenous Banking - Cooperative Banks, Regional Rural banks, SIDBI, NABARD - EXIM Bank.

Unit-IV: Banker and Customer :

Meaning and Definition of Banker and customer – Types of Customers - General Relationship and Special Relationship between Banker and Customer - KYC Norms.

Unit-V: Collecting Banker and Paying Banker :

Concepts - Duties & Responsibilities of Collecting Banker – Holder for Value – Holder in Due Course – Statutory Protection to Collecting Banker - Responsibilities of Paying Banker - Payment Gateways.

Books for Reference :

1. Banking Theory: Law & Practice : K P M Sundram and V L Varsheney
2. Banking Theory, Law and Practice : B. Santhanam; Margam Publications
3. Banking and Financial Systems : Aryasri
4. .Introduction to Banking : Vijaya Raghavan
5. Indian Financial System : M.Y.Khan
6. Indian Financial System : Murthy & Venugopal

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Business Organisation **COM 302C** 2016-17 onwards II B.Com

SYLLABUS

III SEMESTER

BUSINESS ORGANISATION

Unit-I – Introduction :

Concepts of Business, Trade , Industry and Commerce – Features of Business -Trade Classification - Aids to Trade – Industry – Classification – Relationship of Trade, Industry and Commerce.

Unit II- Business Functions and Entrepreneurship :

Functions of Business and their relationship - Factors influencing the choice of suitable form of organization – Meaning of Entrepreneurship – Characteristics of a good entrepreneur - Types – Functions of Entrepreneurship.

Unit –III – Forms of Business Organizations :

Sole Proprietorship – Meaning – Characteristics – Advantages and Disadvantages – Partnership - Meaning – Characteristics- Kinds of partners – Advantages and Disadvantages – Partnership Deed – Hindu-undivided Family – Cooperative Societies.

Unit-IV- Joint Stock Company :

Joint Stock Company – Meaning – Characteristics –Advantages – Kinds of Companies - Differences between Private Ltd and Public Ltd Companies.

Unit-V- Company Incorporation :

Preparation of important Documents for incorporation of Company – Memorandum of Association – Articles of Association – Differences Between Memorandum of Association and Articles of Association - Prospectus and its contents.

Reference Books

1. C.D.Balaji and G. Prasad, Business Organization - Margham Publications, Chennai.
2. R.K.Sharma and Shashi K Gupta, Business Organization - Kalyani Publications.
3. C.B.Guptha, Industrial Organization and Management, Sultan Chand.
4. Y.K.Bushan, Business organization and Management, Sultan Chand.
5. Sherlekar, Business Organization and Management, Himalaya Publications

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CORPORATE ACCOUNTING **COM 301C** 2016-17 onwards II B.Com

SYLLABUS

III SEMESTER
CORPORATE ACCOUNTING

Unit-I :

Accounting for Share Capital - Issue, forfeiture and reissue of forfeited shares- concept & process of book building - Issue of rights and bonus shares - Buyback of shares (preparation of Journal and Ledger).

Unit-II :

Issue and Redemption of Debentures - Employee Stock Options – Accounting Treatment for Convertible and Non-Convertible debentures (preparation of Journal and Ledger).

Unit –III :

Valuation of Goodwill and Shares: Need and methods - Normal Profit Method, Super Profits Method – Capitalization Method - Valuation of shares - Need for Valuation - Methods of Valuation - Net assets method, Yield basis method, Fair value method (including problems).

Unit – IV :

Company Final Accounts: Preparation of Final Accounts – Adjustments relating to preparation
of final accounts – Profit and loss account and balance sheet – Preparation of final accounts using computers (including problems).

Unit –V :

Provisions of the Companies Act, 2013 relating to issues of shares and debentures - Book Building- Preparation of Balance Sheet and Profit and Loss Account – Schedule-III.

Reference Books:

1. Corporate Accounting – Haneef & Mukherji,
2. Corporate Accounting – RL Gupta & Radha swami
3. Corporate Accounting – P.C. Tulsian
4. Advanced Accountancy: Jain and Narang
5. Advanced Accountancy : R.L. Gupta and M.Radhaswamy, S Chand.
6. Advanced Accountancy : Chakraborthy
7. Modern Accounting: A. Mukherjee, M. Hanife Volume-II McGraw Hill
8. Accounting standards and Corporate Accounting Practices: T.P. Ghosh Taxman
9. Corporate Accounting: S.N. Maheswari, S.R. Maheswari, Vikas Publishing House.
10. Advanced Accountancy: Arutanandam, Raman, Himalaya Publishing House.
11. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand & Company Ltd.,
12. Management Accounting: Shashi K. Gupta, R.K. Sharma, Kalyani Publishers.

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BOTANY **BOT 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

PLANT TAXONOMY AND EMBRYOLOGY

UNIT – I : INTRODUCTION TO PLANT TAXONOMY (12hrs)

1. Fundamental components of taxonomy (identification, nomenclature, classification)
2. Taxonomic resources: Herbarium- functions& important herbaria, Botanical gardens, Flora, Keys- single access and multi-access.
3. Botanical Nomenclature- Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).

UNIT – II : CLASSIFICATION (12 hrs)

1. Types of classification- Artificial, Natural and Phylogenetic.
2. Bentham & Hooker's system of classification- merits and demerits.
3. Engler & Prantle's system of classification- merits and demerits
4. Phylogeny – origin and evolution of Angiosperms

UNIT –III : SYSTEMATIC TAXONOMY-I (12hrs)

1. Systematic study and economic importance of the following families:

Annonaceae, Brassicaceae, Rutaceae, Curcurbitaceae, and Apiaceae.

UNIT –IV : SYSTEMATIC TAXONOMY-II (12hrs)

1. Systematic study and economic importance of plants belonging to the following families:

Asteraceae, Asclepiadaceae, Lamiaceae, Ephorbiaceae, Arecaceae,and Poaceae.

UNIT – V: EMBRYOLOGY (12hrs)

1. Anther structure, microsporogenesis and development of male gametophyte.

2. Ovule structure and types; Megasporogenesis, development of Monosporic, Bisporic and Tetrasporic types (*Peperomia ,Drusa, Adoxa*) of embryo sacs.

3. Pollination and Fertilization (out lines) Endosperm development and types.

4. Development of Dicot and Monocot embryos, Polyembryony.

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CHEMISTRY **CHE 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

INORGANIC CHEMISTRY AND ORGANIC CHEMISTRY

Unit - I (Inorganic Chemistry)

I. Chemistry of d - block elements: **Weightage : 15+5+5**

Variable oxidation states - Their relative stability. Discussion of oxidation states with reference to ionic and covalent nature ; acidic and basic nature; oxidising and reducing nature. Colour and spectral behaviour of transition metal ion complexes. d-d transitions and origin of the colour - Explanation of absorption specturm of complex. Magnetic behaviour - Paramagnetism and diamagnetism - Definition - Their microscopic origin - Relationship between magnetic moment and number of unpaired electrons.

Complex formation behaviour. Factors influencing the stability of complexes - Nature of the metal ion such as charge, size and electronic configuration; nature of the ligand - basicity, tri and polydentate character; back bonding. Comparitive treatment of second and third transition series with their 3d analogues.

II. Chemistry of f - block elements: **Weightage : 15+5**

Position in the periodic table. Lanthanide contraction - Its causes and consequences - Anomalous behaviour of Post - Lanthanides magnetism - magnetic moment curve - Anamolies and explanation. Complexation - Type of donor ligand preferred. Most common coordination number. Separation of Lanthanides of ion-exchange and solvent extraction methods.

Chemistry of actinides - Actinide contraction - Comparison with Lanthanides with respect to spectral properties, magnetic behaviour, complex forming nature.

III. Theories of bonding in metals : **Weightage : 15**

Free - Electron theory - Valance bond theory - Their key postulates - Explanation of metallic properties like electrical and thermal conductivity with the help of these theories - Limitations - Band theory of metals - Formation of conduction band and valence band; explanation of properties, of conductors, semiconductors and insulators.

IV. Metal Carbonyls : **Weightage : 5+5**

Definition : Classification with examples - Nature of M - C = O bond. EAN rule with examples - Structure and hybridization in

Unit - II (Organic Chemistry) **Weightage : 15**

I. Halogen Compounds :

Nucleophilic aliphatic substitution reactions - Classification into SN1 and SN2. Energy profile diagrams of SN1 and SN2 reactions. Stereo chemistry of SN2 (Walden inversion) and SN1 (Recemisation) reactions. Explanation of both by taking the example of optically active alkylhalide like 2 - bromobutane - Ease of hydrolysis - Comparison of allyl, benzyl, alkyl, vinyl and arylhalides. Nature of nucleophile, leaving group, solvent, SNi and neighbouring group participation.

II. Hydrogy Compounds : **Weightage : 5+5**

Alcohols : Preparation with hydroboration reaction, Grignard synthesis of alcohols

Phenols : Preparation from diazonium salts - Aryl, sulphates - Cumene (with mechanism)

Properties of Phenols : Acidic nature of phenols - Ease of formation of alkoxide / phenoxide ions and their reaction with R - Y - Esterification by acids (with mechanism) - Dehydration of alchols - Special reactions of phenols with mechanism - Bromination - Kolbe - Schmidt reaction - Reimer - Tiemann reaction.

Poly hydroxy compounds : Pinacol - Pinacolone rearrangement

III. Carbonyl Compounds : **Weightage : 15+5+5**

Synthesis of aldehydes from acid chlorides, synthesis of ketones from nitrites and carboxylic acids.

Physical Properties : Absence of hydrogen bonding - keto - enol tautomerism, reactivity of carbonyl groups in aldehydes and ketones.

Chemical Properties : Nucleophilic addition reactions with a) b) c) d) 2, 4 - DNP with mechanism. Halogenation using

Base Catalysed Mechanism : a) Aldol b) Cannizzaro c) Perkin d) Benzoin condensation e) Halofrom reaction f) Knoevenagel reaction

Oxidation of aldehydes : Baeyer - Villiger - Oxidation of ketones with mechanism

Reduction : Wolf - Kishner reduction. MPV reduction - Reduction with and

Analysis of aldehydes and ketones : With a) 2, 4 - DNP test b) Tollen's test c) Fehling test d) Schiff's test e) Halo form test all with equations.

IV. Active methylene Compounds : **Weightage : 15+5**

Acetoacetic esters : Preparation by claisen condensation, Keto - enol tautomerism. Acid hydrolysis and Ketonic hydrolysis. Preparation of a) monocarboxylic acids b) di carboxylic acids. Reaction with urea.

Synthetic applications : Preparation of a) Monocarboxylic acids (Propionic acid & n-butyric acid) b) dicarboxylic acids (Succinic acid and adipic acid) c) unsaturated carboxylic acid (Crotonic acid) Reaction with Urea.

Additional syllabus (without examination)

Food Analysis : Moisture, ash, crude protein, fat, crude fibre, carbohydrates, calcium, potassium, sodium and phosphate. Food adulteration - Common adulterants in food, contamination of food stuffs. Microscopic examination of foods for adulterants. Pesticide analysis in food products. Extraction and purification of sample. HPLC. Gas chromatography for organophosphates. Thin - layer chromatography for identification of chlorinated pesticides in food products.

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COMPUTER SCIENCE **CSC 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

OBJECT ORIENTED PROGRAMMING USING JAVA

UNIT I :

Object Oriented Programming: Introduction to OOP, Objects and Classes, Characteristics of OOP, Difference between OOP and Procedure Oriented Programming, Summary

Introduction to Java Programming : Introduction, Features of Java, Comparing Java and other languages, Applications and Applets, Java Development Kit, Prerequisites for Compiling and Running Java Programs.

UNIT II :

Java Language Fundamentals : The building Blocks of Java, Data types, Variable declarations, Wrapper classes, Operators and Assignment, Control Structures, Arrays, Strings, The String Buffer Class.

Java as an OOP Language : Defining classes, Modifiers, Packages, Interfaces.

UNIT III :

Exception Handling : Basics of Exception Handling in Java, Exception Hierarchy, Constructors and Methods in Throw class, Unchecked and Checked exceptions, Exception Handling with Method Overriding, Custom Exception

Multithreading : An Overview of Threads, Creating Threads, Thread Life cycle, Thread priorities and Thread scheduling, Thread synchronization, Thread groups, Communication of Threads.

UNIT IV :

Files and I/O Streams: An Overview of I/O streams, Java I/O, File streams, File Input stream and File output stream, Filter streams, Random Access File, Serialization.

Applets : Introduction, Java applications versus Java Applets, Applet Life cycle, working with Applets, The HTML Applet Tag.

UNIT V :

Database Handling using JDBC : An Overview of DBMS, JDBC Architecture, working with JDBC, Processing Queries, The Transactions commit and Rollback, Handling Exceptions, Mapping Database types to java, Accessing Metadata, Sample Programs to Handle Database.

The Abstract window Toolkit : Introduction, Drawing with crystals class, class Hierarchy of AWT, Event Handling, AWT controls, Layout Managers, The Java2D, Java2d Shapes.

TEXT BOOKS

1. H.M.Deitel, P.J.Deitel, “Java How to Program”, Sixth Edition, Pearson Education, 2007

2. E. Balagurusamy, “Programming with Java”, TMH, 2014, 978-9351343202, 480 pages

REFERENCE BOOKS

1. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press (2008)

2. Programming In Java By Sachin Malhotra And Saurabh Choudhary From Oxford University Press

3. James Gosling, Bill Joy, Guy Steele, Gilad Bracha, and Alex Buckley, The Java Language Specification, March 2014, Download PDF: http://docs.oracle.com/javase/specs/jls/se8/jls8.pdf

4. Timothy Budd, “Understanding Object-Oriented Programming with Java”, Pearson Education, 2007

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MACRO ECONOMICS **ECO 201C** 2016-17 onwards II B.A

SYLLABUS

III SEMESTER

MACRO ECONOMICS

Unit - 1

Meaning, definition of Macro Economics - Importance of Macro Economics- Difference between Micro and Macro Economics - Paradox of Macro Economics -Limitations

Unit - 2

National Income - Definitions, Concepts of National Income - Measurement of National Income- Circular flow of Income in Two, Three and Four Sector Economy.

Unit - 3

Classical theory of Employment - Say's Law of Markets.

Unit - 4

Keynesian Theory of Employment - Consumption function – Investment Function - Marginal Efficiency of Capital (MEC)- Concepts of multiplier and accelerator

Unit - 5

Meaning and Functions of Money - Classification of money - Gresham's Law - RBI classification of Money. Theories of Money - Fisher's Quantity theory of Money Cambridge approach (Marshall, Pigou, Robertson & Keynes).

REFERENCES :

1. G.Ackley - "Macro Economics Theory and Policy", Collier Macmillan, 1978.
2. E.Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.
3. Central Statistical Organisations - "National Accounts Statistics".
4. R.Dornbush, s.Fisher and R.Startz - "Macro Economics", Tata Mc.Graw Hill, 9/e, 2004.
5. M.L.Seth-"Macro Economics", Lakshmi Narayana Agarwal, 2015.
6. K.P.M. Sundaram - "Money, banking & International Trade", Sultan Chand, 2010.
7. Dillard, D - "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. M.N.Mish ra & S.B.Mishra - "Insurance Principles & Practice" S.Chand 2012.
9. Bharati V.Pathak "The Indian Financial System Markets. Institutions & Services". Pearson 2008.
10. Telugu Academy Publication

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HISTORY **HIS 201C** 2016-17 onwards II B.A

SYLLABUS

III SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

Survey of sources - Political situation in India at the time of Babu invations. Establishment of Mughal empire - Sur interrugnam - Brief survey of political history upto 1707 AD. Decline and disintegration of Mughal empire - Rise and regional powers - Marathas Sivaji, Administration Sikhs

UNIT-2

Polity and administration - Society - Social composition - Ulema - Nobility - Peasantry - Artiswans - Saves - Status of women

Economy : Agriculture industries, trade and commerce

Economic and technological development : Towers and cities of Mughal India - Religion - Hindu - Muslim relations - Composite culture, education, literature, art, architecture and fine arts

UNIT-3

Advent of European powers - Portuguese, Dutch, English and French. Expansion and consolidation of British empire - Wars - Diplomacy - Policies pursued - Subsidiary alliance - Doctrine of Lapse

UNIT-4

Economic policies and changes - Mercantilism and free - Trade policies - Land revenue settlements - Permanent - Ryotwari - Mahalwari stystems - Intigration

Commercialization of agriculture - Condition of peasants - Famines - Decline of cottage industries (de-industrialization)

UNIT-5

Anti - colonial upsurge - Peasant and tribal revolts - 1857 revolt - Causes : Results and nature mangal pande, Bhadur Shah - II, Tantiyatope, Jantia Lope, Jhansi Lakshmi Bai, Nanasaheb.

References :

1. RC Majundar, HC Rayachandhuri and Kalikinkar Datta - An advanced history of India Part - II - Medieral India
2. LP Sharma, The Mughal empire, New Delhi, 1988
3. LP Sharma, History of Medieral India, 1000-1740 AD 2nd ed. (1987)
4. CA Bayly, Indian society and the making of the British empire
5. Rajat K Ray, ed, enterprenurship and industry in India, 1800-1947
6. Bipan Chandra, Rise and growth of economic nationalism in India
7. Bipan Chandra, KN Panikkar, Mildula Mukherjee
8. Suchetra Mahajan and Adithya Mukharjee, India's struggle for independence
9. PC Joshi, Rebellion 1857 : A sympossim
10. JF Richards, The mughal empire
11. Irfan Habib, Agrarian system of Mughal India, 1526 - 1707
12. Ashin Das Gupta, Indain merchants and the decline of Surat 1700-1750
13. Stewart Gordon, The Marathas 1600-1818
14. Ebba Koch, Mughal art and imperial ideology
15. Satish Chandra, Essays on medieral Indian history

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MATHEMATICS **MAT 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

ABSTRACT ALGEBRA - I AND REAL ANALYSIS - I

ABSTRACT ALGEBRA - I

UNIT - 1

Groups : Binary operations, properties, definition of a group and elementary properties, finite groups and composition tables with examples.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 2

Subgroups : Complex definition, multiplication of two complexes, inverse of a complex, sub group definition and examples, criterion for a complex to be a sub group, criterion fo the product of two sub groups to be a sub group, union and intersection of sub groups.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Cosets and Lagranges theorm : Cosets definition, properties of cosets, index of a sub group of a finite group, Lagranges theorem

(2 short answer questions, 1 long answer questions will be given in the examination)

REAL ANALYSIS - I

UNIT - 4

Real numbers : The algebraic and order properties of R, absolute and real line, completeness property of *R,* applications of the suprimum property, intervals. **(No questions is to be given in the examination).**

Real Sequences : Sequence, method of defining sequences, range, subsequences, bounded sequences, limit of a sequence, convergent sequence, divergent sequences, algebra of convergent sequences, Cauchy's first theorem of limits, Cauchy's second theorem on limits, monotonic sequences, monotone convergence theorem, limit points of a sequence, Bolzano - Weierstrass theorem for sequences, Cauchy's general principle of convergence.

(2 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 5

Infinite series : Series, Cauchy's general principle of convergence, geometric series, auxiliary series (p-series), comparision tests, limit comparision test, Cauchy's *n*th root test, D'Alembert's ratio test, Cauchy's condensation test, Cauchy's - Maclaurin's integral test, Alternating series, Leibnitz's test, Absolute convergent series, conditionally convergent series.

(1 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Limits : Limit of a function, Algebra of limits, one sided limits, infinite limits, standerd limits. **(No questions is to be given in the examination).**

Continuity : Continuity of function, algebra of continuous functions, properties of continuous functions, Borel's theorem, Bolzano's theorem, intermediate value theorem, uniform continuity, uniform conitinuity theorem.

(2 short answer questions, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, John Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 201C** 2016-17 onwards II B Sc.

SYLLABUS

III SEMESTER

THERMODYNAMICS AND WAVE OPTICS

PART-A THERMODYNAMICS

Unit - I

1. Kinetic Theory of Gases:

Deduction of Maxwell's law of distribution of molecular speeds - Transport phenomena-Explanation, Derivation of Expression for Viscosity-Derivation of Expressions for Thermal conduction and Diffusion of gases. (6)

Unit II

2. Thermodynamics:

Introduction - Indicator diagram -work done in Isothermal and adiabatic processes - First law of thermodynamics - Second law of thermodynamics, different statements - Reversible and irreversible process - Carnot's reversible heat engine – Derivation of expression for efficiency of Carnot's cycle-Carnot's theorem- Thermodynamic scale of temperature. Entropy concept – Change in entropy in reversible process and in irreversible process. Entropy - Temperature diagram- Expression for Efficiency using T-S diagram. (12)

Unit III

3. Thermodynamic Potentials and Maxwell's Equations:

Thermodynamic potentials – Derivation of Max wells thermodynamic relations- Derivation of Clausius - Clapeyron equation using Max wells thermodynamic relations – Two specific heats of a gas- Derivations for ratio (C_p/C_v) and difference(C_p-C_v)of two specific heats of a gas using Max wells thermodynamic relations - Joule - Kelvin effect ,Explanation- Derivation of Expression for Joule - Kelvin coefficient using Max wells thermodynamic relations. (12)

PART - B WAVE OPTICS

Unit IV

4. Aberrations:

Introduction - Aberration- mono Chromatic aberration - spherical aberrations – methods of minimization of spherical aberration -Coma – Astigmatism. Chromatic aberration -The achromatic doublet – Removal of Chromatic aberration of a separated doublet (8).

Unit V

5. Interference:

The superposition principle – coherence- condition of Interference of light-Interference by division of wave front- Fresnel's biprism - determination of wavelength of light - determination of thickness of a transparent material using biprism- Stokes law-Change of phase on reflection. Interference by division of amplitude - cosine law in reflected light - colours of thin films - non reflecting thin films - determination of diameter of wire using wedge method - Newton's rings – explanation-Experimental determination of wavelength of monochromatic light by using Newton's rings (12).

Unit V I

6. Diffraction:

Fraunhofer diffraction, Fraunhofer diffraction due to a single slit and double slit. The diffraction grating - Normal incidence - Determination of wavelength of light. Fresnel diffraction - Fresnel half period zones - Zone plate - comparison of zone plate with convex lens.(10)

Reference books

1. BSc Physics -*Telugu Akademy, Hyderabad*
2. Fundamentals of Physics. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*
3. Text Book of +3 Physics – Samal, Mishra & Mohanty, National Library, Min.of Culture, Govt of India
4. Heat and Thermodynamics- MS Yadav, *Anmol Publications Pvt. Ltd, 2000*
5. University Physics, HD Young, MW Zemansky,FW Sears, *Narosa Publishers, New Delhi*
6. Unified Physics Vol.II Optics & Thermodynamics – *Jai Prakash Nath & Co.Ltd., Meerut*
7. Heat, Thermodynamics and Statistical Physics-N Brij Lal, P Subrahmanyam, PS Hemne, *S.Chand & Co.,2012*Thermodynamics - R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Econom*
8. Optics – FA Jenkins and HG White, *Mc Graw-Hill*
9. A Text Book of Optics-N Subramanyam, L Brijlal, *S.Chand & Co.*
10. Principles of Optics- BK Mathur, *Gopala Printing Press, 1995*
11. Introduction of Lasers – Avadhanlu, *S.Chand & Co.*
12. Fundamentals of Optics, H.R. Gulati and D.R. Khanna, 1991, R. Chand Publication

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POLITICS **POL 201C** 2016-17 onwards II B.A

SYLLABUS

III SEMESTER

INDIAN CONSTITUTION

Unit-1: The Making of the Constitution

1. The ideological legacy of the Indian National Movement on the Constituent Assembly
2. The Nature and Composition of the Constituent Assembly

Unit-2: Philosophical Premises of the Indian Constitution

1. Preamble: The underlying values of the Indian Constitution
2. Salient features of the Constitution of India

Unit-3: Fundamental rights and Directive principles of State Policy

1. Individual and Collective Rights: Limitations on the fundamental Rights
2. Judicial Interpretation of Fundamental Rights
3. The doctrine of 'Basic Structure' of the Constitution: KesavanandaBharathi Case

Unit-4: Indian Federalism

1. Unitary and Federal features in the Indian Constitution
2. Tension Areas between the Union and State Governments Legislative, Administrative and Financial Spheres

Unit-5: Working of the Indian Constitution

1. The Values of the Indian Constitution and Ushering of Social Revolution in India
2. The causes for the Ascendency of the Executive over legislature and Judiciary; Major Controversies regarding the Amendments to the Constitution
3. Nature and Role of Higher Judiciary in India; Recent Debates on the mode of appointment of Judges

Reference books:

1. Granville Austin (1972) the Indian Constitution, Cornerstone of a Nation Oxford university Press, New Delhi.
2. Madhavkhosla (2012) the Indian Constitution, oxford university press, New Delhi
3. Granville Austin (1999) Working a Democratic Constitution; A History of the Indian Experience, Oxford University Press, New Delhi
4. Zoya Hasan, Sridharan E and Sudharshan R (Eds) 2002 India's living Constitution, Permanent black, New Delhi
5. BaxiUpendra (1980) the Indian Supreme Court and Politics Eastern book co, Lucknow

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SPL. ENGLISH **ENG 201CS** 2016-17 onwards II B.A.

SYLLABUS

III SEMESTER

Unit Module Topic Marks

1. History of English language :

Restoration and Augustan periods (17th and 18th Centuries) - (2 Essays) **20 Marks**

2. Literary forms and terms :

Satire, Mock - Epic, Heroic Couplet, Epistle, Heroic - Tragedy, Comedy of manners, Genteel comedy, Sentimental comedy, Periodical essay (Paragraph questions) **5x4=20**

3. Poetry :

Alexander Pope : Extracts from the rape of the lock, Canto - I (Essay) **10 Marks**

4. Prose :

Daniel Defoe : Robinson Crusoe (Essay) **10 Marks**

5. Drama :

William Congreve : The way of the world (1 Essay) **10 Marks**

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ZOOLOGY **ZOO 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

CYTOLOGY, GENETICS AND EVOLUTION

Unit - I

1. Cytology - I

1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma

1.2 Electron microscopic structure of eukaryotic cell.

1.3 Plasma membrane –Different models of plasma membrane.

Unit – II

2. Cell organelles

2.1 Structure and functions of Endoplasmic Reticulum

2.2 Structure and functions of Golgi apparatus

2.3 Structure and functions of Lysosomes

2.4 Structure and functions of Ribosomes

2.5 Structure and functions of Mitochondria

2.6 Nucleus

2.7. Chromatin - Structure and significance, Chromosomes - Structure, types, functions

Unit - III

3.1 Genetics - I

3.1.1 Mendel's work on transmission on traits

3.1.2 Principles of inheritance

3.1.3 Incomplete dominance and codominance

3.1.4 Lethal alleles, Epistasis, Pleiotropy

Unit - IV

4.1 Genetics - II

4.1.1 Sex determination

4.1.2 Sex linked inheritance

4.1.3 Linkage and crossing over

4.1.4 Extra chromosomal inheritance

4.1.5 Human karyotyping

Unit - V

5.1 Evolution

5.1.1 Origin of life

5.1.2 Lamarckism, Darwinism, Neo – Darwinism, Hardy-Weinberg Equilibrium.

5.1.3 Variations, isolating mechanisms, natural selection

5.1.4 Types of natural selection (directional, stabilizing, disruptive)

5.1.5 Artificial selection and forces of evolution

5.1.6 Speciation (Allopatric and Sympatric)

5.1.7 Macro evolutionary principles (Example: Darwin’s finches)

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GENERAL ENGLISH **ENG 202NA** 2015-16 onwards II DEGREE

SYLLABUS

IV SEMESTER

GENERAL ENGLISH

Poetry:

1. Refugee Mother and Child
2. I Will Embrace Only the Sun

Prose:

1. On shaking Hands
2. No Man is an Island

Non - detailed:

1. Never - Never Nest
2. Refund

Grammar

1. Consonants and their sounds
2. Correction of Sentences (Question tags, Modals, Prepositions, Articles)
3. Curriculum Vitae
4. Letter writing
5. Stative verbs
6. Intonation

Prescribed text books :

1. English for Empowerment - Orient Black Swan
2. Nurtusing competences - Lorven Publications
3. A course in Listening and speaking II

   (Foundation Books Pvt. Ltd., Cambridge House, New Delhi)

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ACCOUNTING FOR SERVICE ORGANISATION **COM 401C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

ACCOUNTING FOR SERVICE ORGANISATION

Unit-I: Non-Trading/ Service Organizations :

Concept - Types of Service Organizations – Section (8) and other Provisions of Companies Act, 2013.

Unit – II Electricity Supply Companies :

Accounts of Electricity supply companies: Double Accounting system – Revenue Account – Net Revenue Account – Capital Account – General Balance Sheet (including problems).

Unit – III - Bank Accounts :

Bank Accounts – Books and Registers to be maintained by Banks – Banking Regulation Act, 1969 - Legal Provisions Relating to preparation of Final Accounts (including problems).

Uni t-IV: Insurance Companies :

Life Insurance Companies –Preparation of Revenue Account, Profit and Loss Account, Balance

Sheet (including problems) – LIC Act, 1956.

Unit – V: General Insurance :

Principles – Preparation of final accounts – with special reference to fire and marine insurance

(including problems) – GIC Act, 1972.

Suggested Readings

1. Corporate Accounting – RL Gupta & M. Radha Swami
2. Corporate Accounting – P.C. Tulsian
3. Company Accounts : Monga, Girish Ahuja and Shok Sehagal
4. Advanced Accountancy: Jain and Narang
5. Advanced Accountancy : R.K. Gupta and M. Radhaswamy
6. Advanced Accountancy : Chakraborty
7. Advanced Accountancy: S.P. Iyengar
8. Modern Accounting: A. Mukherjee, M. Hanife McGraw Hill Company Ltd., New Delhi.
9. Accounting standards and Corporate Accounting Practices: T.P. Ghosh Taxman
10. Corporate Accounting: S.N. Maheswari, S.R. Maheswari, Vikas Publishing.
11. Advanced Accountancy: Arutanandam, Raman, Himalaya Publishing House.
12. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand.

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BUSINESS ENVIRONMENT **COM 404C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

BUSINESS ENVIRONMENT

Unit – I: Overview of Business Environment :

Business Environment – Meaning – Macro and Micro Dimensions of Business Environment Economic – Political – Social – Technological – Legal – Ecological – Cultural – Demographic –Changing Scenario and implications – Indian Perspective – Global perspective.

Unit – II: Economic Growth :

Meaning of Economic growth – Factors Influencing Development – Balanced Regional Development.

Unit – III - Development and Planning :

Rostow's stages of economic development - Meaning – Types of plans – Main objects of planning in India – NITI Ayog and National Development Council – Five year plans.

Unit – IV : Economic Policies :

Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Union budget – Structure and importance of Union budget – Monetary policy and RBI.

Unit – V -Social, Political and Legal Environment :

Concept of Social Justice - Schemes - Political Stability - Leal Changes.

Suggested Readings:

1. Rosy Joshi and Sangam Kapoor : Business Environment.
2. Francis Cherunilam : Business Environment.
3. S.K. Mishra and V.K. Puri : Economic Environment of Business.
4. K. Aswathappa : Essentials of Business Environment.

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Business Laws **COM 402C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

BUSINESS LAWS

Unit-1 Contract

Meaning and Definition of Contract-Essential elements of valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872.

Unit-2 Offer and Acceptance

Definition of Valid Offer, Acceptance and Consideration -Essential elements of a Valid Offer, Acceptance and Consideration.

Unit-3 Capacity of the Parties and Contingent Contract

Rules regarding to Minors contracts - Rules relating to contingent contracts - Different modes of discharge of contracts-Rules relating to remedies to breach of contract.

Unit-4 Sale of Goods Act 1930

Contract of sale – Sale and agreement to sell – Implied conditions and warranties – Rights of unpaid vendor.

Unit-5 Cyber Law

Cyber Law and Contract Procedures - Digital Signature - Safety Mechanisms.

Suggested Readings:

1. J. Jayasankar, Business Laws, Margham Publication. Chennai -17
2. Kapoor ND, Mercentile Law , Sultan Chand
3. Balachandram V, Business law Tata
4. Tulsian , Business Law Tata
5. Pillai Bhagavathi, Business Law , S.Chand.
6. Business Laws, Maruthi Publishers

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Income tax **COM 403C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

INCOME TAX

Unit-I

Introduction: Income Tax Law – Basic concepts: Income, Person, Assesse, Assessment year, Agricultural Income, Capital and revenue, Residential status, Income exempt from tax (theory only).

Unit-II

Income from salary: Allowances, perquisites, profits in lieu of salary, deductions from salary
income, computation of salary income and qualified savings eligible for deduction u/s 80C (including problems).

Unit-III

Income from House Property: Annual value, let-out/self occupied/deemed to be let-out house, deductions from annual value - computation of income from house property (including problems).

Unit-IV

Income from Capital Gains – Income from other sources – (from Individual point of view) - chargeability – and assessment (including problems).

Unit-V:

Computation of total income of an individual – Deductions under section - 80 (including problems).

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. B.B. Lal; Direct Taxes; Konark Publications
3. Dr. Mehrotra and Dr. Goyal; Direct Taxes – Law and Practice; Sahitya Bhavan Publication.
4. Gaur and Narang; Income Tax, Kalyani Publishers, New Delhi.

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BOTANY **BOT 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

PLANT PHYSIOLOGY AND METABOLISM

UNIT – I: Plant – Water relations (12 hrs)

1. Physical properties of water, Importance of water to plant life.
2. Diffusion, imbibition and osmosis; concept & components of Water potential.
3. Absorption and transport of water and ascent of sap.
4. Transpiration –Definition, types of transpiration, structure and opening and closing mechanism of stomata.

UNIT –II: Mineral nutrition & Enzymes (12hrs)

1. Mineral Nutrition**:** Essential elements (macro and micronutrients) and their role in Plant metabolism, deficiency symptoms.
2. Mineral ion uptake (active and passive transport).
3. Nitrogen metabolism- biological nitrogen fixation in *Rhizobium* outlines of protein synthesis (transcription and translation).
4. Enzymes**:** General characteristics, mechanism of enzyme action and factors regulating enzyme action.

UNIT –III: PHOTOSYNTHESIS (12 hrs)

1. Photosynthesis: Photosynthetic pigments, photosynthetic light reactions, photo phosphorylation, carbon assimilation pathways: C3, C4, and CAM (brief account)
2. Photorespiration and its significance.
3. Translocation of organic solutes: mechanism of phloem transport, source-sink relationships.

UNIT – IV: PLANT METABOLISM (12 hrs)

1. Respiration: Glycolysis, anaerobic respiration, TCA cycle, electron transport system. Mechanism of oxidative phosphorylation.
2. Lipid Metabolism**:** Types of lipids, Beta-oxidation.

UNIT –V: GROWTH AND DEVELOPMENT (12hrs)

1. Growth and development: definition, phases and kinetics of growth.
2. Physiological effects of phytohormones - Auxins, Gibberellins, Cytokinins, ABA, Ethylene and Brassinosteroids.
3. Physiology of flowering -photoperiodism, role of phytochrome in flowering : Vernalization.
4. Physiology of Scenescence and Ageing.

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CHEMISTRY **CHE 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

SPECTROSCOPY AND PHYSICAL CHEMISTRY

UNIT - I

SPECTROSCOPY **Weightage : 15 marks = 2, 5 marks = 3**

UNIT - I : MOLECULAR SPECTROSCOPY

1. Electronic spectroscopy : Interaction of electromagnetic radiation with molecules and types of molecular spectra. Potential energy curves for bonding and antibonding molecular orbital energy levels of molecules . Selection rules for electronic spectra. Types of electron transitions in molecules effect of conjugation. Concept of chromophore.

2. Infra red spectroscopy : Energy levels of simple harmonic oscillator, molecular vibration spectrum selection rules. Determination of force constant. Qualitative relation of force constant to bond energies. An harmonic motion of real molecules and energy levels. Modes of vibrations in polyatomic molecules. Characteristic absorption bands of of various functional groups. Finger print nature of infrared spectrum.

3. Protan magnetic resonance spectroscopy (H^1 NMR) : Principles of nuclear magnetic reasonance, equivalent and non equivalent protons, positions of signals, chemical shift, NMR splitting of signals, spin - spin coupling, coupling constants. Applications of NMR with suitable examples - Ethylbromide, Ethanol, Acetaldehyde, 1, 1, 2 ` Tribromethane, Ethyl acetate, Toluene and Acetophenone.

UNIT - II : SPECTRO PHOTOMETRY **Weightage : 15 marks = 1, 5 marks = 2**

General features of absorption - Spectroscopy, Beer - Lambert's law and its limitations, transmittance, absorbance and molar absorptivity. Single and double beam spectrophotometer. Application of Beer - Lambert's law for quantitative analysis of

i. Chromium in $K_2Cr_2O_7$

ii. Manganese in manganous sulphate

PHYSICAL CHEMISTRY

UNIT - III : DILUTE SOLUTIONS : **Weightage : 15 marks = 1, 5 marks = 1**

Colligative properties. Raoult's law, relative lowering of vapour pressure, its relation to molecular weight of non volatile solute. Elevation of boiling point and depression of freezing point. Derivation of relation between molecular weight and elevation in boiling point and depression in freezing point. Experimental methods of determination - Osmosis, Osmotic pressure, Experimental determination. Theory of dilute solutions. Determination of molecular weight of non - volatile solute from osmotic pressure. Abnormal colligative properties.

Unit - IV

Electro chemistry - I : **Weightage : 15 marks = 1, 5 marks = 2**

Specific conductance, equivalent conductance variation of equivalent conductance with dilution. Migration of ions, Kohlrausch's law. Arheneous theory of electrolyte dissociation and its limitations.Ostwalds dilution law. Debye - Huckel - Onsager equation for strong electrolytes (elementary treatment only). Definition of transport number, its determination by Hittorf's method, application of conductivity its measurement, conductiometric titrations. Types of reversible electrodes. The gas electrode, metal - metal ion, metal - insoluble salt and redox electrodes, electrode reactions, Nearnst equation, single electrode potential.

Unit - V

1. Electrochemistry - II : **Weightage : 15 marks = 1, 5 marks = 2**

Standard hydrogen electrode, reference electrodes, standard electrode potential, sign convention, electrochemical series and its significance. Reversible and irreversible cells, conventional representation of electro chemical cells. EMF of a cell and its measurements. Computation of cell EMF. Applications of EMF measurements, potentiometric titrations.

2. Phase rule :

Concept of phase, component degrees of freedom. Derivation of Gibbs phase rule, phase equilibrium of one component. Water system. Phase equilibrium of two component system : Solid - Liquid equilibrium. Simple eutectic diagram of Pb - Ag system, desilverisation of lead. Freezing mixtures.

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COMPUTER SCIENCE **CSC 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

DATA STRUCTURES WITH JAVA

UNIT I :

Concept of Abstract Data Types (ADTs) : Data Types, Data Structures, Storage Structures, and File Structures, Primitive and Non-primitive Data Structures, Linear and Nonlinear Structures.

Linear Lists : ADT, Array and Linked representations, Pointers.

Arrays : ADT, Mappings, Representations, Sparse Matrices, Sets - ADT, Operations

UNIT II :

Stacks : Definition, ADT, Array and Linked representations, Implementations and Applications

Queues : Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Implementations and Applications.

UNIT III :

Trees : Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications.

Priority Queues : Definition, ADT, Heaps and Applications, Binary Search Trees (BST) - Definition, ADT, Operations and Implementations, BST with Duplicates and Applications.

Balanced Search Tress : AVL, Red-Blacka and Splay Trees.

UNIT IV :

Graphs : Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees

UNIT- V :

Sorting and Searching : Selection, Insertion, Bubble, Merge, Quick, Heap, Sequential and Binary Searching.

TEXT BOOKS

1. Hubbard John R. and Huray Anita, Data Structures with Java Paperback Prentice-Hall 2005
ISBN-10: 8120327454
2. David Cousins, Introducing Data Structures with Java Kindle Edition, Pearson Education; First edition, 2011, ISBN-10: 8131758648, 464 pages

REFERENCE BOOKS

1. SamanthaD, Classic Data Structures, Prentice-Hall of India, 2001.
2. Tremblay .1 P, and Sorenson P G, Introduction to Data Structures and Applications, Tata McGraw-Hill,
3. Sahani S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002

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MACRO ECONOMICS **ECO 202C** 2016-17 onwards II B.A

SYLLABUS

IV SEMESTER

MACRO ECONOMICS (BANKING & INTERNATIONAL TRADE)

Unit - 1

Trade Cycles - meaning and definition - Phases of a Trade Cycle -Inflation - definition - types of inflation - causes and effects of inflation measures to control inflation.

Unit - 2

Banking: Meaning and definition -Functions of Commercial Banks - Concept of Credit creation-Functions of RBI - Recent developments in banking sectors.

Unit - 3

Non-Bank Financial Institutions – Types of NBFIs - Factors contributing to the Growth of NBFIs –-Money market – Defects of Indian money market

Unit - 4

Concepts of Shares-Debentures - Stock Market - Functions - Primary and Secondary Markets - SEBI - Insurance - Life Insurance and General Insurance.

Unit - 5

Macro Economic Policy - Fiscal, Monetary and Exchange rate policies Objectives and Significance - Importance of International Trade - Regional and International Trade – Defining Balance of Trade and Balance of Payment.

REFERENCES :

1. G.Ackley - "Macro Economics Theory and Policy", Collier Macmillan, 1978.
2. E.Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.
3. Central Statistical Organisations - "National Accounts Statistics".
4. R.Dornbush, s.Fisher and R.Startz - "Macro Economics", Tata Mc.Graw Hill, 9/e,2004.
5. M.L.Seth-"Macro Economics", Lakshmi Narayana Agarwal, 2015.
6. K.P.M. Sundaram - "Money, banking & International Trade", Sultan Chand, 2010.
7. Dillard, D - "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. M.N.Mish ra & S.B.Mishra - "Insurance Principles & Practice" S.Chand 2012.
9. Bharati V.Pathak "The Indian Financial System Markets. Institutions & Services".
10. Pearson

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HISTORY **HIS 202C** 2016-17 onwards II B.A

SYLLABUS

IV SEMESTER

UNIT - 1

Factors for social change - Christian missionaries - Western education - Its impact emergences of new middle classes - Growth - Anglo India and vernacular

Unit - 2

Socio - Religious reform movements - Brahma samaj - Arya samaj - Theosophical society - Ramakrishna mission - Aligarh movement - Self - respect movements - Jyotiba Phule - Narayan Guru - Periyar and Dr BR Ambedkar

Unit - 3

Indian national movement - Factors for the growth of nationalism - Indian national congress - Three phases of freedom struggle (1885-1947) Gandhiji's role in national movement

Unit - 4

Role of women in the Indian national movement - Sarojini Naidu, Durgabhai Deshmukh - Revolutionary movements - Left wing movements - Peasants and workers movements

Unit - 5

Emergency of communal trends - Partition of India - Integration of princely states into Indian union - Sardar Vallabhai Patel, Subhash Chandra Bose

References

1. Bipan Chandra, India's struggle for independence 1857-1947
2. Bipan Chandra, Modern India, NCERT, 1983 (separate)
3. Hermann Kulke and Dietmar Rothermund, A history of India Rupa and Co., 1991
4. Alladi Vailuhi, Freedom movement in India (1858-1947)
5. Suruchi Thapon, Women in the Indian national movement unseen faces and unhand voices, 1930-1942, Delhi, 2006
6. Raj Kumar, Ramesh Vari Desi and Romula Prulhi, Women's role in Indian national movement, Delhi, 2003
7. Tudeth Brown, Gandhi's rise of power 1915-1922
8. Bipan Chandra, Nationalism and colonialism in Modern India, 1977
9. Anil Seal, Emergency of Indian nationalism

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MATHEMATICS **MAT 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

ABSTRACT ALGEBRA - II AND REAL ANALYSIS - II

ABSTRACT ALGEBRA - II

UNIT - 1Normal subgroups : Definition of normal sub group, proper and improper normal sub groups, Hamilton group, criterion for a sub group to be normal sub group, intersection of two normal sub groups, sub group of index 2 is a normal sub group, simple group, quotient group, criteria for the existence of quotient group.

(3 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 2**Homomorphism** : Definition of homomorphism of groups and elementary properties, image of homomorphism, kernel, isomorphism, automorphism definitions and elementary properties, fundamental theorem of homo-morphism.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 3Permutation groups and cyclic groups : Permutation, group of permutations, cycles and cyclic notation, even and odd permutations, the alternating group, Cayley's theorem. Cyclic groups - elementary properties, subgroups of finite cyclic groups, the classification of cyclic groups.

(1 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS - II

UNIT - 4Differentiation and mean value theorems : Derivative of a function, algebra of derivable functions, increasing and decreasing functions, Darboux's theorem, Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, L 'Hospital's rules, Taylor's generalized mean value theorem, Maclaurin's theorem, expansions of some basic functions.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT – 5 Riemann integration - 1 : Partitions, Riemann sums, lower and upper Riemann integrals, Riemann integral, a necessary and sufficent condition for R-integrable, some classes integrable functions, algebra of integrable functions, fundamental theorem of integral calculus.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 6

Riemann integration - 2 : Integral as the limit of a sum, first mean value theorem of integral calculus, Bonnet's mean value theorem of integral calculus, second mean value theorem of integral calculus, integration by substitution, integration by parts.

(2 short answer question, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, Hohn Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 202C** 2016-17 onwards II B Sc.

SYLLABUS

IV SEMESTER

THERMODYNAMICS AND WAVE OPTICS

PART - A THERMODYNAMICS

UNIT - I

1. Low Temperature Physics:

Liquefaction of gases using Joule - Kelvin effect - Porous plug experiment - Distinction between: Joules expansion, adiabatic expansion and Joule, Thomson's expansion - Expression for Joule Thomson cooling - Adiabatic demagnetization- Derivation of expression for fall in temperature, Liquefaction of Helium by Kaptizas method, Refrigeration-principle of Refrigeration- Refrigerant - Vapour Compression type. (12).

UNIT II

2. Thermal Radiation:

Classical theory of radiation: Introduction-Black body - Ferry's black body - Distribution of energy in the spectrum of a black body (Lummer & pringheim experiment) – Pyrometers - Types of pyrometers - Disappearing filament optical pyrometer (8)

UNIT III

3. Quantum theory of Radiation:

Quantum theory of radiation: Introduction-Planck's law –Plank's hypothesis-Derivation of plank's radiation law- Deduction of Wien's law, Raleigh Jeans law, Wien's displacement law from Planck's law, Solar constant-Determination of solar constant- Angstrom's Pyroheliometer-Temperature of Sun.–(10).

PART - B WAVEOPTICS

UNIT - IV

4. Polarization:

Polarised light, Brewster's law - Malus law - Phenomenon of double refraction in calcite – construction and working of Nicol prism- Applications of Nicol prism. Quarter & Half wave plate - Statement of Optical activity. Babinet's compensator (10)

UNIT V

5. Lasers and Holography:

Lasers: Introduction-Spontaneous, stimulated emission - Laser principle - Population inversion - Einstein coefficients - Types of lasers, He - Ne and Ruby lasers and the application of lasers. Holography: Basic Principles of holography - Gabor Hologram and its limitations, applications of Holography. (10)

UNIT VI

6. Fiber Optics:

Introduction- different types of fibers, rays and modes in an optical fiber, fiber material, principles of fiber communication (qualitative treatment only), advantages of fiber optic communication.(10)

Reference books

1 BSc Physics -*Telugu Akademy, Hyderabad*

2. Fundamentals of Physics. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*

3. Text Book of +3 Physics – Samal, Mishra & Mohanty, National Library, Min.of Culture, Govt of India

4. Heat and Thermodynamics- MS Yadav, *Anmol Publications Pvt. Ltd, 2000*

5. University Physics, HD Young, MW Zemansky,FW Sears, *Narosa Publishers, New Delhi*

6. Unified Physics Vol.II Optics & Thermodynamics – *Jai Prakash Nath & Co.Ltd., Meerut*

7. Heat, Thermodynamics and Statistical Physics-N Brij Lal, P Subrahmanyam, PS Hemne, *S.Chand & Co.,2012*
8. Thermodynamics - R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition*.
9. II BSc Physics -*Telugu Akademy, Hyderabad*
10. Fundamentals of Physics. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*
11. Text Book of +3 Physics – Samal, Mishra & Mohanty, National Library, Min.of Culture, Govt of India
12. Heat and Thermodynamics- MS Yadav, *Anmol Publications Pvt. Ltd, 2000*
13. University Physics, HD Young, MW Zemansky,FW Sears, *Narosa Publishers, New Delhi*
14. Unified Physics Vol.II Optics & Thermodynamics – *Jai Prakash Nath & Co.Ltd., Meerut*
15. Heat, Thermodynamics and Statistical Physics-N Brij Lal, P Subrahmanyam, PS Hemne, *S.Chand & Co.,2012*
16. Thermodynamics - R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition*.

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POLITICS **POL 202C** 2016-17 onwards II B.A

SYLLABUS

IV SEMESTER

INDIAN POLITICAL PROCESS

Unit-1: Approaches to Study the Political Processes in India

1. Theory of Modernization: Transition from Tradition to Modernity
2. Marxian Approach: Transition from pre-capitalism to capitalism

Unit-2: Social Structure and Democratic Process

1. Transition of Caste System: From Hierarchy to Identity: Role of Agency
2. Politicisation of Intermediate and Dalit Caste Communities
3. Evolution of Modernity in India

Unit-3: Religion and Politics

1. Competing Communalisms: Majoritarian and Minoritarian
2. Debates on Secularism; Role of the State towards religion

Unit-4: Party and Electoral Processes in India

1. Electoral Trends of the lokSabha from 1952 to 2014:From the One Party Congress System to Multi Party Coalitions
2. Determinants of Voting Behavior in India;Caste,Class,Patronage, Money etc.
3. Evolution of Party System in India: the Ideology and Social bases of major Political Parties: INC,BJP,CPM, DMK,BSP,TDP

Reference books:

1. Chandhoke N and Priyadarshini P (Eds) (2009) Contemporary Indian Economy, society, politics, Pearson, NewDelhi.

2. Vanaik A and Bhargava R (Eds) (2010) Understanding Contemporary India Critical perspectives orient black swan New Delhi.

3. Jayal N G and Mehta PB (Eds) (2010) Oxford Companion to Indian Politics Oxford University Press, New Delhi.

4. Kohliatul and Prema Singh (Ed) (2013) Routledge Hand book of Indian Politics Routledge, NewYork.

5. Jaffrelot C (2003) India's Silent Revolution: The Rise of the Lower Caste in North India, C Hrust, London.

6. Stanely A. Kochanek, Robert L.Hardgrave, India Government and Politics in a Developing Nation, Boston, Wards Worth Publishing, 2006.

7. Rajeev Bhargava (Ed) Secularism and its Critics (1998), Delhi, OUP.

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SPL. ENGLISH **ENG 202CS** 2016-17 onwards II B.A.

SYLLABUS

IV SEMESTER

SPECIAL ENGLISH

Unit Module Topic Marks

1. **History of English literature :**

   Romantic and Victorian periods (2 essays) **20 Marks**

2. **Literary forms and terms :**

   Biography, Autobiography, Historical Novel, Flat character, Round character, Antagonist (4 paragraph questions) **4x5=20 Marks**

3. **Poetry 1 :**

   John Keats : Ode to a Nightingale (1 essay) **10 Marks**

4. **Prose :**

   Jane Austen : Pride and Prejudice (1 essay) **10 Marks**

5. **Poetry 2 :**

   Robert Browing : How do I love thee ? (1 essay) **10 Marks**

References :

1. A history of English Literature by W.J. Long

2. A Critical History of English Literature by David Daiches (Published by Supernova)

3. The Cambridge History of English Literature by Ward and Waller (Published by Kessinger)

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ZOOLOGY **ZOO 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

EMBROLOGY, PHYSIOLOGY AND ECOLOGY

Unit - I

1.1 Developmental Biology and Embryology

1.1.1 Gametogenesis
1.1.2 Fertilization
1.1.3 Types of eggs
1.1.4 Types of cleavages
1.2 Development of Frog upto formation of primary germ layers
1.3 Formation and functions of Foetal membrane in chick embryo
1.4 Development, types and functions of Placenta in mammals

Unit - II

2.1 Physiology - I

2.1.1 Elementary study of process of digestion
2.1.2 Absorption of digested food
2.1.3 Respiration - Pulmonary ventilation, transport of oxygen and carbondioxide
2.1.4 Circulation - Structure and functioning of heart, Cardiac cycle
2.1.5 Excretion - Structure of nephron, urine formation, counter current mechanism

Unit - III

3.1 Physiology - II

3.1.1 Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers
3.1.2 Muscle contraction - Ultra structure of muscle fibre, molecular and chemical basis of muscle contraction
3.1.3 Endocrine glands - Structure, secretions and the functions (of hormones) of pituitary, thyroid, parathyroid, adrenal glands and pancreas
3.1.4 Hormonal control of reproduction in a mammal

Unit - IV

4.1 Ecology - I

4.1.1 Meaning and scope of Ecology
4.1.2 Important abiotic factors of Ecosystem - Temperature, light, water, oxygen and CO2
4.1.3 Nutrient cycles - Nitrogen, carbon and phosphorus“4.1.4 Components of Ecosystem (Example : lake), food chains and food web, energy flow in ecosystem

Unit - V

5.1 Ecology - II

5.1.1 Habitat and ecological niche
5.1.2 Community interactions - Mutualism, commensalism, parasitism, competition, predation
5.1.3 Ecological succession
5.1.4 Population studies
5.2 Zoogeography
5.2.1 Zoogeographical regions
5.2.2 Study of physical and faunal peculiarities of Oriental, Australian and Ethiopian regions

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BOTANY **BOT 301C** 2017-18 onwards III B.Sc

SYLLABUS

V SEMESTER (V PAPER)

CELL BIOLOGY, GENETICS & PLANT BREEDING

UNIT – I Cell Biology : (12hrs)

1. Cell, the unit of life - Cell theory, Prokaryotic and Eukaryotic cells; Structure and functions of Chloroplast, Mitochondria, Golgi complex, E.R, Nucleus and Ribosomes, Eukaryotic cell components
2. Ultra structure and functions of cell wall and cell membranes (Sandwitch & Fluid Mosaic model)
3. Chromosomes**:** Morphology, organization of DNA in a chromosome (nucleosome model), Euchromatin and heterochromatin

UNIT – II Genetic Material : (12hrs)

1. DNA as the genetic material : Griffith's and Avery's transformation experiment, Hershey – Chase bacteriophage experiment
2. DNA structure (Watson & Crick model) and replication of DNA (semi-conservative)
3. Types of RNA (mRNA, tRNA, rRNA), their structure and function

UNIT – III Mendelian Inheritance : (12 hrs)

1. Mendel's laws of Inheritance (Mono- and Di- hybrid crosses); backcross and test cross
2. Chromosome theory of Inheritance
3. Linkage : Concept, complete and incomplete linkage, coupling and repulsion; linkage maps based on two factor cross
4. Crossing Over : Concept & significance

UNIT – IV Plant Breeding : (12 hrs)

1. Introduction and Objectives of plant breeding
2. Methods of crop improvement : Procedure, advantages and limitations of Introduction, Selection, and Hybridization (outlines only)

UNIT – V Breeding, Crop Improvement and Biotechnology : (12 hrs)

1. Role of mutations in crop improvement
2. Role of somaclonal variations in crop improvement
3. Molecular breeding – Use of DNA markers in plant breeding and crop improvement (RAPD, RFLP)

Suggested activity : Seminar, Debate, Quiz, observation of live cells and nucleus in Onion peels, observation of Meiotic nuclei in Maize pollen. Solving Genetics problems.

Books for Reference :

1. Old, R.W. and Primrose S.B. 1994, Principles of Gene Manipulation Blackwell Science, London
2. Grierson, D. and Convey S.N. 1989, Plant Molecular Biology, Blackie Publishers, New York
3. Lea, P.J. and Leegood R.C. 1999, Plant Biochemistry and Molecular Biology, John Wiley and Sons, London
4. Power C.B., 1984, Cell Biology, Himalaya Publishing Co. Mumbai
5. De. Robertis and De Robertis, 1998, Cell and Moleceular Biology, K.M. Verghese and Company

6. Sinnott, E.W., L.C. Dunn & J. Dobshansky (1958) : Principles of Genetics (5th Edition) McGraw Hill Publishing Co., N.Y. Toronto, London
7. Winchester, A.M. (1958) : Genetics (3rd Edition) Oxford & IBH Publishing House, Calcutta,
Bombay, New Delhi
8. Singleton, R.(1963) : Elementary Genetics, D. Van Nostrand Co., Ltd., Inc., N.Y. & Affiliated
East West Press (P) Ltd., New Delhi
9. Strickberger, M.W. (1976) : Genetics (2nd Edition) MacMillan Publishing Co., Inc., N.Y., London
10. Watson, J.D. (1977) : Molecular Biology of the Gene, W.A. Benjamin, Inc., Menlo Park-California, Reading-Massachusetts, London, Amsterdam, Don Mills, Ontario, Sydney.
11. Gardner,E.J & Snusted, D.P.(1984): Principles of Genetics (7th edition) John Wiley & Sons, N.Y. Chichester, Brisbane, Toronto, Singapore.
12. Lewin, B. (1985) Genes VII Wiley Eastern Ltd., New Delhi, Bombay, Calcutta, Madras, Hydrabad.
13. Allard R.W(1999) : The Principles of Plant Breeding, John & Wiley and Sons.
14. Poelman J.M : Breeding Field Crops, Springer.
15. George Acquaah(2012) : Principles of Plant Genetics & Breeding: Wiley-Blackwell.

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BOTANY **BOT 401C** 2017-18 onwards III B.Sc

SYLLABUS

V SEMESTER (VI PAPER)

PLANT ECOLOGY & PHYTOGEOGRAPHY

UNIT – I Elements of Ecology : (12 hrs)

1. Ecology : Definition, branches and significance of ecology
2. Climatic Factors : Light, Temperature, precipitation
3. Edaphic Factor : Origin, formation, composition and soil profile (out lines)
4. Biotic Factor : Interactions between plants and animals

UNIT– II Ecosystem Ecology : (12 hrs)

1. Ecosystem : Concept and components, energy flow, Food chain, Food web, Ecological pyramids
2. Productivity of ecosystem - Primary, Secondary and Net productivity
3. Biogeochemical cycles - Carbon, Nitrogen and Phosphorous

UNIT – III Population & Community Ecology : (12 hrs)

1. Population - Definition, characteristics and importance, outlines – ecotypes
2. Plant communities - Characters of a community, outlines – Frequency, density, cover, life forms, competition
3. Interaction between plants growing in a community

UNIT – IV Phytogeography : (12 hrs)

1. Principles of Phytogeography, Distribution (wides, endemic, discontinuous species)
2. Phytogeographic regions of India
3. Phytogeographic regions of World
4. Endemism – Types and causes

UNIT- V Plant Biodiversity and its importance : (12 hrs)

1. Definition, levels of biodiversity - Genetic, species and ecosystem
2. Biodiversity hotspots - Criteria, Biodiversity hotspots of India
3. Loss of biodiversity – Causes and conservation (*In-situ* and *ex-situ* methods) specification
4. Seed banks - conservation of genetic resources and their importance

Suggested activity : Collection of different soils, studying their texture, observing polluted water bodies, BOD, student study projects, debates on man's activity on ecosystem and biodiversity conservation methods, visiting a nearest natural vegetation area. Visit to NGO, working in the field of biodiversity and report writing; to study Honey Bees and plants yielding honey.

Books for Reference :

1. Daubenmire, R.F. ( ) : Plants & Environment (2nd Edn.,) John Wiley & Sons., New York
2. Puri, .G.S. (1960) : Indian Forest Ecology (Vol.I & II) Oxford Book Co., New Delhi & Calcutta.
3. Billings, W.B. (1965) : Plants and the Ecosystem Wadsworth Publishing Co., Inc., Belmont.
4. Misra, R. (1968) : The Ecology Work Book Oxford & INH Publishing Co., Calcutta
5. Odum E.P. (1971) : Fundamentals of Ecology (2nd Edn.,) Saunders & Co., Philadelphia & Natraj Publishers, Dehradun.

6. Odum E.P. (1975) : Ecology By Holt, Rinert & Winston.
7. Oosting, H.G. (1978) : Plants and Ecosystem Wadworth Belmont.
8. Kochhar, P.L. (1975) : Plant Ecology. (9th Edn.,) New Delhi, Bombay, Calcutta - 226pp.,
9. Kumar, H.D. (1992) : Modern Concepts of Ecology (7th Edn.,) Vikas Publishing Co., New Delhi.
10. Kumar H.D. (2000) : Biodiversity & Sustainable Conservation Oxford & IBH Publishing Co., Ltd. New Delhi.
11. Newman, E.I. (2000) : Applied Ecology Blackwell Scientific Publisher, U.K.
12. Chapman, J.L & M.J. Reiss (1992) : Ecology (Principles & Applications). Cambridge University Press, U.K.
13. Cain, S.A . (1944) : Foundations of Plant Geography Harper & Brothers, N.Y.
14. Mani, M.S (1974) : Ecology & Biogeography of India Dr. W. Junk Publishers, The Haque
15. Good, R. (1997) : The Geography of flowering Plants (2nd Edn.) Longmans, Green & Co., Inc., London & Allied Science Publishers, New Delhi

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CHEMISTRY **CHE 301C** 2017-18 onwards III B.Sc.,

SYLLABUS

V SEMESTER (PAPER - V)

INORGANIC, PHYSICAL AND ORGANIC CHEMISTRY

INORGANIC CHEMISTRY

UNIT – I

Coordination Chemistry : 8h

IUPAC nomenclature - bonding theories - Review of Werner's theory and Sidgwick's concept of coordination - Valence bond theory - geometries of coordination numbers 4-tetrahedral and square planar and 6-octahedral and its limitations. Crystal filed theory - splitting of d - orbitals in octahedral, tetrahedral and square - planar complexes - low spin and high spin complexes - factors affecting crystal - field splitting energy, merits and demerits of crystal-field theory. Isomerism in coordination compounds - structural isomerism and stereo isomerism, stereochemistry of complexes with 4 and 6 coordination numbers.

UNIT - II

1. Spectral and magnetic properties of metal complexes : 4h

Types of magnetic behavior, spin - only formula, calculation of magnetic moments, experimental determination of magnetic susceptibility - Gouy method.

2. Stability of metal complexes : 3h

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

ORGANIC CHEMISTRY

UNIT - III

Nitro hydrocarbons : 3h

Nomenclature and classification of nitro hydrocarbons, structure - Tautomerism of nitroalkanes leading to aci and keto form, preparation of Nitroalkanes, reactivity - halogenation, reaction with HNO_2 (Nitrous acid), Nef reaction and Mannich reaction leading to Micheal addition and reduction

UNIT – IV

Nitrogen compounds : 12h

Amines (Aliphatic and Aromatic): Nomenclature, classification into 1°, 2°, 3° Amines and Quarternary ammonium compounds. Preparative methods -

1. Ammonolysis of alkyl halides 2. Gabriel synthesis 3. Hoffman's bromamide reaction (mechanism)

Reduction of Amides and Schmidt reaction. Physical properties and basic character - Comparative basic strength of Ammonia, methyl amine, dimethyl amine, trimethyl amine and aniline - comparative basic strength of aniline, N-methylaniline and N, N - dimethyl aniline (in aqueous and non-aqueous medium), steric effects and substituent effects. "Chemical properties: a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation e) Reaction with Nitrous acid of 1°, 2°, 3° (Aliphatic and aromatic amines). Electrophilic substitution of Aromatic amines – Bromination and Nitration. Oxidation of aryl and Tertiary amines, Diazotization.

PHYSICAL CHEMISTRY

UNIT - V

Thermodynamics : 15h

The first law of thermodynamics-statement, definition of internal energy and enthalpy. Heat capacities and their relationship. Joule-Thomson effect- coefficient. Calculation of w, for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes. State function. Temperature dependence of enthalpy of formation - Kirchoff's
equation. Second law of thermodynamics. Different Statements of the law. Carnot cycle and its efficiency. Carnot theorem. Concept of entropy, entropy as a state function, entropy changes in reversible and irreversible processes. Entropy changes in spontaneous and equilibrium processes.

List of Reference Books

1. Concise coordination chemistry by Gopalan and Ramalingam
2. Coordination Chemistry by Basalo and Johnson
3. Organic Chemistry by G.Mare loudan, Purdue Univ
4. Text book of physical chemistry by S Glasstone
5. Concise Inorganic Chemistry by J.D.Lee
6. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
7. A Text Book of Organic Chemistry by Bahl and Arun bahl
8. A Text Book of Organic chemistry by I L Finar Vol I
9. Advanced physical chemistry by Gurudeep Raj

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CHEMISTRY **CHE 401C** 2017-18 onwards III B.Sc.,

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V SEMESTER (PAPER - VI)

INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY

INORGANIC CHEMISTRY

UNIT - I

1. Reactivity of metal complexes : 4h

Labile and inert complexes, ligand substitution reactions - SN^1 and SN^2, substitution reactions of square planar complexes - Trans effect and applications of trans effect.

2.Bioinorganic chemistry : 4h

Essential elements, biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and Cl^-. Metalloporphyrins – Structure and functions of hemoglobin, Myoglobin and Chlorophyll.

PHYSICAL CHEMISTRY

UNIT - II

1. Chemical kinetics : 8h

Rate of reaction - Definition of order and molecularity. Derivation of rate constants for first, second, third and zero order reactions and examples. Derivation for time half change. Methods to determine the order of reactions. Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy.

2. Photochemistry : 5h

Difference between thermal and photochemical processes. Laws of photochemistry Grothus Draper's law and Stark-Einstein's law of photochemical equivalence. Quantum yield- Photochemical reaction mechanism- hydrogen- chlorine, hydrogen- bromine reaction. Qualitative description of fluorescence, phosphorescence, Photosensitized reactions- energy transfer processes (simple example)

ORGANIC CHEMISTRY

UNIT - III

Heterocyclic Compounds : 7h

Introduction and definition: Simple five membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole - Aromatic character – Preparation from 1,4 - dicarbonyl compounds, Paul-Knorr synthesis.

Properties : Acidic character of pyrrole - electrophilic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions - Diels Alder reaction in furan.

Pyridine – Structure - Basicity - Aromaticity - Comparison with pyrrole - one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction.

UNIT - IV

Carbohydrates : 8h

Monosaccharides: (+) Glucose (aldo hexose) - Evidence for cyclic structure of glucose (some negative aldehydes tests and mutarotation) - Proof for the ring size (methylation, hydrolysis and oxidation reactions) - Pyranose structure (Haworth formula and chair conformational formula).

(-) Fructose (ketohexose) - Evidence of 2 - ketohexose structure (formation of pentaacetate, formation of cyanohydrin its hydrolysis and reduction by HI). Cyclic structure for fructose (Furanose structure and Haworth formula) - osazone formation from glucose and fructose – Definition of anomers with examples.

Interconversion of Monosaccharides: Aldopentose to Aldohexose (Arabinose to D - Glucose, D-Mannose) (Kiliani - Fischer method). Epimers, Epimerisation - Lobry de bruyn van Ekenstein rearrangement. Aldohexose to Aldopentose (D-Glucose to D- Arabinose) by Ruff degradation. Aldohexose to Ketohexose [(+) Glucose to (-) Fructose] and Ketohexose to Aldohexose (Fructose to Glucose)

UNIT - V

Amino acids and proteins : 7h

Introduction : Definition of Amino acids, classification of Amino acids into alpha, beta, and gamma amino acids. Natural and essential amino acids - definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples.
Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, valine and leucine) by following methods: a) from halogenated carboxylic acid b) Malonic ester synthesis c) strecker's synthesis.
Physical properties : Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point.
Chemical properties : General reactions due to amino and carboxyl groups - lactams from gamma and delta amino acids by heating peptide bond (amide linkage). Structure and nomenclature of peptides and proteins.

List of Reference Books :

1. Concise coordination chemistry by Gopalan and Ramalingam
2. Coordination Chemistry by Basalo and Johnson
3. Organic Chemistry by G.Mare loudan, Purdue Univ
4. Advanced Physical Chemistry by Atkins
5. Text book of physical chemistry by S Glasstone
6. Instrumentation and Techniques by Chatwal and Anand
7. Essentials of nano chemistry by pradeep
8. A Textbook of Physical Chemistry by Puri and Sharma
9. Advanced physical chemistry by Gurudeep Raj

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COST ACCOUNTING **COM 501C** 2017-18 onwards III B.Com.,

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V SEMESTER

UNIT - I

INTRODUCTION : Distinguish between financial accounting, cost accounting and management accounting - Cost concepts and classification - Cost centre and cost unit - Preparation of cost sheet (including problems)

UNIT - II

ELEMENTS OF COST :

Materials : Material control - ABC analysis - Methods of pricing issues - FIFO, LIFO, weighted average, base stock methods (including problems)

UNIT - III

LABOUR :

Labour : Control of labour costs - Time keeping and time booking - Idle time - Methods of remuneration - Labour incentives schemes (including problems)

UNIT - IV

OVERHEADS :

Overheads : Allocation and apportionment of overheads (including problems)

UNIT - V

METHODS OF COSTING :

Contract costing (including problems)

REFERENCES :

1. S.P. Jain and K.L. Narang - Advanced Cost Accounting, Kalyani Publishers, Ludhiana
2. M.N. Aurora - A test book of Cost Accounting, Vikas Publishing House Pvt., Ltd.,
3. S.P. Iyengar - Cost Accounting, Sultan Chand & Sons
4. Nigam & Sharma - Cost Accounting Principles & Applications, S. Chand & Sons

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GOODS & SERVICE TAX FUNDAMENTALS **COM 502C** 2017-18 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION :

Overview of GST - Concepts - Limitations VAT - Need for tax reforms - Justification for introduction of GST - Short comings and advantages at the Central level and State level on introduction of GST - Process of introduction of GST - Constitutional amendments.

UNIT - II

GST :

Principles - Models of GST - Australian, Canadian, Kelkar - Shah - Bagchi - Poddar - Comprehensive structure of GST model in India - Single, Dual GST - Transactions covered under GST.

UNIT - III

TAXES AND DUTIES :

Subsumed under GST - Taxes and duties outside the purview of GST - Tax on items containing alcohol - Tax on petroleum products - Tax on tobacco products - Tax of services.

UNIT - IV

INTER - STATE GOODS AND SERVICES TAX :

Major advantages of IGST model - Interstate goods and service tax - Transactions within a state under GST - Interstate transactions under GST - Illustrations.

UNIT - V

TIME OF SUPPLY OF GOODS AND SERVICES :

Value of supply - Input tax credit - Distribution of credit - Matching of input tax credit - Availability of credit in special circumstances - Cross utilisation of ITC between the Central GST and the State GST.

REFERENCES :

1. Goods and services taxes in India - Notifications on different dates
2. GST bill 2012
3. Background material on model GST law, Sahitya Bhawan Publications, Hospital Road, Agra
4. The Central goods and services tax act, 2017, No. 12 of 2017 published by authority, Ministery of Law and Justice, New Delhi, the 12th April, 2017

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COMMERCIAL GEOGRAPHY **COM 503C** 2017-18 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

THE EARTH : Internal structure of the Earth - Latitude - Longitude - Realms of the Earth - Evolution of the Earth - Environment pollution

UNIT - II

INDIA - AGRICULTURE : Land use - Soils - Major crops - Importance of agriculture - Problems in agriculture - Agriculture development

UNIT - III

FORESTRY : Forests - Status of forests in Andhra Pradesh - Forest (conservation) Act, 1980 - Compensatory Afforestation Fund (CAF) Bill, 2015 - Forest Rights Act, 2006 - Need for protection of forestry

UNIT - IV

INDIA - MINERALS AND MINING : Minerals - Renewable and non renewable - Use of minerals - Mines - Coal, Barites etc.,

UNIT - V

INDIA - WATER RESOURCES - RIVERS : Water resources - Rationality and equitable use of water - Protection measures - Rivers - Interlinking of rivers in Andhra Pradesh

Reference Books:

1. Shabiar Ahmad; Quazi, Natural Resource Consumption and Environment Management, APH
Publishing Corporation
2. Tarachand, Economic and Commerical Geography of India, Vikas Publishing House
3. Dr S. Sankaran, Commerical Geography, Margam Publications, Chennai
4. C.B. Memoria, Commercial Geography, Lal Agarwal & Co.,
5. C.B. Memoria, Economic and Commercial Geography, Lal Agarwal & Co.,
6. Vinod N. Patel, Commercial Geography, Oxford Book Company

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CENTRAL BANKING **COM 504C** 2017-18 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

INTRODUCTION : Evolution and functions of Central Bank - Development of Central Banks in developed and developing countries - Trends in Central Bank functions

UNIT - II

CENTRAL BANKING IN INDIA : Reserve Bank of India - Constitution and governance, recent developments, RBI Act - Interface between RBI and Banks

UNIT - III

MONETARY AND CREDIT POLICIES : Monetary policy statements of RBI - CRR - SLR - Repo rates - Reserve Repo rates - Currency in circulation - Credit control measures

UNIT - IV

INFLATION AND PRICE CONTROL BY RBI : Intervention mechanisms - Exchange rate stability - Rupee value - Controlling measures

UNIT - V

SUPERVISION AND REGULATION : Supervision of banks - Basle norms, Prudential norms, effect of liberalisation and globalisation - Checking of money laundering and frauds

Reference Books :

1. Reserve Bank of India Publication, Functions and Working of the RBI
2. Vasant Desai, Central Banking and Economic Development, Himalaya Publishing
3. S. Panandikar, Banking in India, Orient Longman
4. Reserve Bank of India Publication, Report on Trends and Progress of Banking in India
5. Annual Reports of Reserve Bank of India
6. Rita Swami, Indian Banking System, International Publishing House Pvt., Ltd.,
7. S.V. Joshi, C.P. Rodrigues and Azhar Khan, Indian Banking System, MacMillan Publishing

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RURAL & FARM CREDIT **COM 505C** 2017-18 onwards III B.Com.,

SYLLABUS

V SEMESTER

UNIT - I

RURAL CREDIT : Objectives and significance of rural credit - Classification of rural credit - General Credit Card (GCC) - Financial inclusion - Rupay card

UNIT - II

RURAL CREDIT AGENCIES : Institutional and non - institutional agencies for financing agriculture and rural development - Self - Help Groups (SHG) - Financing for rural industries

UNIT - III

FARM CREDIT : Scope - Importance of farm credit - Principles of farm credit - Cost of credit - Types - Problems and remedial measures - Kisan Credit Card (KCC) Scheme

UNIT - IV

SOURCES OF FARM CREDIT

Co-operative Credit : PACS - APCOB - NABARD - Lead Bank Scheme - Role of commercial and regional rural banks - Problems of recovery and over dues

UNIT - V

FARM CREDIT ANALYSIS : Eligibility conditions - Analysis of 3 R's (Return, Repayment Capacity and Risk - Bearing Capacity) - Analysis of 3 C's of Credit (Character, Capacity and Capital) - Crop index reflecting use and farm credit - Rural Credit Survey Reports.

Reference Books :

1. National Bank of Agricultural and Rural Development (NABARD) Annual report
2. Economic Survey, Government of India
3. Rural Development, Sundaram I.S., Himalaya Publishing House, Mumbai
4. Rural Credit in India, C.S. Rayudu, Mittal Publications
5. Farm Credit and Co-operatives in India, Tiruloati V., Naidu. V.T. Naidu, Vora & Co., Pub., Ltd.,

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COMPUTER SCIENCE **CSC 301C** 2017-18 onwards III B.Sc

SYLLABUS

V SEMESTER (V PAPER)

DATA BASE MANAGEMENT SYSTEM

UNIT I

Overview of Database Management System : Introduction, file-based system, Drawbacks of file-Based System ,Data and information, Database, Database management System, Objectives of DBMS, Evaluation of Database management System, Classification of Database Management System, DBMS Approach, advantages of DBMS, Anis/spark Data Model, data models, Components and Interfaces of Database Management System. Database Architecture, Situations where DBMS is not Necessary, DBMS Vendors and Their Products.

UNIT II

Entity-Relationship Model : Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, IS A relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, aggregation and composition, entity clusters, connection types, advantages of ER modeling.

UNIT III

Relational Model : Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus,domain relational Calculus (DRC). QBE

UNIT IV

Structured Query Language : Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Table Truncation, Imposition of Constraints, Join Operation, Set Operation, View, Sub Query, Embedded SQL

UNIT V

PL/SQL : Introduction, Shortcoming in SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Cursors, Steps to create a Cursors, Procedure, Function, Packages, Exceptions Handling, Database Triggers, Types of Triggers.

Reference Books :

1. "Database System Concepts" by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill, 2010, 9780073523323
2. "Database Management Systems" by Raghu Ramakrishnan, McGrawhill, 2002,
3. Fundamentals of Relational Database Management Systems by S. Sumathi, S. Esakkirajan, Springer Publications
4. "An Introduction to Database Systems" by Bipin C Desai
5. "Principles of Database Systems" by J. D. Ullman
6. "Fundamentals of Database Systems" by R. Elmasri and S. Navathe

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SYLLABUS

V SEMESTER (VI PAPER)

SOFTWARE ENGINEERING

UNIT I

Introduction : Software Engineering Process paradigms - Project management - Process and Project Metrics – software estimation - Empirical estimation models - Planning - Risk analysis - Software project scheduling.

UNIT II

Requirements analysis : Requirement Engineering Processes – Feasibility Study – Problem of Requirements – Software Requirement Analysis – Analysis Concepts and Principles – Analysis Process – Analysis Model

UNIT III

Software design : Software design - Abstraction - Modularity - Software Architecture - Effective modular design - Cohesion and Coupling - Architectural design and Procedural design - Data flow oriented design.

UNIT IV

User interface design and real time systems : User interface design - Human factors - Human computer interaction - Human - Computer Interface design - Interface design - Interface standards.

UNIT V

Software quality and testing : Software Quality Assurance - Quality metrics - Software Reliability - Software testing - Path testing – Control Structures testing - Black Box testing - Integration, Validation and system testing - Reverse Engineering and Reengineering. CASE tools –projects management, tools - analysis and design tools – programming tools - integration and testing tool - Case studies.

REFERENCE BOOKS:

1. Roger Pressman S., "Software Engineering: A Practitioner's Approach", 7th Edition, McGraw Hill, 2010.
2. Software Engineering Principles and Practice by Deepak Jain Oxford University Press
2. Sommerville, "Software Engineering", Eighth Edition, Pearson Education, 2007
3. Pfleeger, "Software Engineering: Theory & Practice", 3rd Edition, Pearson Education, 2009
4. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, "Fundamentals of Software Engineering", Pearson Education, 2003

Student Activity:

1. Visit any financial organization nearby and prepare requirement analysis report
2. Visit any industrial organization and prepare risk chart.

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ECONOMICS **ECO 301C** 2017-18 onwards III B.A

SYLLABUS

V SEMESTER (PAPER - V)

ECONOMIC DEVELOPMENT AND INDIAN ECONOMY

UNIT - I

Concept of economic growth - Distribution between economic growth and development - Measurement of economic development - Theories of economic growth : Adam Smith, Rostow, Karl Marx and Harrod and Domar models

UNIT - II

Sustainable development - Balanced and unbalanced growth - Choice of techniques labour intensive and capital intensive methods

UNIT - III

Basic features of the Indian economy - Natural resources - Important demographic features - Concept of population dividend - Population policy

UNIT - IV

National income in India - Trends and composition - Poverty, inequalities and unemployment - Measures taken by the Government - MGNREGS

UNIT - V

Economic reforms - Liberalisations, privatisation and globalisation - Concept of inclusive growth

References :

1. Telugu Academy Publications
2. Dhingra I.C "Indian Economy", Sultan Chand, 2014
3. G. Ackley - "Macro Economics Theory and Policy" Collier Macmillan, 1978
4. E. Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999
5. Central Statistical Organisations - "National Accounts Statistics"
6. R. Dornbush, S. Fisher and R. Startz - "Macro Economics" Tata Mc. Graw Hill, 9/e, 2004
7. M.L. Seth - "Macro Economics", Lakshmi Narayana Agarwal, 2015

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ECONOMICS **ECO 401C** 2017-18 onwards III B.A

SYLLABUS

V SEMESTER (PAPER - VI)

INDIAN AND ANDHRA PRADESH ECONOMY

UNIT - I

Indian agriculture - Importance of agriculture in India - Agrarian structure and relations - Factors determining productivity - Agricultural infrastructure - Rural credit - Micro finance - Self help groups (SHGs) - Agricultural price policy - Concept of crop insurance - Food security

UNIT - II

Strucutre and growth of Indian industry - Industrial policies of 1956 and 1991 - Meaning of micro small and medium enterprises (MSMEs) - Problems and prospects of small scale industries in India

UNIT - III

Disinvestment in India - FEMA - Foreign direct investment - Services sector in India - Reforms in banking and insurance - IT, education and health

UNIT - IV

Planning in India economy - Objectivities of five year plans - Review of five year plans - Current five year plan - NITI Aayog

UNIT - V

Andhra Pradesh economy - Population - GSDP - Sector contribution and trends - IT - Small scale industry - SEZs

References :

1. Telugu Academy Publications
2. Dhingra I.C "Indian Economy", Sultan Chand, 2014
3. G. Ackley - "Macro Economics Theory and Policy" Collier Macmillan, 1978
4. E. Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999
5. Central Statistical Organisations - "National Accounts Statistics"
6. R. Dornbush, S. Fisher and R. Startz - "Macro Economics" Tata Mc. Graw Hill, 9/e, 2004
7. M.L. Seth - "Macro Economics", Lakshmi Narayana Agarwal, 2015

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HISTORY **HIS 301C** 2017-18 onwards III B.A

SYLLABUS

V SEMESTER (PAPER V)

AGE OF RATIONALISM & HUMANISM THE WORLD BETWEEN 15th & 18th CENTURIES

HISTORY OF MODERN WORLD (1453 - 1821 AD)

UNIT - I

Feudalism - Geographical Discoveries : Causes - Compass and maps - Portugal leads and Western World follows - Consequences.

UNIT - II

The Renaissance Movement : Factors for the growth of Renaissance - Characteristic features - Transformation from medieval to modern World; Reformation and counter reformation movements : The background - Protestantism - Spread of the movement - Counter reformation - Effects of reformation

UNIT - III

Emergence of Nation States : Contributory factors - England and other Nation States - Impact due to the emergence of Nation States; Age of revolutions - The Glorious revolution (1688) - Origin of Parliament - Constitutional settlement - Bill of rights - Results

UNIT - IV

Age of revolutions : The American revolution (1776) - Opening of new World - Causes - Course - Declaration of Independence, 1776 - Bill of rights, 1791 - Significance

UNIT - V

Age of revolutions : The French revolution (1789) - Causes - Teachings of philosophers - Course of the revolution - Results

References :

1. Burke, Peter, The Renaissance
2. C.J.H. Hayes, Modern Europe upto 1870
3. C.D. Hazen, Modern Europe upto 1945
4. Christopher Hill, from reformation to industrial revolution
5. Elton, G.R. Reformation Europe, 1517-1559
6. Ferguson, The Renaissance
7. Gilmore, M.P., The World of Humanism, 1453-1517
8. Hilton, Rodney, Transition from Feudalism to Capitalism
9. J.H. Parry, The age of Renaissance
10. J.N.L. Baker, History of geographical discoveries and explorations
11. The new Cambridge economic history of Europe, Vol. I, II

Project work : Individual or group projects may be presented by the students regarding preparation of bibliography on various topics

Students should also be asked to construct glossaries to help them study and review lessons while helping them to understand a large array of vocabulary words

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HISTORY **HIS 401C** 2017-18 onwards III B.A

SYLLABUS

V SEMESTER (PAPER - VI)

HISTORY & CULTURE OF ANDHRA DESA (FROM 12th TO 19th CENTURY A.D.)

(History and culture of Andhra from Satavahanas to 1857 A.D.)

UNIT – I Andhra during 12th and 13th centuries A.D. : Kakatiyas - Origin and its antecedents - Administration - Social and economic life - Industries and trade - Promotion of literature and culture - Architecture and sculpture - Decline; The age of Reddy kingdoms : Patronage to literature - Trade and commerce

UNIT – II Andhra between 14th and 16th centuries A.D. : Vijayanagara empire : Polity, administration, society and economy - Sri Krishna Devaraya and his contribution to Andhra culture - Development of literature and architecture - Decline and downfall

UNIT – III Andhra through 16th and 17th centuries A.D. : Evolution of composite culture - The Qutb Shahis of Golkonda - Origin and decline - Administration, society and economy - Literature and architecture

UNIT – IV The 18th and 19th centuries in Andhra : East India company's authority over Andhra - Three carnatic wars - Occupation of Northern circars and ceeded districts - Early upsprings - Peasants and tribal revolts

UNIT – V The 18th and 19th centuries in Andhra : Impact of company rule of Andhra - Administration - Land revenue settlements - Society - Education - Religion - Impact of industrial revolution on economy - Peasantry and famines - Contribution of Sir Thomas Munroe, C.P. Brown and Sir Arthur Cotton - Impact of 1857 revolt in Andhra

References :

1. Balendu Sekharam, The Andhras Through the Ages
2. K. Sathyanarayana, A Study of the History and Culture of Andhras
3. Mallampalli Soma Sekhara Sarma, History of the Reddi Kingdoms
4. K.A.N. Sastry, A History of South India
5. H.K. Sherwani, History of the Kutub Shahi Dynasty
6. P.R. Rao, History of Modern Andhra
7. Khandavalli Lakxmiranjanam and Balendu Sekharam
8. Suravaram Pratap Reddy
9. B.S.L. Hanumantha Rao
10. I.K. Sarma, Early Historic Andhra Pradesh, 500 B.C. - 624 A.D., New Delhi, 2008
11. B. Rajendra Prasad, Early Medieval Andhra Pradesh, A.D. 624 - 1000 A.D., New Delhi, 2009
12. C. Somasundara Rao, Medieval Andhra Pradesh, A.D. 1000 - 1324 A.D., New Delhi, 2011
13. R. Soma Reddy, Late Medieval Andhra Pradesh, A.D. 1324 - 1724 A.D., New Delhi, 2014

Project work : Students may be asked to identify families / areas / institutions / personalities / monuments related to freedom struggle and prepare dissertation under the guidance of a teacher so as to equip them with better understanding of society and historical processes. This exercise should also aim at exposing the spirit of research, analysis, criticism,innovation and invention among the students.

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MATHEMATICS **MAT 301C** 2017-18 onwards III B.Sc.,

SYLLABUS

V SEMESTER (V PAPER)

RING THEORY & VECTOR CALCULUS

RING THEORY

UNIT - I

Rings - Defination and basic properties, commutative ring, ring with unity, Boolean ring, division ring, field, subring, subfield. Integral domains - divisors of zero, integral domain, characteristic of a ring.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - II

Ideals - Left, right and two sided ideals, algebra of ideals, principal ideal, principal ideal ring, maximal ideals, prime ideals, quotient ring.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - III

Homomorphism of rings - definition and elementary properties, range and kernal of a homomorphism, fundamental theorem of homomorphisms.

(2 short answer questions, 2 long answer questions will be given in the examination)

VECTOR CALCULUS

UNIT - IV

Vector functions – Vector function of a scalar variable, derivative of a vector function. Differential operators – Point functions, limit, continuity, directional derivative, gradient, level surface, angle between two surfaces, divergence, solenoid, curl, irrotational, differential operators, second order differential operators.

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - V

Vector integration – Integration of vector function, line integral, surface integral, volume integral and problems on these integrals.

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - VI

Integral transformations – Gauss's divergence theorem, some deductions of Gauss's divergence theorem, Green's theorem in a plane, Green's identities, Stooke's theorem and problems on these theorems.

(2 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. III, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. III, S CHAND & Co.

2. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.

3. Shanti Narayana, Matrices, S. Chand & Co., New Delhi.

4. Shanti Narayana and P. K. Mittal, Text Book Vector Analysis, S. Chand & Co., New Delhi.

5. Murray. R. Spiegel, Vector Analysis, Schaum Series Publishing Company.

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MATHEMATICS **MAT 401C** 2017-18 onwards III B.Sc.,

SYLLABUS

V SEMESTER (VI PAPER)

NUMERICAL ANALYSIS

UNIT - I

Finite differences : Finite differences, difference operators – Algebraic properties of Symbolic relations and separation of symbols, Differences of a polynomial, Fundamental theorem of difference calculus – One or more missing terms – Factorial notation – Methods of representing a polynomial a factorial notation, Differences of zero.

(3 short answer question, 2 long answer questions will be given in the examination)

UNIT - II

Interpolation with equal intervals : Derivation of Newton Gregory formula for forward and backward interpolation and problems on them.

(1 short answer question, 2 long answer questions will be given in the examination)

UNIT - III

Central difference interpolation formula : Gauss's forward formula for equal intervals – Gauss's backward formula – Gauss's third formula – Stirling's formula – Bessel's formula – Everett's formula and problems on the above formulae.

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - IV

Interpolation with unequal intervals : Divided differences – Newton's formula – Lagrange's formula – Relation between divided differences and ordinary differences – problems on Lagrange and Newton's formula.

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - V

Numerical differentiation : Derivatives using forward difference formula – Derivatives using backward difference formula – Derivatives using central difference formula – Maxima and minima of a tabulated function.

(2 short answer question, 2 long answer questions will be given in the examination)

UNIT - VI

Numerical integration : The Trapezoidal rule – Simpson's 1/3 rule – Simpson's 3/8 rule – Weddle's rule – Romberg's integration.

(2 short answer question, 2 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, MODERN APPLIED ALGEBRA, DEEPTI PUBLICATIONS, Tenali.

REFERENCE BOOK

G. Birkhoff and T.C. Bartee MODERN APPLIED ALGEBRA, Mc. Graw-Hill Book Company, New York, 1970.

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PHYSICS **PHY 301C** 2017-18 onwards III B.Sc.,

SYLLABUS

V SEMESTER (V PAPER)

ELECTRICITY, MAGNETISM AND ELECTRONICS

UNIT - I

1. Electric field intensity and potential :

Electric charge, definitions of electric field , intensity of electric field and dipole - Gauss's law (statement only) - Electric field intensity due to (1) Uniformly charged sphere and (2) an infinite conducting sheet of charge. Electrical potential – equipotential surfaces - potential due to a i) a point charge ii) uniformly charged sphere.

2. Dielectrics :

Atomic view (qualitative) - Definition of electric displacement D and electric polarization P – relation between D, E and P - Relation between dielectric constant and susceptibility. Boundary conditions at the dielectric surface (statements)

UNIT - II

3. Electric and magnetic fields :

Biot- Savart's law (statement) and calculation of B due to long straight wire, a circular current loop – Hall effect (statement) – Hall coefficient definition and its applications.

4. Electromagnetic induction :

Faraday's law-Lenz's law- Self and mutual inductance, coefficient of coupling, calculation of self inductance of a long solenoid, energy stored in magnetic field. Transformer - energy losses - efficiency (qualitative)

UNIT - III

5. Alternating currents and electromagnetic waves :

Alternating current - Relation between current and voltage in L, C and R circuits, LCR series and parallel resonant circuit, Q –factor.

6. Maxwell's equations :

Idea of displacement current - Maxwell's equations (integral and differential forms) (no derivation), Maxwell's wave equation (with derivation). Poynting theorem (statement and proof), production of electromagnetic waves (Hertz experiment).

UNIT-IV

7. Basic electronics :

I - V characteristics of PN juction diode, Zener diode, Tunnel diode, PNP and NPN transistors, CB, CE and CC configurations – NPN transistor (CE) characteristics hybrid parameters (statements), transistor as an amplifier.

UNIT-V

8. Digital electronics :

Number systems - Conversion of binary to decimal system and vice versa. Binary addition and subtraction (1's and 2's complement methods). De Morgan's laws-statement and proof, Basic logic gates, NAND and NOR as universal gates, exclusive-OR gate, Half adder and Full adder.

REFERENCE BOOKS

1. BSc Physics, Vol.3, Telugu Akademy, Hyderabad.
2. Electricity and Magnetism, D.N. Vasudeva. S. Chand & Co.
3. Electricity, Magnetism with Electronics, K.K.Tewari, R.Chand& Co.,
4. Principles of Electronics, V.K. Mehta, S.Chand& Co.,
5. Digital Principles and Applications, A.P. Malvino and D.P.Leach, Mc GrawHill Edition.

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PHYSICS **PHY 401C** 2017-18 onwards III B.Sc.,

SYLLABUS

V SEMESTER (VI PAPER)

MODERN PHYSICS

UNIT-I (12 hrs)

1. Atomic and molecular physics :

Introduction –Drawbacks of Bohr's atomic model- Sommerfeld's elliptical orbits - relativistic correction (no derivation).Hydrogen spectrum - Vector atom model and Stern-Gerlach experiment - quantum numbers associated with it. L-S and j- j coupling schemes.Zeeman effect and its experimental arrangement.

2. Raman effect :

Raman effect, hypothesis, Stokes and Anti Stokes lines. Quantum theory of Raman effect. Experimental arrangement – Applications of Raman effect.

UNIT-II (12 hrs)

3. Matter waves & Uncertainty Principle :

Matter waves, de Broglie's hypothesis - wavelength of matter waves, Properties of matter waves - Davisson and Germer experiment – Phase and group velocities. Heisenberg's uncertainty principle for position and momentum (x and p), & energy and time (E and t). Experimental verification - Complementarity principle of Bohr.

UNIT-III (12 hrs)

4. Quantum (wave) mechanics :

Basic postulates of quantum mechanics-Schrodinger time independent and time dependent wave equations-derivations. Physical interpretation of wave function. Eigen functions, Eigen values. Application of Schrodinger wave equation to particle in one dimensional infinite box.

UNIT-IV(12 hrs)

5. General Properties of Nuclei :

Basic ideas of nucleus -size, mass, charge density (matter energy), binding energy, angular momentum, parity, magnetic moment, electric moments. Liquid drop model and Shell model (qualitative aspects only) - Magic numbers.

6. Radioactivity decay :

Alpha decay: basics of á-decay processes. Theory of á-decay, Gamow's theory, Geiger Nuttal law.â-decay, Energy kinematics for â-decay, positron emission, electron capture, neutrino hypothesis.

UNIT-V (12 hrs)

7. Crystal Structure :

Amorphous and crystalline materials, unit cell, Miller indices, Diffraction of X-rays by crystals, Bragg's law, experimental techniques, Laue's method and Powder diffraction method.

8. Superconductivity :

Introduction - experimental facts, critical temperature - critical field - Meissner effect – Isotope effect - Type I and type II superconductors - BCS theory (elementary ideas only) - applications of superconductors.

REFERENCE BOOKS

1. BSc Physics, Vol.4, Telugu Akademy, Hyderabad
2. Molecular Structure and Spectroscopy by G. Aruldhas. Prentice Hall of India, New Delhi.
3. Modern Physics by R. Murugeshan and Kiruthiga Siva Prasath. S. Chand & Co.
4. Modern Physics by G. Aruldhas & P. Rajagopal. Eastern Economy Edition.
5. Concepts of Modern Physics by Arthur Beiser. Tata McGraw-Hill Edition.
6. Quantum Mechanics, Mahesh C Jain, Eastern Economy Edition.
7. Nuclear Physics, Irving Kaplan, Narosa publishing House.
8. Nuclear Physics, D.C.Tayal, Himalaya Publishing House.
9. Elements of Solid State Physics, J.P.Srivastava, Prentice Hall of India Pvt., Ltd.
10. Solid State Physics, A.J. Dekker, McMillan India.

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POLITICS **POL 301C** 2017-18 onwards III B.A

SYLLABUS

V SEMESTER (PAPER - V)

INDIAN POLITICAL THOUGHT

UNIT - I

Traditions of ancient Indian political thought

1. Sources and features of ancient Indian political thought
2. Manu : Social laws
3. Kautilya : Theory of the state

UNIT - II

Renaissance thought

1. Rammohan Ray : Religious and social reform
2. Pandita Ramabai : Gender

UNIT - III

Early Nationalism

1. Dadabai Naoroji : Drain theory and poverty
2. Ranade M.G. : The role of the state and religious reform

UNIT - IV

Religious Nationalism

1. Savarkar VD : Hindutva or Hindu cultural Nationalism
2. Mohammed Iqbal : Islamic coummunitarian Nationalism

UNIT - V

Democratic Egalitarianism

1. Gandhi - Swaraj and Satyagraha
2. Jawaharlal Nehru - Democratic socialism
3. Dr BR Ambedkar - Annihilation of caste system
4. M.N. Roy : Radical humanism

References :

1. Pantham Thomas and Kenneth Deutsch (Ed) (1986) Political thought in modern India, Sage, New Delhi
2. Bidyut Chakrabarthy and Rajendra Kumar Pandey (2009) Modern Indian political thought, Sage, New Delhi
3. Gurpreet Mahajan (2013), India : Political ideas and making of a democratic discourse, zed book, London
4. Partha Chatterjee (1986) Nationalist thought and the colonial world : A derivative disclosure, zed books, London
5. Bhikhu Parekh (1999) colonialism, tradition and reform, Sage, New Delhi
6. Bhikhu Parekh (1989) Gandhi's political philosophy, Macmillan, London

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POLITICS **POL 401C** 2017-18 onwards III B.A

SYLLABUS

V SEMESTER (VI PAPER)

WESTERN POLITICAL THOUGHT

UNIT - I

Classical Western Political Thought

1. Plato : Theory of forms, critique of democracy, justice
2. Aristotle : Citizenship, state, justice, virtue

UNIT - II

Early medieval to the beginning of modern thought

1. St. Augustine : Earthly city and heavenly city, evil, freewill, moral action
2. Machiavelli, statecraft, virtue, fortuna

UNIT - III

Liberal thought

1. Thomas Hobbes : Human nature, social contract, liberty, state
2. John Locke : Natural rights, consent, social contract, state
3. Rousseau : Social institutions and moral man, equality, liberty and general will

UNIT - IV

Liberal democratic thought

1. Jeremy Bentham : Utilitarianism
2. John Stuart Mill : Individual liberty, representative Government

UNIT - V

Philosophical idealism and its critique

1. Hegel : Individual freedom, civil society, state
2. Karl Marx : Alienation, surplus value, materialist conception of history, state

References :

1. Shefali Jha (2010) Western Political Thought from Plato to Karl Marx, Pearson, New Delhi
2. Boucher D and Kelly P (Eds) (2009) Political Thinkers from Socrates to the Present, Oxford University Press, Oxford
3. Coleman J (2000) A History of Modern Political Thought : From Ancient Greece to Early Christianity, Blackwell Publishers, Oxford
4. Macpherson C B (1962) The Political Theory of Possessiveness Individualism, Oxford University Press, Oxford
5. Hampsher - Monk I (2001) A History of Modern Political Thought : Major Political Thinkers from Hobbers to Marx, Blackwell Publishers, Oxford

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SPL. ENGLISH **ENG 301CS** 2017-18 onwards III B.A.,

SYLLABUS

V SEMESTER (PAPER - V)

AN OUTLINE OF 20th CENTURY LITERATURE

Unit - I

History of English literature : **2x10=20**

Literature in English in 20th century

1. Characteristics of 20th century English poetry
2. Write on Modernism
3. Essay on Post Modernism
4. Characteristics of Victorianism
5. Write on 'stream of consciousness technique'

Unit - II

Literary forms and terms : **3x5=15**

1. Free verse
2. Problem play
3. Well - Made play
4. Absurd drama
5. Kitchen - Sink drama
6. Stream of consciousness novel
7. Bildungsroman
8. Point of view
9. Setting

Unit - III

Poetry : **1x10=10**

Church going : Philip Larkin

Unit - IV

Prose : **3x5=15**

Shooting an Elephant : George Orwell

Unit - V

Drama : **1x10=10**

Pygmalion : G.B. Shaw

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SPL. ENGLISH **ENG 401CS** 2017-18 onwards III B.A.,

SYLLABUS

GLIMPSES OF WORLD LITERATURE

Unit - I

Poetry (Paras) : **1x5=5**

Wole Soyinka : Telephone conversation

Unit - II

Drama (Essays) : **2x10=20**

Girish Karnad : Tughlaq

Unit - III

Novel I (Essays) : **2x10=20**

Dostoevsky : Crime and punishment

Unit - IV

Novel II (Essays) : **2x10=20**

Ngugi wa Thiong'o : A grain of wheat

Unit - V

Short story (Short questions) : **1x5=5**

Nadine Gordimer : My son's story

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ZOOLOGY **ZOO 301C** 2017-18 onwards III B.Sc

SYLLABUS

V SEMESTER (V PAPER)

ANIMAL BIOTECHNOLOGY

Unit 1: Tools of Recombinant DNA technology - Enzymes and Vectors

Restriction modification systems : Types I, II and III. Mode of action, nomenclature, applications of Type II restriction enzymes in genetic engineering

DNA modifying enzymes and their applications : DNA polymerases. Terminal deoxynucleotidyl transferase, kinases and phosphatases, and DNA ligases

Cloning Vectors : Plasmid vectors:pBR and pUC series, Bacteriophage lambda and M13 based vectors, Cosmids, BACs, YACs,

Unit 2 Techniques of Recombinant DNA technology

Cloning : Use of linkers and adaptors

Gene delivery : Microinjection, electroporation, biolistic method (gene gun), liposome and viralmediated delivery

PCR : Basics of PCR.

DNA Sequencing : Sanger's method of DNA sequencing- traditional and automated sequencing

Hybridization techniques : Southern, Northern and Western blotting,

Genomic and cDNA libraries : Preparation and uses

UNIT 3 Animal Cell Technology

Cell culture media : Natural and Synthetic

Cell cultures : primary culture, secondary culture, continuous cell lines; Protocols for Primary Cell Culture; Established Cell lines (common examples such as MRC, HeLa, CHO, BHK, Vero); Organ culture; Cryopreservation of cultures.

Hybridoma Technology : Cell fusion, Production of Monoclonal antibodies (mAb), Applications of mAb

Stem cells : Types of stem cells, applications

Unit 4 Reproductive Technologies & Transgenic Animals

Manipulation of reproduction in animals : Artificial Insemination, In vitro fertilization , super ovulation, Embryo transfer, Embryo cloning

Transgenic Animals : Strategies of Gene transfer; Transgenic - sheep, - fish; applications

Unit 5 Applied Biotechnology

Industry : Fermentation: Different types of Fermentation: Short notes on - Submerged & Solid state; batch, Fed batch & Continuous; Stirred tank, Air Lift, Fixed Bed and Fluidized; Downstream processing - Filtration, centrifugation, extraction, chromatography, spray drying and lyophilization

Agriculture : fisheries – monoculture in fishes, polyploidy in fishes; DNA fingerprinting

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ZOOLOGY **ZOO 401C** 2017-18 onwards III B.Sc

SYLLABUS

V SEMESTER (PAPER - VI)

ANIMAL HUSBANDRY

UNIT – I : 10 Hours

General introduction to poultry farming. Principles of poultry housing. Poultry houses. Systems of poultry farming. Management of chicks, growers and layers. Management of Broilers.

UNIT – II : 10 Hours

Poultry feed management – Principles of feeding. Nutrient requirements for different stages of layers and broilers. Methods of feeding. Poultry diseases – viral, bacterial, fungal and parasitic (two each); symptoms, control and management.

UNIT – III : 10 Hours

Selection, care and handling of hatching eggs. Egg testing. Methods of hatching. Brooding and rearing. Sexing of chicks.

UNIT- IV : 20 Hours

Breeds of Dairy Cattle and Buffaloes – Definition of breed; Classification of Indian Cattle breeds, exotic breeds and Indian buffalo breeds. Systems of inbreeding and crossbreeding. Housing of dairy animals – Selection of site for dairy farm; systems of housing – loose, housing system. Conventional dairy barn. Cleaning and sanitation of dairy farm. Weaning of calf. Castration and dehorning. Deworming and Vaccination programme. Records to be maintained in a dairy farm.

UNIT - V : 10 Hours

Care and management of dairy animals - Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks.

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BOTANY **BOT 302C (A)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [VII (A) PAPER]

NURSERY, GARDENING & FLORICULTURE

Unit - I

Nursery :

1. Definition, objectives, scope and building up of infrastructure for nursery
2. Planning and seasonal activities - Planting - Direct seeding and transplants
3. Nursery Management and Routine Garden Operations

Unit - II

Gardening :

1. Definition, objectives and scope - Different types of gardening
2. Landscape and home gardening - Parks and its components, plant materials and design
3. Computer applications in landscaping
4. Gardening operations : Soil laying, manuring, watering
5. Landscaping Places of Public Importance : Landscaping highways and Educational Institutions
6. Some famous gardens of India

Unit - III

Propagation methods :

1. Sowing / raising of seeds and seedlings, transplanting of seedlings
2. Air - Layering, cutting, selection of cutting, propagule collecting season, treatment of cutting rooting medium and planting of cuttings - Hardening of plants
3. Propagation of ornamental plants by rhizomes, corms tubers, bulbs and bulbils
4. Green house - Mist chamber, shed root, shade house and glass house for propagation

Unit - IV

Floriculture :

1. Ornamental Plants : Flowering annuals; herbaceous, perennials; Divine vines; Shade and ornamental trees
2. Ornamental bulbous and foliage plants; Cacti and succulents
3. Ornamentals-palms
4. Cultivation of plants in pots; Indoor gardening; Bonsai

Unit - V

Commercial Floriculture :

1. Factors affecting flower production; Production and packaging of cut flowers; Flower arrangements; Methods to prolong vase life of flowers
2. Cultivation of Important cut flowers (Carnation, Aster, Dahlia, Gerbera, Anthuriams, Gladiolous, Marigold, Rose, Lilium)
3. Management of pests, diseases and harvesting
4. Methods of harvesting

Reference books :

1. Bose T.K. & Mukherjee, D., 1972, Gardening in India, Oxford & IBH Publishing Co., New Delhi
2. Sandhu, M.K., 1989, Plant Propagation, Wile Eastern Ltd., Bangalore, Madras
3. Kumar, N., 1997, Introduction to Horticulture, Rajalakshmi Publications, Nagercoil Institution
4. Randhawa, G.S. and Mukhopadhyay, A. 1986. Floriculture in India. Allied Publishers

Suggested Activities : Raising a nursery, managing it, studying and drawing various land scaping designs, practicing layering methods, using shade nets to protect horticultural crops, practicing indoor gardening techniques, visiting florists and recording their methods of prolonging vase life of commercial cut flowers

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BOTANY **BOT 402C (A1)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [VIII (A1) PAPER]

BIOLOGICAL INSTRUMENTATION & METHODOLOGY

Unit - I

Imaging and related techniques :

Principles of microscopy; Light microscopy; Fluorescence microscopy; Electron Microscopy (a) Flow cytometry (b) Applications of fluorescence microscopy: Chromosome banding, FISH, chromosome painting; Transmission and Scanning electron microscopy – sample preparation for electron microscopy, cryofixation, negative staining, shadow casting, freeze fracture, freeze etching.

Unit - II

pH and Centrifugation :

pH meter: Principles and instrumentation, Centrifugation: Principles, types of centrifuges, types of rotors, differential and density gradient centrifugation, application. Sonication, Freeze drying.

Unit - III

Spectrophotometry :

Principle involved in Spectrophotometer; Spectrophotometric techniques, Instrumentation: ultraviolet and visible spectrophotometry (single and double beam, double wave length spectrophotometers), Infrared spectrometers - Luminometry and densitometry – principles and their applications - Mass Spectroscopy- principlesof analysis, application in Biology.

Unit - IV

Chromatography :

Chromatographic techniques: Principle and applications – Column - thin layer –paper, affinity and gas chromatography - Gel filtration - Ion exchange and High performance liquid chromatography techniques– Examplesof application for each chromatographic system - Basic principles of electrophoresis.

Unit - V

Preparation of molar, molal and normal solutions, buffers, the art of scientific writing :

Understanding the details on the label of reagent bottles. Molarity and normality of common acids and bases. Preparation of solutions. Dilutions. Percentage solutions. Molar, molal and normal solutions. Technique of handling micropipettes; Knowledge about common toxic chemicals and safety measures in their handling.

The art of scientific writing and presentation of scientific matter.Scientific writing and ethics. Writing references. Powerpoint presentation. Poster presentation.

Introduction to copyright - academic misconduct/plagiarism in scientific writing.

Reference Books :

1. Bajpai P.K. 2006. Biological Instrumentation and methodology. S. Chand & Co. Ltd.
2. K. Wilson and J. Walker Eds. 2005. Biochemistry and Molecular Biology. Cambridge University Press.
3. K. Wilson and KH. Goulding. 1986. Principles and techniques of Practical Biochemistry.

(3 edn) Edward Arnold, London.

4. Dawson, C. (2002). Practical research methods. UBS Publishers, New Delhi.
5. Stapleton P., Yondeowei A., Mukanyange J., Houten H. (1995). Scientific writing for agricultural research scientists – A training reference manual. West Africa Rice Development Association, Hong Kong.
6. Ruzin S.E. (1999). Plant micro technique and microscopy. Oxford University Press, New York, U.S.A.

Suggested activities : Preparing various laboratory reagents, operating laboratory instruments, noting instrument readings, calculating results accurately, Skills on writing scientific articles, presentation of scientific results through tables, graphs, poster presentations and practicing power point presentations.

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BOTANY **BOT 402C (A2)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [IX (A2) PAPER]

MUSHROOM CULTURE & TECHNOLOGY

Unit - I

Introduction, History :

Introduction - history - scope of edible mushroom cultivation, Types of edible mushrooms available in India – *Volvariellavolvacea, Pleurotuscitrinopileatus, Agaricusbisporus*. Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms.

Unit - II

Pure culture - Spawn preparation :

Pure culture - Preparation of medium (PDA and Oatmeal agar medium) sterilization - Preparation of test tube slants to store mother culture – Culturing of *Pleurotus* mycelium on Petriplates, preparation of mother spawn in saline bottle and polypropylene bag and their multiplication.

Unit - III

Cultivation Technology :

Infrastructure : Substrates (locally available) Polythene bags, vessels, Inoculation hook, inoculation loop, low cost stove, sieves, culture rack, mushroom unit (Thatched house) water sprayer, tray, small polythene bag. Mushroom bed preparation - Paddy straw, sugarcane trash, maize straw, banana leaves. Factors affecting the mushroom bed preparation - Low cost technology, composting technology in mushroom production.

Unit - IV

Storage and nutrition :

Short - term storage (Refrigeration - up to 24 hours) Long term Storage (canning, pickels, papads), drying, storage in saltsolutions. Nutrition - Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content – Vitamins.

Unit V

Food preparation :

Types of foods prepared from mushrooms;soup,cutlet omlette, samosa, pickles and curry. Research centres - National level and Regional level. Cost benefit ratio - Marketing in India and abroad, export value.

Reference books :

1. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R (1991) Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore
2. Swaminathan, M. (1990) Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore - 560018
3. Tewari, Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi
4. Nita Bahl (1984-1988) Hand book of Mushrooms, II Edition, Vol. I & Vol. II
5. Biswas, S., M. Datta and S.V. Ngachan. 2011. Mushrooms : A Manual For Cultivation. PHI learning private Ltd. ,New Delhi ,India

6. Chang, S. and P.G. Miles. 2004. Mushrooms : cultivation, nutritional value, medicinal effect, and environmental impact. CRC Press. USA
7. Miles, P.G. and S. Chang. 1997. Mushroom Biology : Concise basics and current developments. World Scientific Publishing Co. Pvt.Ltd. Singapore

Suggested activities : Growing spawn on laboratory prepared medium in petriplates and maintaining, preparing compost and compost beds, packing of beds, spawning, maintaining moisture, picking, blanching and packing. Collecting naturally growing mushrooms and identifying them properly, visits to mushroom houses.

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CHEMISTRY **CHE 302C (A)** 2017-18 onwards III B.Sc.,

SYLLABUS

VI SEMESTER [VII (A) PAPER]

ENVIRONMENTAL CHEMISTRY

UNIT - I

Introduction **9h**

Concept of environmental Chemistry - Scope and importance of environment in now a days - Nomenclature of environmental Chemistry - Segments of environment - Natural resources - Renewable resources - Solar and biomass energy and nonrenewable resources - Thermal power and atomic energy - Reactions of atmospheric oxygen and hydological cycle.

UNIT - II

Air pollution **9h**

Definition - Sources of air pollution - Classification of air pollution - Acid rain - Photochemical smog - Green house effect - Formation and depletion of ozone - Bhopal gas disaster - Controlling methods of air pollution.

UNIT - III

Water pollution **9h**

Unique physical and chemical properties of water - Water quality and criteria for finding of water quality - Dissolved oxygen - BOD, COD, suspended solids, total dissolved solids, alkalinity - Hardness of water - Methods to convert temporary hard water into soft water - Methods to convert permanent hard water into soft water - Eutrophication and its effects - Principal wastage treatment - Industrial waste water treatment.

UNIT - IV

Chemical Toxicology **9h**

Toxic chemicals in the environment - Effects of toxic chemicals - Cyanide and its toxic effects - Pesticides and its biochemical effects - Toxicity of lead, mercury, arsenic and cadmium.

UNIT - V

Ecosystem and biodiversity **9h**

Concepts - Structure - Functions and types of ecosystem - Abiotic and biotic components - Energy flow and energy dynamics of ecosystem - Food chains - Food web - Tropic levels - Biogeochemical cycles (carbon, nitrogen and phosporus).

Biodiversity

Definition - Level and types of biodiversity - Concept - Significance - Magnitude and distribution of biodiversity - Trends - Biogeographical classification of India - Biodiversity at National, global and regional level.

List of reference books :

1. Fundamentals of ecology by M.C. Dash
2. A text book of environmental Chemistry by W. Moore and F.A. Moore
3. Environmental Chemistry by Samir K. Banerji

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CHEMISTRY **CHE 402C (A1)** 2017-18 onwards III B.Sc.,

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VI SEMESTER [VIII (A1) PAPER]

FUEL CHEMISTRY & BATTERIES

UNIT - I **12h**

Review of energy sources (renewable and non - renewable) - Classification of fuels and their calorific value. Coal : Uses of coal (fuel and non fuel) in various industries, its composition, carbonisation of coal - Coal gas, producer gas and water gas - Composition and uses - Fractionation of coal tar - Uses of coal tar based chemicals, requisites of a good metallurgical coke, coal gasification (hydro gasification and catalytic gasification) coal liquefaction and solvent refining.

UNIT - II **6h**

Petroleum and petro chemical industry

Composition of crude petroleum, refining and different types of petroleum products and their applications.

UNIT - III **10h**

Fractional distillation (principle and process), cracking (thermal and catalytic cracking). Reformning petroleum and non petroleum fuels (LPG, CNG, LNG, Biogas), fuels derived from biomass, fuel from waste, synthetic fuels (gaseous and liquids), clear fuels, petro chemicals : vinyl acetate, propylene oxide, isoprene, butadiene, toluene and its derivative xylene.

UNIT - IV **10h**

Lubricants :

Classification of lubricants, lubricating oils (conducting and non conducting), solid and semi solid lubricants, synthetic lubricants. Properties of lubricants (viscosity index, cloud point, pore point) and their determination.

UNIT - V **7h**

Batteries :

Primary and secondary batteries, battery components and their role, characteristics of battery. Working of following batteries : Pb acid, Li - Battery, solid state electrolyte battery. Fuel cells, solar cell and polymer cell.

Reference books :

1. E. Stochi : Industrial chemistry, Vol - 1, Ellis Horwood Ltd., UK
2. P.C. Jain, M. Jain : Engineering chemistry, Dhanpat Rai & Sons, Delhi
3. B.K. Sharma : Industrial chemistry, Goel publishing house, Meerut

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VI SEMESTER [IX (A2) PAPER]

INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE

UNIT - I **8h**

Recapitulation of *s*- and *p*- block elements :

Periodicity in *s*- and *p*- block elements with respect to electronic configuration, atomic and ionic size, ionisation enthalpy, electronegativity (Pauling, Mulliken and Alfred - Rochow scales). Allotropy in C, S and P. Oxidation states with reference to elements in unusual and rare oxidation states like carbides and nitrides, inert pair effect, diagonal relationship and anomalous behaviour of first member of each group.

UNIT - II **15h**

Silicate industries :

Glass : Glassy state and its properties, classification (silicate and non - silicate glasses). Manufacture and processing of glass. Composition and properties of the following types of glasses : Soda lime glass, lead glass, armoured glass, safety glass, borosilicate glass, fluorosilicate, coloured glass, photosensitive glass.

Ceramics : Important clays and feldspar, ceramic, their types and manufacture. High technology ceramics and their applications, super conducting and semi conducting oxides, fullerenes carbon nanotubes and carbon fibre.

Cements : Classification of cement, ingredients and their role, manufacture of cement and the setting process, quick setting cements.

UNIT - III **8h**

Fertilisers :

Different types of fertilisers. Manufacture of the following fertilisers : Urea, ammonium nitrate, Calcium ammonium nitrate, ammonium phosphates; polyphosphate, superphosphate, compound and mixed fertilisers, potassium chloride, potassium sulphate.

UNIT - IV **8h**

Surface coatings :

Objectives of coatings surfaces, preliminary treatment of surface, classification of surface coatings. Paints and pigments - formulation, composition and related properties. Oil paint, vehicle, modified oils, pigments, toners and lakes pigments, fillers, thinners, enamels, emulsifying agents. Special paints (heat retardant, fire retardant, eco - friendly paint, plastic paint), dyes, wax polishing, water and oil paints, additives, metallic coatings (electrolytic and electroless), metal spraying and anodizing.

UNIT - V **6h**

Alloys :

Classification of alloys, ferrous and non - ferrous alloys, specific properties of elements in alloys. Manufacture of steel (removal of silicon decarbonisation, demanganisation, desulphurisation dephosphorisation) and surface treatment (argon treatment, heat treatment, nitriding, carburising). Composition and properties of different types of steels.

Chemical explosives :

Origin of explosive properties in organic compounds, preparation and explosive properties of lead azide, PETN, cyclonite (RDX). Introduction to rocket propellants.

Reference books :

1. E. Stocchi : *Industrial Chemistry*, Vol - I, Ellis Horwood Ltd., UK.
2. R.M. Felder, R.W. Rousseau : *Elementary Principles of Chemical Processes*, Wiley publishers, New Delhi.
3. W.D. Kingery, H.K. Bowen, D.R. Uhlmann : *Introduction to Ceramics*, Wiley publishers, New Delhi.
4. J.A. Kent : Riegel's *Handbook of Industrial Chemistry*, CBS publishers, New Delhi.
5. P.C. Jain & M. Jain : *Engineering Chemistry*, Dhanpat Rai & Sons, Delhi.
6. R. Gopalan, D. Venkappayya, S. Nagarajan : *Engineering Chemistry*, Vikas publications, New Delhi.
7. B.K. Sharma : *Engineering Chemistry*, Goel publishing house, Meerut.

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MARKETING **COM 601C** 2017-18 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I :

Introduction : Concepts of Marketing: Product Concept – Selling Concept - Societal Marketing Concept – Marketing Mix - 4 P's of Marketing – Marketing Environment.

UNIT -II :

Consumer Markets and Buyer Behaviour : Buying Decision Process – Stages – Buying Behaviour – Market Segmentation – Selecting Segments – Advantages of Segmentation.

UNIT - III :

Product Management : Product Life Cycle - New products, Product mix and Product line decisions - Design, Branding, Packaging and Labeling.

UNIT - IV :

Pricing Decision : Factors influencing price determination, Pricing strategies: Skimming and Penetration pricing.

UNIT - V :

Promotion and Distribution : Promotion Mix - Advertising - Publicity – Public relations - Personal selling and Direct marketing - Distribution Channels – Online marketing - Global marketing.

REFERENCES :

1. Philip Kotler, Marketing Management, Prentice Hall of India.
2. Philip Kotler & Gary Armstrong, Principles of Marketing, Pearson Prentice Hall
3. Stanton J. William & Charles Futrel, Fundamentals of Marketing, McGraw Hill Company
4. V.S. Ramaswamy S. Nama Kumari, Marketing Management – Planning, McMillan

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AUDITING **COM 602C** 2017-18 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I :

Auditing : Meaning – Objectives – Importance of Auditing – Auditing as a Vigil Mechanism – Role of Auditor in checking corporate frauds.

UNIT - II :

Types of Audit : Based on Ownership and time - Independent, Financial, Internal, Cost, Tax, Government, Secretarial audits.

UNIT - III :

Planning of Audit : Steps to be taken at the commencement of a new audit - Audit programme - Audit note book - Internal check, internal audit and internal control.

UNIT - IV :

Vouching and Investigation : Vouching of cash and trading transactions - Investigation, Auditing vs. Investigation

UNIT - V :

Company Audit and Auditors Report : Auditor's Qualifications – Appointment and Reappointment – Rights, duties, liabilities and disqualifications - Audit report : Content - Preparation - Relevant Provisions of Companies Act, 2013.

REFERENCES :

1. S.Vengadamani, "Practical Auditing", Margham Publications, Chennai.
2. Ghatalia, "Principles of Auditing", Allied Publishers Pvt. Ltd., New Delhi.
3. Pradeesh Kumar, Baldev Sachdeva & Jagwant Singh, "Auditing Theory and Practice, Kalyani Publications, Ludhiana.
4. N.D. Kapoor, "Auditing", S. Chand, New Delhi.
5. R.G. Saxena, "Principles and Practice of Auditing", Himalaya Publishing House, New Delhi.
6. Jagadesh Prakesh, "Principles and Practices of Auditing" Kalyani Publications, Ludhiana.
7. Kamal Gupta and Ashok Gupta, "Fundamentals of Auditing", Tata McGraw Hill
8. B.N. Tondan, "Practical Auditing", S.Chand, New Delhi.

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MANAGEMENT ACCOUNTING **COM 603C** 2017-18 onwards III B.Com.,

SYLLABUS

VI SEMESTER

UNIT - I :

Management Accounting : Interface with Financial Accounting and Cost Accounting.

UNIT - II :

Ratio Analysis : Classification, Importance and limitations - Analysis and interpretation of Accounting ratios - Liquidity, profitability, activity and solvency ratios (including problems).

UNIT - III :

Fund Flow Statement : Concept of fund : Preparation of funds flow statement. Uses and limitations of funds flow analysis (including problems).

UNIT - IV :

Cash Flow Statement : Concept of cash flow – Preparation of cash flow statement - Uses and limitations of cash flow analysis (including problems).

UNIT - V :

Break - Even Analysis and Decision Making : Calculation of Break-even point - Uses and limitations - Margin of safety – Make/Buy Decision (including Problems).

REFERENCES :

1. S.N. Maheswari, A Textbook of Accounting for Management, S. Chand Publishing, New Delhi.
2. I.M Pandey, "Management Accounting", Vikas Publishing House, New Delhi,
3. Shashi K. Gupta & R.K. Sharma, "Management Accounting: Principles and Practice", Kalyani Publishers, Ludhiana.
4. Jawahar Lal, Accounting for Management, Himalaya Publishing House, New Delhi.
5. Charles T. Horngren, et.al, "Introduction to Management Accounting" Person Education India, New Delhi, 2002.
6. Murthy & Guruswamy – Management Accounting, Tata McGraw Hill, New Delhi.
7. Dr. Kulsreshtha & Gupta – Practical problems in Management Accounting.
8. Bhattacharya, D., "Management Accounting", Pearson Education India, New Delhi.
9. S.P. Gupta – Management Accounting, S. Chand Publishing, New Delhi.

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Banking & Financial Services (Cluster) **COM 604C** 2017-18 onwards III B.Com.,

SYLLABUS

VI SEMESTER

FINANCIAL SERVICES

UNIT - I :

Financial Services : Role of Financial Services - Banking and Non Banking Companies – Activities of Non Banking Finance Companies - Fund based activities - Fee based activities.

UNIT - II :

Merchant Banking Services : Scope and importance of merchant banking services - Venture Capital - Securitization - Demat services - Commercial paper.

UNIT - III :

Leasing and Hire-Purchase : Types of Lease, Documentation and Legal aspects – Fixation of Rentals and Evaluation - Hire Purchasing- Securitization of debts - House Finance.

UNIT - IV :

Credit Rating : Purpose – Types – Credit Rating Symbols – Agencies : CRISIL and CARE – Equity Assessment vs. Grading – Mutual funds.

UNIT - V :

Other Financial Services : Factoring and Forfaeiting - Procedural and financial aspects - Installment System - Credit Cards - Central Depository Systems: NSDL, CSDL.

REFERENCES :

1. B. Santhanam, Financial Services, Margham Publication, Chennai.
2. M.Y. Khan, Financial Services, Tata McGraw – Hill, New Delhi.
3. Machendra Raja, Financial Services, S.Chand Publishers, New Delhi.
4. V. A. Avdhani, Marketing of Financial Services.
5. Machiraji, “Indian Financial System”, Vikas Publishers.
6. Sandeep Goel, Financial Services, PHI Learning.
7. L.M. Bhole, Financial Institutions and Markets, Tata McGraw Hill.
8. SEBI Guidelines, Bharat Publications, New Delhi.
9. E. Gordon & H. Natarajan, Capital Market in India, Himalaya publishing House.

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Banking & Financial Services (Cluster) **COM 605C** 2017-18 onwards III B.Com.,

SYLLABUS

VI SEMESTER

MARKETING OF FINANCIAL SERVICES

UNIT - I :

Difference between Goods and Services : Managing Service Counters – Integrated Service Management – Service Elements.

UNIT - II :

Constructing Service Environment – Managing People for service Advantage – Service Quality and Productivity – Customer Loyalty.

UNIT - III :

Pricing and Promotion Strategies : Pricing strategies – Promotion strategies – B2B Marketing – Marketing Planning and Control for services.

UNIT - IV :

Distributing Services : Cost and Revenue Management – Approaches for providing services - Channels for Service provision – Designing and managing Service Processes.

UNIT - V :

Retail Financial Services - Investment services – Insurance services - Credit Services - Institutional Financial Services - Marketing practices in select financial service firms.

REFERENCES :

1. Aradhani "Marketing of Financial Services" Himalaya Publications
2. Sinha and Saho, Services Marketing, Himalaya Publishing House
3. Reddy Appanaiah, Anil Kumar and Nirmala, Services Marketing, Himalaya Publishing.
4. Shajahan, Services Marketing, Himalaya Publishing House.
5. Christopher lovelock, Services Marketing, Pearson Education Asia.
6. Helen Woodroffe – Services Marketing, McMillan India Ltd.
7. S.M. Jha, Services Marketing, New Delhi Himalaya Publishing House.
8. Valarie A. Zeithmal & Mary JoBitner, Services Marketing, New Delhi, Tata McGraw Hill

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COMPUTER SCIENCE **CSC 302C (A)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [VII (A) PAPER]

WEB TECHNOLOGIES

Unit - I

Introduction to XHTML, Cascading Style Sheets (CSS), Java Script : Introduction to Scripting, Control Statements, Functions, Arrays, Objects

Unit - II

Dynamic HTML : Object Model and Collections, Dynamic HTML : Event Model

Unit - III

XML Representing Web Data, XSL Related Technologies and Case Study

Unit - IV

Building Ajax - Enabled Web applications, Web Servers (IIS and Apache) Ruby and Ruby on Rails

Unit - V

Java Server Faces Web Applications, Web Services

Reference books :

1. Harvey M. Deitel and Paul J. Deitel, "Internet & World Wide Web How to Program", 4/e, Pearson Education
2. Uttam Kumar Roy, Web Technologies from Oxford University Press
3. Jason Cranford Teague "Visual Quick Start Guide CSS, DHTML & AJAX", 4/e, Pearson Education
4. Tom Nerino Doli Smith "Java Script & AJAX for the Web" Pearson Education, 2007
5. Joshua Elchorn "Understanding AJAX" Prentice Hall, 2006
6. Hal Fulton "The Ruby Way", 2e, Pearson Education, 2007
7. David A. Black "Ruby for Rails" Dreamtech Press, 2006
8. Bill Dudney, Johathan Lehr, Bill Willies, Lery Mattingly "Mastering Java Server Faces" Wiely India, 2006

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COMPUTER SCIENCE **CSC 402C (A1)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [VIII (A1) PAPER]

DISTRIBUTED SYSTEMS

Unit - I

Introduction to distributed computing systems, system models and issues in designing a distributed operating system, examples of distributed systems

Unit - II

Features of message passing system, synchronisation and buffering, introduction to RPC and its models, transparency of RPC, implementation mechanism, stub generation and RPC messages, server management, call semantics, communication protocols and client server building

Unit - III

Introduction, design and implementation of DSM system, granularity and consistency model, advantages of DSM, clock synchronisation, event ordering, mutual exclusion, deadlock, election algorithms

Unit - IV

Task assignment approach, load balancing approach, load sharing approach, process migration and threads

Unit - V

File models, file accessing models, file sharing semantics, file caching schemes, file replication, atomic transactions, cryptography, authentication, access control and digital signatures

Reference books :

1. Pradeep. K. Sinha : "Distributed Operating Systems : Concepts and Design", PHI, 2007
2. George Coulouris, Jean Dollimore, Tim Kindberg : "Distributed Systems", Concept and Design, 3rd Edition, Pearson Education, 2005

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COMPUTER SCIENCE **CSC 402C (A2)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [IX (A2) PAPER]

CLOUD COMPUTING

Unit - I

Cloud computing overview :

Origins of cloud computing - Cloud components - Essential characteristics - On - Demand self - service, broad network access, location independent resource pooling, rapid elasticity, measured service

Unit – II Cloud scenarious - Benefits :

Scalability, simplicity, vendors, security, limitations - Sensitive information - Application development - Security concerns - Privacy concern with a third party - Security level of third party - Security benefits regularity issues : Government policies

Unit – III Cloud architecture :

Cloud delivery model - SPI frame work, SPI evolution, SPI Vs. Traditional IT model

Software as a Service (SaaS):

Saas service providers - Google App Engine, Salesforce. com and google platform - Benefits - Operational benefits - Economic benefits - Evaluating SaaS

Platform as a Service (PaaS):

Paas service providers - Right scale - Salesforce.com - Rackspace - Force.com - Services and benefits

Unit – IV Infrastructure as a Service (IaaS):

Iaas service providers - Amazon EC2, GoGrid - Microsoft implementation and support - Amazon EC service level agreement - Recent developments - Benefits

Cloud development model :

Public clouds - Private clouds - Community clouds - Hybrid clouds - Advantages of cloud computing

Unit – V Virtualisation :

Virtualisation and cloud computing - Need of virtualisation - Cost, administration, fast deployment, reduce infrastructure cost - limitations

Types of hardware virtualisation :

Full virtualisation - Partial virtualisation - Para virtualisation

Desktop virtualisation :

Software virtualisation - Memory virtualisation - Storage virtualisation - Data virtualisation - Network virtualisation

Microsoft implementation :

Microsoft hyper V - Vmware features and infrastructure - Virtual box - Thin clinet

Reference books :

1. Cloud computing a practical approach - Anthony T. Velte, Toby J. Velte Robert Elsenpeter TATA McGraw - Hill, New Delhi - 2010
2. Cloud computing : Web - Based applications that change the way you work and collaborate online - Michael Miller - Que, 2008
3. Cloud computing, theory and practice, Dan C. Marinescu, MK Elsevier
4. Cloud computing, A Hands on approach, Arshadeep Bahga, Vijay Madisetti, Uni. Press

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ECONOMICS **ECO 302C (A)** 2017-18 onwards III B.A

SYLLABUS

VI SEMESTER [VII (A) PAPER)

AGRICULTURAL ECONOMICS

UNIT - I :

Nature and scope of agricultural economics. Factors affecting agricultural development : technology, institutional and general. Interdependence between agriculture and industry.

UNIT - II :

Concept of production function : Input - Output and product relationship in farm production.

UNIT - III :

Growth and productivity trends in Indian agriculture with special reference to Andhra Pradesh. Agrarian reforms and their role in economic development.

UNIT - IV :

Systems of farming, farm size and productivity relationship in Indian agriculture with special reference to Andhra Pradesh - New agriculture strategy and green revolution : and its impact.

UNIT - V :

Emerging trends in production, processing, marketing and exports; policy controls and regulations relating to industrial sector with specific reference to agro - industries in agri - business enterprises.

Recommended / Reference Books :

1. Sadhu An, Singh Amarjit and Singh Jasbir (2014), Fundamentals of agricultural economics, Himalaya publishing house, Delhi.
2. Lekhi RK and Singh Joginder, Agricultural economics, Kalyani publishers.
3. Bhaduri, A (1984), The economic structure of backward agriculture, Macmillan, Delhi.

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ECONOMICS **ECO 402C (A1)** 2017-18 onwards III B.A

SYLLABUS

VI SEMESTER [VIII (A1) PAPER)

AGRIBUSINESS ENVIRONMENT IN ANDHRA PRADESH

UNIT - I :

Role of agriculture in clevelopment process in Andhra Pradesh vis - a - vis other developed states. Economy wide effects of agriculture in Andhra pradesh through trickle down effects. Backward and forward linkages of agriculture with rest of economy.

UNIT - II :

Agricultural finance - Importance in modern agriculture - Performance of agricultural finance in Andra Pradesh - Problems of agricultural finanace - Inter linkages of agricultural credit and other input markets and product markets.

UNIT - III :

Dynamics of agriculture - crop (horticulture, field crops), sector - livestock (poultry dairy and fisheries) sector and inter linkages among the sectors. Agribusiness sector in Andhra Pradesh - Salient features, constraints, sub sectors of agribusiness - input sector, production sector, processing sector.

UNIT - IV :

Growth performance of major agricultural commodities in Andhra Pradesh - Production and processing trends in exports and imports of major agricultural commodities

UNIT - V :

Marketing policy - Structure of agri markets - Regulated markets - Need - Activities -
Structure - APMC act - Market legislations - Role of farmer groups in the marketing of argicultural produce.

REFERENCES :

1. Adhikary M. 1986, Economic environment of business, S. Chand & Sons.
2. Aswathappa K. 1997, Essentials of business environment, Himalaya publishers.
3. Francis Cherunilam 2003, Business environment, Himalaya publishers.
4. Agarwal Raj 2001, Business environment, Excel books, New Delhi.

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ECONOMICS **ECO 402C (A2)** 2017-18 onwards III B.A

SYLLABUS

VI SEMESTER [IX (A2) PAPER)

AGRICULTURAL OUTPUT MARKETING

UNIT - I :

Structure and model of agri - marketing organisations with functions : Functions of intermediaries, marketing practices in primary and secondary and terminal market, regulated markets, co - operative marketing.

UNIT - II :

Marketing costs and margins, marketing finance. Marketing structure of major agricultural commodities, food grains: rice and maize. Cash crops; cotton, oil seeds, vegetables and fruits, milk, meat and poultry products.

UNIT - III :

Problems and challenges in agriculture marketing - Market yards - Support prices - Rural ware housing.

UNIT - IV :

State intervention in agricultural marketing, role of various agencies (Andhra Pradesh agro, markeed, State department and FCI, Tobacco board, cotton corporation) and its impact on market efficiency. Agriculture price commission.

UNIT - V :

Inter - regional and international trade in agriculture; emerging scenario of International trade in agricultural commodities; concept of terms of trade and balance of payments, WTO and Indian agriculture with special reference to Andhra Pradesh.

REFERENCES :

1. CSG Krishnamacharyulu & Lalitha Ramakrishnan, Rural marketing : text and cases, Pearson education, New Delhi.
2. Awadhesh Kumar Singh & Satyaprakash Pandey, Rural marketing : Indian perspective, New age International publishers, New Delhi.
3. Mamoria, CB & Badri Vishal : Agriculture problems in India.
4. Arora, RC, Integrated rural development, S. Chand limited, New Delhi.
5. Gopalaswamy TP, Rural marketing : Environment problems and strategies, Vikas publishing house pvt., ltd., New Delhi.

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ECONOMICS **ECO 402C (A3)** 2017-18 onwards III B.A

SYLLABUS

VI SEMESTER [X (A3) PAPER)

AGRICULTURAL INPUT MARKETING

UNIT - I :

Agri input marketing - Meaning and importance - Distinctive features of agri. input marketing - Distribution channels of agri. inputs - Private, Govt., co - operative and joint sector. Agri inputs promotional programme - Concepts and techniques.

UNIT - II :

Issues in seed marketing - Determinants of seed demand - Private sector contribution - Public sector support to private sector - Distinctive features of seed marketing vis - a - vis other input marketing - Strengths and weaknesses on Indian seed industry.

UNIT - III :

Fertiliser industry scenario - Public, private, co - operative and joint sector role - Fertiliser production consumption and imports - Fertiliser marketing characteristics. Biofertilisers - Its role and scope - Major constraints involved - Production level - Market level - Field level. Marketing network / channels.

UNIT - IV :

Pesticide industry - An overview - Nature of industry growth - Consmption crop wise, area wise - Demand and supply - Market segmentation - IPM concept development - Biopesticides - Its role and scope.

UNIT - V :

Agricultural mechanisation - Benefits and importance and future priorities - Scenario of farm implements and machinery sector - Economic advantage of mechanisation - Contribution of agricultural mechanisation - Need for the development of agricultural machinery and implements to suit the local resource endowments.

REFERENCES :

1. Acharya SS & Agarwal NL 2004, Agricultural marketing in India - Oxfor & IBH.
2. Sharma Premjit 2008, Marketing of seeds - Gene tech books, New Delhi.
3. Marketing of the Agri. inputs - IIMA publications.
4. State of the Indian farmer - Input management, Ministry of agriculture, GOI, academic foundation, New Delhi, 2004.

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HISTORY **HIS 302C (A)** 2017-18 onwards III B.A

SYLLABUS

VI SEMESTER [VII (A) PAPER]

HISTORY OF MODERN EUROPE (FROM 19th CENTURY to 1945 A.D.)

HISTORY OF MODERN WORLD (1821 - 1945)

UNIT - I

Industrial Revolution : Origin, Nature and Impact

UNIT - II

Unification Movements in Italy & Germany and their impact

UNIT - III

Communist Revolution in Russia - Causes, Course and Results - Impact on World order

UNIT - IV

World War I: Age of Rivalry in Europe Between 1870 and 1914 - Results of the War - Paris Peace Conference - League of Nations

UNIT - V

World War II : causes, Fascism & Nazism - Results; The United Nations organization : Structure, Functions and Challenges

REFERENCES :

1. J.A. Hobson, imperialism: A Study
2. C.D. Hazen, Modern Europe up to 1945
3. H.A.L. Fisher, History of Europe
4. C.M.M. Ketelbey, A History of Modern Times
5. Grant and Temperley (ed), Europe in the 18th and 20th Centuries
6. David Thomson, Europe Since Napoleon
7. A.P.J. Taylor, The Struggle for Mastery in Europe
8. S.P. Nanda, History of Modern World
9. S.N. Dhar, Intenational Relations and World Politics Since 1919

Project work :

Project work on the consequences of industrialisation & globalisation on society and economy should be given to students

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HISTORY **HIS 402C (A1)** 2017-18 onwards III B.A

SYLLABUS

VI SEMESTER [VIII (A1) PAPER]

CULTURAL TOURISM IN ANHDRA PRADESH

UNIT - I

Concepts of tourism : Nature - Scope - Definition - Tourists & excursionists - Domestic & International tourists

UNIT - II

Types of tourism : Heritage tourism - Pilgrimage tourism - Recreation tourism - Sports & adventure tourism - Advance tourism - Health tourism - Environment tourism

UNIT - III

History and tourism - Heritage sites - Definition - Ancient monuments preservation act of 1940, act of 1958 and act of 1972 - Archaeological survey of India - Stage museums

UNIT - IV

Planning and development of A.P. tourism : APTDC - Aims & objectives - Fairs and festivals - Andhra cuisine - Restaurants - Eco tourism - Beaches & hill resorts - Mountaineering - Tourist places in A.P.

UNIT - V

Modalities of conducting tourism : Field work - Visit to a site - Conduct of research - Preparation of project work

Reference Books :

1. APTDC publications
2. Ashorth G.J., Marketing in tourism industry
3. Bhatia A.K., Tourism development
4. Clare, Gunn, Tourism planning
5. Khan, Nafees A, Development tourism in India
6. Krishna K Karama, Basics of tourism
7. Marrison A.M, Hospitality and travel marketing
8. Ranga Mukesh, Tourism potential in India
9. Sarkar H, Museums and protection of monuments and antiquities in India
10. Vijayalakshmi K.S, History of Toursim

Field Trip :

Compulosory field trip to destinations of architectural, archaeological, historical and cultural importance is to be conducted. Students should be made to prepare detailed reports on the hand - on experience they gained in such trips.

Students should be encouraged to create blogs for local site seeing places and to write and organise articles on those spots.

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HISTORY **HIS 402C (A2)** 2017-18 onwards III B.A

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VI SEMESTER [IX (A2) PAPER]

CONTEMPORARY HISTORY OF ANDHRA PRADESH (1956 - 2014)

UNIT - I :

Socio - Economic changes in Andhra Pradesh - River projects & infrastructural development - Education & scientific progress - Regional politics - Emergence of Telugu Dasam party

UNIT - II :

Growth of leftist ideology - Marxist & radical literature - Naxalbary movement - Communist activities - Electroral politics - Present status of communist movement

UNIT - III :

Dalit movement - Understanding untouchability - Educaiton - Literature - Struggle for identity - Demand for political space

UNIT - IV :

Early trends towards bifurcation : Jai Telengana movement (1969) - Mulki rules - Legal battle - Jai Andhra movement (1972) - Six point formula (1973)

UNIT - V

Bifurcation of Andhra Pradesh : Power politics - Economic discontentment - Riparian disputes - Unemployment - Foundation of Telengana Rastra Samiti - Movements for separate Telengana & unified Andhra Pradesh - Formation of Telengana State (2014)

Reference Books :

1. Barry Pavier, The Telangana Movement - 1944 - 51
2. Chinnayya Suri, Agrarian Movement in Andhra, 1921 - 71
3. K. Ramachandra Murthy, Unveiling Telangana State
4. P.R. Rao, History of Modern Andhra
5. S. Ratnakar, A Brief History of Telengana & Andhra Pradesh
6. Sri Krishna Committee Report
7. Tarimela Nagi Reddy, India Mortgaged
8. Y.V. Krishna Rao, Growth of Capitalism in Indian Agriculture : A case study of A.P.
9. Katti Padma Rao
10. Y. Chinna Rao
11. News paper clippings (2001 - 2014)

Project work :

Students may be asked to perpare assignments on local caste struggles; regional disparties; aspirations; recent developments etc., through interviews and verifying press reports.

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HISTORY **HIS 402C (A3)** 2017-18 onwards III B.A

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VI SEMESTER [X (A3) PAPER]

POPULAR MOVEMENTS IN ANDHRA DESA (1848 to 1956 A.D.)
(HISTORY & CULTURE OF ANDHRA FROM 1857 to 2014)

UNIT - I :

Social & Self Respect Movements : Social Conditions - Kandukuri Veeresalingam, Raghupathi Venkata Rathnam Naidu, Guruzada Apparao, Komarraju Venkata Laxmana Rao; New

Literary Movements : Causes - Rayaprolu Subbarao, Viswanatha Sathyanarayana, Gurram Jashua, Boyi Bheemanna, Sri Sri - Impact.

UNIT - II :

Freedom Movement in Andhra (1885-1920) : Contributory Factors - Vandemataram Movement - Swadeshi & Boycott programs - Glorious Events at Rajahmundry, Kakinada Kotappakonda & Tenali - Home Rule Movement in Andhra.

UNIT - III :

Freedom Movement in Andhra (1920-1947) : Non - Cooperation Movement - Chirala Perala, Palanadu & Pedanaadipadu Activities - Alluri Seetarama Raju & Rampa Revolt (1922-24) - Anti - Simon Commission Movement - Civil Disobedience Movement - Quit lndia Movement.

UNIT - IV :

Movement for Separate Andhra State (1953) : Causes - Andhra Maha Sabha - Andhra Provincial Congress Committee - Andhra University - Conflict between Coastal Andhra & Rayalaseema - Sri Bagh Pact - Constitution of Committees & their Contribution - Martyrdom of Potti Sriramulu - Formation of separate Andhra State.

UNIT - V :

Movement for formation of Andhra Pradesh (1956) : Visalandhra Mahasabha - Role of Communists - States Reorganization Committee - Gentlemen's Agreement - Formation of Andhra Pradesh.

REFERENCES :

1. B. Kesava Narayana, Political and social factors in modern Andhra
2. K.V. Narayana Rao, The emergence of Andhra Pradesh
3. M. Venkata Rangaiah, The freedom struggle in Andhra Pradesh
4. P.R. Rao, History of Modern Andhra
5. Sarojini Regani, Highlights of freedom movement
6. V. Ramakrishna, Social reforms movement in Andhra
7. B. Kesava Narayana, Modern Andhra & Hyderabad - 1858 - 1956 A.D., 2016

Project work :

With the aim of understanding of teaching and methods of research and presentation, students should be encouraged to draft a report on local writers, struggles, human rights movements, different types of social discrimination etc.,

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MATHEMATICS **MAT 302C (A)** 2017-18 onwards III B.Sc.,

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VI SEMESTER [VII (A) PAPER]

LAPLACE TRANSFORMS

LAPLACE TRANSFORM I

UNIT - I

Definition of - Integral transform - Laplace transform linearity, property, piecewise continuous functions, Existence of laplace transform, Functions of exponential order, and of class A.

LAPLACE TRANSFORM II

UNIT - II

First shifting theorem, second shifting theorem, change of scale property, Laplace transform of the derivative of *f(t)*, initial value theorem and final value theorem

LAPLACE TRANSFORM III

UNIT - III

Laplace transform of integrals - Multiplication by *t*, multiplication by t^n - division by *t*. Laplace transform of Bessel function, Laplace transform of error function, Laplace transform of Sine and Cosine integrals.

INVERSE LAPLACE TRANSFORM I

UNIT - IV

Definition of inverse Laplace transform. Linearity, property, first shifting theorem, second shifting theorem, change of scale property, use of partial fractions, examples.

INVERSE LAPLACE TRANSFORM II

UNIT - V

Inverse Laplace transforms of derivatives - Inverse Laplace transforms of integrals - Multiplication by powers of *'p'* - Division by powers of *'p'* - Convolution definition - Convolution theorem - Proof and applications - Heaviside's expansion theorem and its applications

PRESCRIBED BOOK

1. Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta, published by Krishna Prakashan Media Pvt. Ltd., Meerut.
2. Laplace Transforms by Dr. A. Anjaneyulu, DEEPTI PUBLICATIONS, Tenali, A.P.

REFERENCE BOOKS

1. Laplace and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, published by Pragathi Prakashan, Meerut
2. Integral Transforms by M.D. Raising Hania, H.C. Saxsena and H.K. Dass, published by S. Chand and Co., Pvt., Ltd., New Delhi.

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VI SEMESTER [VIII (A1) PAPER]

ADVANCED NUMERICAL ANALYSIS

UNIT - I

ERRORS IN NUMERICAL COMPUTATIONS :

Errors and their Accuracy, Mathematical Preliminaries, Errors and their Analysis, Absolute, Relative and Percentage Errors, A general error formula, Error in a series approximation.

UNIT - II

SOLUTION OF ALGEBRAIC AND TRNASCENDENTAL EQUATIONS :

The bisection method, The iteration method, The method of false position, Newton - Rapshson method, Generalised Netwon - Raphson method. Muller's method.

UNIT - III

CURVE FITTING :

Least - Squares curve fitting procedures, fitting a straight line, non - linear curve fitting, curve fitting by a sum of exponentials.

UNIT - IV

SOLUTION OF SIMULTANEOUS LINEAR SYSTEMS OF EQUATIONS :

Solution of linear systems - Direct methods, Matrix inversion method, Gaussian elimination methods, Gauss - Jordan method, Method of fractrorisation, solution of Tridiagonal systems, Iterative methods, Jacobi's method, Gauss - Siedal method.

UNIT - V

NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS :

Introduction, solution of Taylor's series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge - Kutta methods.

PRESCRIBED BOOK

1. Numerical Analysis by Dr S. Ranganadhan and others, published by S. Chand & Co., New Delhi
2. Numerical Analysis by Dr. A. Anjaneyulu, DEEPTI PUBLICATIONS, Tenali, A.P.
3. Advanced Numerical Analysis by Dr. A. Anjaneyulu, DEEPTI PUBLICATIONS, Tenali, A.P.

REFERENCE BOOKS

1. Numerical Analysis by S.S. Sastry, published by Prentice Hall of India Pvt., Ltd., New Delhi
2. Numerical methods for scientific and engineering computation by M.K. Jain, S.R.K. Iyengar, R.K. Jain

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VI SEMESTER [IX (A2) PAPER]

LINEAR ALGEBRA

UNIT - I

VECTOR SPACES - I :

Vector space, general properties of vector spaces, vector subspaces, algebra of subspaces, subspace generated by subset, linear combination of vectors, linear span, linear sum of two subspaces, linear dependence and linear independence of vectors.

UNIT - II

VECTOR SPACES - II :

Basis of vector space, finite dimensional vector spaces, existence of basis theorem, invariance theorem, dimension, basis extension theorem, coordinates, change of basis, dimension of a subspace, quotient space, dimension of quotient space.

UNIT - III

LINEAR TRANSFORMATIONS :

Linear transformations - Linear transformation, linear operator, some particular transformations - properties of linear transformation, determination of linear transformation, range of linear transformation, null space of a linear transformation, rank - nullity theorem.

UNIT - IV

MATRIX :

i) Matrices, elementary properties of martices, inverse matrices, rank of a matrix **(No question will be given in this part)**

ii) linear equations **(Problems only)**

iii) characteristic roots, characteristic vectors of a square matrix, Cayley - Hamilton theorem

UNIT - V

INNER PRODUCT SPACES :

Introduction, inner product space, norm of a vector, Schwarz's inequality, special cases of Schwarz's inequality, triangle inequality, normed vector space, parallelogram law. Orthogonality, orthogonal set, orthonormal set, Bessel's inequality, another form of Bessel's inequality, complete orthonormal set, Parsvel's identity, orthonormal basis, Gram - Schmidt orthogonalisation process.

PRESCRIBED BOOK

1. Linear Algebra by J.N. Sharma and A.R. Vasista, Krishna Prakashan Mandir, Meerut
2. Linear Algebra by Dr. A. Anjaneyulu, DEEPTI PUBLICATIONS, Tenali, A.P.

REFERENCE BOOKS

1. Matrices by Shanti Narayana, S. Chand Publications, New Delhi
2. Linear Algebra by Kenneth Hoffman and Ray Kunze, Pearson Education, New Delhi

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VI SEMESTER [X (A3) PAPER]

INTEGRAL TRANSFORMS

UNIT - I

Application of Laplace transform to solutions of Differential Equations :

Solutions of ordinary Differential Equations. Solutions of Differential Equations with constants co - efficients. Solutions of Differential Equations with variable co - efficients.

UNIT - II

Applications of Laplace Transform to solutions of Differential Equations :

Solutions of simultaneous ordinary differential equations. Solutions of partial Differential Equations.

UNIT - III

Applications of Laplace Transforms to Integral Equations :

Definitions of Integral Equations - Abel's Integral Equation - Integral Equation of Convolution type, Integro Differential Equations. Applications of L.T. to Integral Equations.

UNIT - IV

Fourier Transforms - I :

Definition of Fourier Transform - Fourier sine Transform - Fourier cosine Transform - Linear property of Fourier Transform - Change of Scale property of Fourier Transform - Sine Transform and cosine transform shifting property - Modulation theorem

UNIT - V

Fourier Transforms - II :

Convolution Definition - Convolution theorem for Fourier transform - Parseval's Identity - Relationship between Fourier and Laplace transforms - Problems related to Integral Equations.

Finite Fourier Transforms :

Finite Fourier Sine Transform - Finite Fourier Cosine Transform - Inversion formula for Sine and Cosine Transforms only statement and related problems.

PRESCRIBED BOOK

1. Fourier Series and Integral Transforms by Dr. S. Srinadh, Ranganatham & Co., published by S. Chand & Co., Pvt., Ltd., New Delhi.
2. Integral Transforms by Dr. A. Anjaneyulu, DEEPTI PUBLICATIONS, Tenali, A.P.

REFERENCE BOOKS

1. Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta published by Krishna Prakashan Media Pvt., Ltd., Meerut.
2. Laplace and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, published by Pragathi Prakashan, Meerut

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VI SEMESTER [VII (A) PAPER]

RENEWABLE ENERGY

UNIT - I

1. Introduction to Energy :

Definition and units of energy, power, Forms of energy, Conservation of energy, second law of thermodynamics, Energy flow diagram to the earth.

2. Environmental Effects :

Environmental degradation due to energy production and utilization, air and water pollution, depletion of ozone layer, global warming, biological damage due to environmental degradation. Effect of pollution due to thermal power station, nuclear power generation, hydroelectric power stations on ecology and environment.

UNIT - II

3. Global Energy Scenario :

Energy consumption in various sectors, energy resources, coal, oil, natural gas, nuclear and hydroelectric power.

4. Indian Energy Scene :

Energy resources available in India, urban and rural energy consumption, nuclear energy - promise and future, energy as a factor limiting growth, need for use of new and renewable energy sources.

UNIT - III

5. Solar energy :

Solar energy, Spectral distribution of radiation, Flat plate collector, solar water heating system, Applications, Solar cooker. Solar cell, Types of solar cells, Solar module and array.

6. Wind Energy :

Introduction, Principle of wind energy conversion, Components of wind turbines, Operation and characteristics of a wind turbine, Advantages and disadvantages of wind mills, Applications of wind energy.

UNIT - IV

7. Ocean Energy :

Introduction, Principle of ocean thermal energy conversion, Tidal power generation, Tidal energy technologies, Energy from waves, Wave energy conversion, Wave energy technologies, advantages and disadvantages.

UNIT - V

8. Bio-Energy :

Energy from biomass – Sources of biomass – Different species – Conversion of biomass into fuels – Energy through fermentation – Pyrolysis, gasification and combustion – Aerobic and anaerobic bio-conversion – Properties of biomass – Biogas plants – Types of plants – Design and operation – Properties and characteristics of biogas.

REFERENCES :

1. Solar Energy Principles, Thermal Collection &Storage, S.P.Sukhatme: Tata McGraw Hill Pub., New Delhi.
2. Non-Conventional Energy Sources, G.D.Rai, New Delhi.
3. Renewable Energy, power for a sustainable future, Godfrey Boyle, 2004,
4. The Generation of electricity by wind, E.W. Golding.
5. Hydrogen and Fuel Cells: A comprehensive guide, Rebecca Busby, Pennwell corporation (2005)
6. Hydrogen and Fuel Cells: Emerging Technologies and Applications, B.Sorensen, Academic Press (2012)
7. Non-Conventional Energy Resources by B.H. Khan, Tata McGraw Hill Pub., 2009.
8. Fundamentals of Renewable Energy Resources byG. N.Tiwari, M.K.Ghosal, Narosa Pub., 2007.

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VI SEMESTER [VIII (A1) PAPER]

SOLAR THERMAL AND PHOTOVOLTAIC ASPECTS

UNIT - I

1. Basics of Solar Radiation :

Structure of Sun, Solar constant, Concept of Zenith angle and air mass, Definition of declination, hour angle, solar and surface azimuth angles; Direct, diffuse and total solar radiation, Solar intensity measurement – pyrheliometer.

2. Radiative Properties and Characteristics of Materials :

Kirchoff's law – Relation between absorptance, emittance and reflectance; Selective Surfaces - preparation and characterization, Types and applications; Anti-reflective coating.

UNIT - II

3. Flat Plate Collectors (FPC) :

Description of flat plate collector, Liquid heating type FPC, Energy balance equation,Efficiency, Temperature distribution in FPC, Definitions of fin efficiency and collector efficiency, Evacuated tubular collectors.

Unit - III

4. Solar photovoltaic (PV) cell :

Physics of solar cell –Type of interfaces, homo, hetero andschottky interfaces, Photovoltaic Effect, Equivalent circuit of solar cell, Solar cell output parameters, Series and shunt resistances and its effect on cell efficiency; Variation of efficiency with band-gap and temperature.

UNIT - IV

5.Solar PV systems :

Solar cell module assembly – Steps involved in the fabrication of solar module, Module performance, I-V characteristics, Modules in series and parallel, Module protection – use of Bypass and Blocking diodes, Solar PV system and its components, PV array, inverter, battery and load.

UNIT - V

6.Solar thermal applications :

Solar hot water system (SHWS), Types of SHWS, Standard method of testing the efficiency of SHWS; Passive space heating and cooling concepts, Solar desalinator and drier, Solar thermal power generation.

REFERENCE BOOKS :

1. Solar Energy Utilization, G. D. Rai, Khanna Publishers
2. Solar Energy- Fundamentals, design, modeling and applications, G.N. Tiwari, Narosa Pub., 2005
3. Solar Energy-Principles of thermal energy collection & storage, S.P. Sukhatme, Tata Mc-Graw Hill Publishers, 1999
4. Solar Photovoltaics- Fundamentals, technologies and applications, Chetan Singh Solanki, PHI Learning Pvt. Ltd
5. Science and Technology of Photovoltaics, P. Jayarama Reddy, BS Publications, 2004

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VI SEMESTER [IX (A2) PAPER]

WIND, HYDRO & OCEAN ENERGIES

UNIT - I

1. Introduction :

Wind generation, meteorology of wind, world distribution of wind, wind speed variation with height, wind speed statistics, Wind energy conversion principles; General introduction; Types and classification of WECS; Power, torque and speed characteristics.

UNIT - II

2. Wind Energy Conversion System :

Aerodynamic design principles; Aerodynamic theories; Axial momentum, blade element andcombine theory; Rotor characteristics; Maximum power coefficient; Prandlt's tip losscorrection.

UNIT - III

3. Wind Energy Application :

Wind pumps: Performance analysis, design concept and testing; Principle of wind energy generation; Wind energy in India; Environmental Impacts of Wind farms.

UNIT - IV

4. Small Hydropower Systems :

Overview of micro, mini and small hydro systems; Hydrology; Elements of pumps andturbine; Selection and design criteria of pumps and turbines; Site selection;Speed and voltage regulation.

UNIT - V

5.Ocean Thermal, Tidal and Wave Energy Systems :

Ocean Thermal - Introduction, Technology process, Working principle, Resource and site requirements, Location of OCET system, Electricity generation methods from OCET, Advantages and disadvantages, Applications of OTEC.

6. Tidal Energy :

Introduction, Origin and nature of tidal energy, Merits and limitations. Wave Energy – Introduction, Basics of wave motion, Power in waves, Wave energy conversion devices, Advantages and disadvantages, Applications of wave energy.

REFERENCE BOOKS :

1. Dan Charis, Mick Sagrillo, LanWoofenden, "Power from the Wind", New Society Pub., 2009
2. Erich Hau, "Wind Turbines-Fundaments, Technologies, Applications, Economics", 2nd Edition, Springer Verlag, BerlinHeidelberg, NY, 2006
3. Joshue Earnest, Tore Wizelius, Wind Power and Project Developmen", PHI Pub., 2011
4. T. Burton, D. Sharpe, N. Jenkins, E. Bossanyi, Wind Energy Handbook, John Wiley Pub., 2001
5. Paul Gipe, "Wind Energy Basics", Chelsea Green Publications, 1999
6. Khan, B.H., "Non-Conventional Energy Resources", TMH, 2nd Edition, New Delhi, 2009
7. Tiwari, G.N., and Ghosal, M.K, Renewable Energy Resources – Basic Principles and applications, Narosa Publishing House, 2007

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VI SEMESTER [X (A3) PAPER]

ENERGY STORAGE DEVICES

UNIT - I

1. Energy Storage :

Need of energy storage; Different modes of energy storage, Flywheel storage, Electrical and magnetic energy storage: Capacitors, electromagnets; Chemical Energy storage: Thermo-chemical, photo-chemical, bio-chemical, electro-chemical, fossil fuels and synthetic fuels. Hydrogen for energy storage.

UNIT - II

2. Electrochemical Energy Storage Systems :

Batteries : Primary, Secondary, Lithium, Solid-state and molten solvent batteries; Lead acid batteries; Nickel Cadmium Batteries; Advanced Batteries. Role of carbon nano-tubes in electrodes.

UNIT - III

3. Magnetic and Electric Energy Storage Systems :

Superconducting Magnet Energy Storage(SMES) systems; Capacitor and battery:Comparison and application; Super capacitor.

UNIT - IV

4. Fuel Cell :

Fuel cell definition, difference between batteries and fuel cells, fuel cell components, principle and working of fuel cell, performance characteristics, efficiency.

UNIT - V

5. Types of Fuel Cells :

Alkaline fuel cell, polymer electrolyte fuel cell, phosphoric acid fuel cell, molten carbonate fuel cell; solid oxide fuel cell, applications of fuel cells.

Reference books :

1. J. Jensen and B. Squrensen, Fundamentals of Energy Storage, John Wiley, NY, 1984
2. M. Barak, Electrochemical Power Sources: Primary and Secondary Batteries by, P. Peregrinus, IEE, 1980
3. P.D.Dunn, Renewable Energies, Peter Peregrinus Ltd, London, 1986
4. B.Viswanathan and M. A. Scibioh, Fuel Cells-Principles and Applications, University Press, 2006
5. Hart, A.B and G.J.Womack, Fuel Cells : Theory and Application, Prentice Hall, NewYork, 1989

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SYLLABUS

VI SEMESTER [VII (A) PAPER]

PRINCIPLES OF PUBLIC ADMINISTRATION

UNIT - I : Nature of Public Administration

1. Meaning, Nature and Scope of Public Administration
2. Significance of Public Administration
3. Public and Private Administration

UNIT - II : Administrative Theories

1. Classical Theory-Henry Fayol
2. Human Relations theory-Elton Mayo
3. Rational Decision making theory-Herbert Simon

UNIT - III : Principles of Organization

1. Hierarchy- Span of control-Unity of command
2. Decision Making-Communication
3. Co-ordination-leadership

UNIT - IV : Structure of organization

1. Chief Executive-Types and Functions
2. Department-Bases of Departmentalization
3. Line and Staff Agencies

UNIT - V : Theories of Motivation

1. Meaning and importance of Motivation
2. Hierarchy of needs theory; Abraham Maslow
3. Theories of X and Y ; Donglas Mc Gregor

Reference books :

1. Pardhasaradhi (Eds) (2011) Public Administration; Concepts, Theories and Principles, Telugu Academy, Hyderabad
2. R.kSapru (2014) 3rd Edition, Administrative Theories and Management Thought, PHI learning Pvt.Ltd, New Delhi.
3. Prasad D R, Prasad V S,(Eds) (2010),Administrative Thinkers, Sterling Publishers, NewDelhi.

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SYLLABUS

VI SEMESTER [VIII (A1) PAPER]

INTERNATIONAL RELATIONS

UNIT - I : Basic Concepts of International Relations

1. Meaning, Nature and Scope of International Relations
2. (a) Balance of power (b) National interests (c) Collective Security (d) Diplomacy

UNIT - II : Phases of International Relations (1914-1945)

1. Causes for the First World War
2. Causes for the Second World War

UNIT - III : Phases of International Relations (1945 onwards)

1. Origins of First Cold War
2. Rise and Fall of Détente
3. Origins and the End of Second Cold War

UNIT - IV : International Organisation

1. The role of UNO in the protection of International Peace
2. Problems of the Third World : Struggle for New International Economic Order

Reference Books :

1. Jackson, R and Sorensan Y, Introduction to International Relations; Theories and approaches, New York, OUP, 2008.
2. Baylis, J and Smith, S (Eds), The Globalization of World Politics; An Introduction to International Relations, Oxford, OUP,2011
3. Aneek Chatterjee, International Relations Today; Concepts and Applications, New Delhi, Pearson Education, 2008.
4. E.H. Carr, International relations between the two world Wars, Lodon, Palgrave Macmillan, 2004.

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VI SEMESTER [IX (A2) PAPER]

INDIAN FOREIGN POLICY

UNIT - I : Evolution of Indian Foreign of Policy

1. Determinants of Indian Foreign of Policy
2. Continuity and change in Indian Foreign Policy

UNIT - II : Non-Alignment and UNO

1. The role of India in the Non-Alignment Movement
2. Relevance of Non-Aligned Movement in the Contemporary World
3. Role of India in the UNO in protection of International Peace

UNIT - III : India's Relation with USA and China

1. Indo- US Relations: Pre- Cold War Era, Post- Cold War Era
2. India – China Relations: Pre- Cold War Era, Post- Cold War Era

UNIT - IV : India and her Neighbours

1. Indo- Pakistan Relations
2. India's role in South Asian Association of Regions Cooperation (SAARC)

Reference Books :

1. David Scott (Ed), Handbook of India's International Relations, London, Routledge, 2011
2. Ganguly, S (Ed), India as an Emerging Power,Portland, Franck class, 2003
3. Pant, H, Contemporary Debates in Indian Foreign and Security Policy, London, Palgrave Macmillian, 2008
4. Tellis, A and Mirski, S (Eds), Crux of Asia; China, India, and the Emerging global Order, Washington, Carnegie endowment for international peace, 2013
5. Muni, S.D, India's Foreign Policy Delhi CUP, 2009
6. Alyssa Ayres and Raja Mohan, C (Eds), Power Realignment in Asia: China, India and the United States, New Delhi, Sage, 2002.
7. Appadorai, A, Domestic roots of Indian Foreign Policy, New Delhi, OUP,1971 Dutt, V.P, India's Foreign Policy in a Changing World, New Delhi,NBT, 2011

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POLITICS **POL 402C (A3)** 2017-18 onwards III B.A

SYLLABUS

VI SEMESTER [X (A3) PAPER]

CONTEMPORARY GLOBAL ISSUES

UNIT - I : Conceptions of Globalization

1. Economic Conception of Globalization
2. Political Conception of Globalization

UNIT - II : Anchors of Global Political Economy

1. International Monetary Fund – Nature, Role and Functions
2. Work Bank-Nature, Role and Functions
3. World Trade Organization: Origin, Nature and role in the context of Globalization

UNIT - III : Nation State and Globalization

1. The role of Nation State in the context of Globalization
2. Consequences of Globalization – Rise of Inequalities within and across Nations

UNIT - IV : Contemporary Global issues

1. Ecological Issues: International Agreements On Climate Change
2. International Terrorism: Non- State Actors and State Terrorism

Reference Books :

1. Ritzer, G., Globalization: A Basic Text, Sussex: Wiley- Black well, 2009
2. Streger, M., Globalization: A Very Short Introduction, Oxford, OUP, 2013
3. Heywood, A., Global Politics, New York, Palgrave Macmillian, 2011
4. Held, D et.al, Global Transformations; Politics, Economics and culture California, Stanford University Press, 1999
5. J. Volger, 'Environmental Issues'in J. Baylis, S. Smith an owens, P(Eds) Globalization of world politics, New York, Palgrave, 2011

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SPL. ENGLISH **ENG 302CS (A)** 2017-18 onwards III B.A.,

SYLLABUS

VI SEMESTER [VII (A) PAPER)

MAJOR GENRES OF ENGLISH LITERATURE

1. Elements of Drama
2. Elements of Poetry
3. Elements of Fiction - Novel
4. Elements of Prose

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SPL. ENGLISH **ENG 402CS (A1)** 2017-18 onwards III B.A.,

SYLLABUS

VI SEMESTER [VIII (A1) PAPER)

INDIAN WRITING IN ENGLISH / TRANSLATION - I

1. **Poetry**
   a. Henry Derozio : "The harp of India"
   b. Naidu : "In the Bazaars of Hyderabad"
   c. A.K. Ramanujan : "A River"

2. **Drama**
   Mahesh Dattani : "Dance like a man"

3. **Novel / Fiction**
   R.K. Narayan : "The guide"

4. **Prose (short story)**
   Munshi Premchand : "The child"

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SYLLABUS

VI SEMESTER [IX (A2) PAPER)

INDIAN WRITING IN ENGLISH / TRANSLATION - II

1. **Poetry**
   a. Kamala Das : An introduction
   b. Kolatkar : An old woman
   c. Chitre : Felling of the banyan tree

2. **Drama**
   Vijay Tendulkar : Kanyadan

3. **Prose - I :**
   Mulk Raj Anand : The untouchable

4. **Prose - II :**
   Vandana Shiva : Everything I need to know I learned in the forest

5. **Short story**
   Chitra Banerjee Divakaruni : Datta writes a letter

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SYLLABUS

VI SEMESTER [X (A3) PAPER)

INDIAN WRITING IN ENGLISH / TRANSLATION - III

1. **Poetry**
   a. Toru Dutt : "Our casuarina tree"
   b. Nissim Ezekiel : "The Professor"
   c. Keki. N. Daruwallah : "Fish"

2. **Drama**
   Rabindranath Tagore : "The post office"

3. **Novel**
   Raja Rao : "Kanthapura"

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ZOOLOGY **ZOO 302C (A)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [VII (A) PAPER]

IMMUNOLOGY

Unit - I

1. 1 Overview of Immune system :

1.1.1 Introduction to basic concepts in Immunology

1.1.2 Innate and adaptive immunity

1.2 Cells and organs of Immune system :

1.2.1 Cells of Immune system

1.2.2 Organs of Immune system

Unit - II

2.1 Antigens :

2.1.1 Basic properties of antigens

2.1.2 Factors influencing Immunogenicity

Unit - III

3.1 Antibodies :

3.1.1 Structure of anitbody

3.1.2 Classes and functions of antibodies

Unit - IV

4.1 Working of Immune system :

4.1.1 Structure and functions of major histocompatibility complexes

4.1.2 Basic properties and functions of cytokines

Unit - V

5.1 Immune system in health and disease :

5.1.1 Classification and brief description of various types of hyper sensitivities

5.2 Vaccines :

5.2.1 General introduction to vaccines

5.2.2 Types of vaccines

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ZOOLOGY **ZOO 402C (A1)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [VIII (A1) PAPER]

PRINCIPLES OF AQUACULTURE

Unit - I

1. 1 Introduction :

1.1.1 Definition, significance and history of Aquaculture

1.1.2 Present status of Aquaculture - Global and National scenario

1.1.3 Major cultivable species for aquaculture : Freshwater, brackish water and marine

Unit - II

2.1 Types of Aquaculture :

2.1.1 Fresh water, brackish water and marine

2.1.2 Concept of monoculture, polyculture, composite culture, monosex culture and integrated fish farming

2.2 Culture systems :

2.2.1 Ponds, raceways, cages, pens, rafts and water recirculating systems

Unit - III

3.1 Design and construction of Aquafarms :

3.1.1 Criteria for the selection of site for fresh water and brackish water pond farms

3.1.2 Design and construction of fish and shrimp farms

3.2 Seed resources :

3.2.1 Natural seed resources and procurement of seed for stocking : Carp and shrimp

Unit - IV

4.1 Management of carp culture ponds :

4.1.1 Culture of Indian major carps : Pre - Stocking management - Dewatering, drying, ploughing / desilting ; Predators, weeds and algal blooms and their control, liming and fertilisation ; Stocking management - Stocking density and stocking ; Post - stocking management - Feeding, water quality, growth and health care ; and Harvesting of ponds

Unit - V

5.1 Culture of shrimp : *(Penaeus monodon or Litopenaeus vannamei)*

5.2 Culture of pearl oysters :

5.3 Culture of ornamental fishes : Setting up and maintenance of aquarium; and breeding

Reference books :

l. Bardach, IE *et al.* 1972. *Aquaculture - The farming and husbandry of fresh water and marine organisms*, John Wiley & Sons, New york

2. Bose AN *et al.* 1991. *Coastal aquaculture Engineering.* Oxford & IBH Publ. Co. Pvt. Ltd.

3. Chakaborty C & Sadhu AK. 2000. *Biologt Hatchery and Culture Technology of Tiger Prawn and Giant Fresh water Prawn*. Daya Publ. House
4. FAO. 2007. *Manual on Fresh water Prawn Farming*
5. Huet J. 1986. *A text Book of Fish Culture.* Fishing News Books Ltd
6. ICAR. 2006. *Hand Book of Fisheries and Aquaculture.* lCAR
7. Ivar LO. 2007. *Aquaculture Engineering.* Daya Publ. House
8. Jhingran V.G. 2007. *Fish and Fisheries of India.* Hindustan publ. Corporation, India
9. Landau M. 1992. *Introduction to Aquaculture.* John Wiley & Sons
10. Lovell RT. 1998. *Nutrition and Feeding of fishes.* Chapman & Hall
11. Mcvey JP. 1983. *Handbook of Mariculture.* CRC Press
12. MPEDA : *Handbooks on culture of carp, shrimp, etc.*
13. New MB. 2000. *Fresh water Prawn Farming.* CRC Publ.
14. Pillay TVR. l990. *Aquaculture - Principles and Practices,* Fishing News Books Ltd., London
15. Pillay TVR & Kutty MN. 2005. *Aquaculture- Principles and Practices*.2nd Ed. Blackwell
16. Rath RK. 2000. *Fresh water Aquaculture.* Scientific Publ.
14. Stickney RR. 1979. *Principles of Warm water Fish Culture,* John Wiley & Sons
15. Wheaton FW. 1977. *Aquacultural Engineering.* John Wiley & Sons.

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ZOOLOGY **ZOO 402C (A2)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [IX (A2) PAPER]

AQUACULTURE MANAGEMENT

Unit - I

1. 1 Breeding and Hatchery managment :

1.1.1 Bundh breeding and induced breeding of carp by Hypophysation; and use of synthetic hormones

1.1.2 Types of fish hatcheries; Hatchery management of Indian major carps

1.1.3 Breeding and Hatchery management of *Penaeus monodon / Litopenaeus vannamei*

Unit - II

2.1 Water quality management :

2.1.1 Water quality and soil characteristics suitable for fish and shrimp culture

2.1.2 Identification of oxygen depletion problems and control mechanisms in culture ponds

2.1.3 Liming materials, organic manures and inorganic fertilisers commonly used and their implications in fish ponds

Unit - III

3.1 Feed management :

3.1.1 Live foods and their role in shrimp larval nutrition

3.1.2 Supplementary feeds : Principal foods in artificial diets; Types of feeds; Feed additives and preservatives; Role of probiotics

3.1.3 Feed formulation and manufacturing; Feed storage

Unit - IV

4.1 Disease management :

4.1.1 Principles of disease diagnosis and health management

4.1.2 Prophylaxis, Hygiene and Therapy of fish diseases

4.1.3 Etiology, Symptoms, Prophylaxis and Therapy of common fish diseases in fish ponds

Unit - V

5.1 Economics and marketing :

5.1.1 Principles of aquaculture economics - Capital costs, variable costs, cost - benefit analysis

5.2 Fisheries extension :

5.1.2 Fisheries training and education in India; Role of extension in community development

5.3 Fish genetics :

5.1.3 Gynogenesis, Androgenesis, Polyploidy, Transgenic fish, Cryopreservation of gametes, Production of monosex and sterile fishes and their significance in aquaculture

Reference books :

1. Boyd, CE. 1979. *Water Quality in Warm Water Fish Ponds.* Auburn University

2. Boyd, CE. 1982. *Water Quality Management for pond Fish Culture.* Elsevier Sci. publ. Co
3. Chakraborty C & Sadhu AK. 2000. *Biology Hatchery and Culture Technology of Tiger Prawn and Giant Fresh Water Prawn.* Daya publ. House
4. Conroy CA and Herman RL. 1969. *Text book of Fish Diseases.*TFH [Great Britain) Ltd, England
5. Halver J & Hardy RW. 2002. *Fish Nutrition.* Academic press
6. Ian C. 1984. *Marketing in Fisheries and Aquaculture.* Fishing News Book
7. ICAR. 2006. *Handbook of Fisheries and Aquaculture.* ICAR
8. Jhingran VG. 2007. *Fish and Fisheries of India.* Hindustan publishing Corporation, India
9. Jhingran VG & Pullin RSV. 1985. *Hatchery Manual for the common, Chinese and Indian Major Carps.* ICLARM, Philippines
10. Kumar D. 1996. *Aquaculture Extension Services Review : India.* FAO Fisheries Circular
No. 906, Rome
11. Lavens P & Sorgeloos P. 1996. *Manual on the Production and Use of Live Food for Aquaculture.* FAO Fisheries Tech. Paper 361, FAO
12. MPEDA. 1993. *Handbook on Aqua Farming - Live Feed. Micro Algal Culture.* MPEDA
Publication
13. New MB. 1987. *Feed and Feeding of Fish and Shrimp. A Manual on the Preparation and Preservation of Compound Feeds for Shrimp and Fish in Aquaculture.* FAO - ADCP/REP/87/26
14. Pandian TJ, Strussmann CA & Marian MP. 2005. *Fish Genetics and Aquaculture Biotechnology.* Science Publ.
l5. Pilley, TVR & Dill, WMA. 1979. *Advances in Aquaculture.* Fishing News Books, Ltd.
England
16. Pillay TVR & Kutty MN. 2005. *Aquaculture - Principles and Practices.* Blackwell
17. Ray GL. 2006. *Extension, Communication and Management* - 6th Ed. Kalyani publ. Delhi.
18. Reddy PVGK, Ayyappan S, Thampy DM & Gopalakrishna 2005. *Text Book of Fish Genetics and Biotechnology.* ICAR
19. Reichenbach KH. 1965. *Fish pathology.* TFH (Gt. Britain) Ltd, England
20. Shang YC. 1990. *Aquaculture Economics Analysis - An Introduction.* World Aquaculture
Society, USA
21. Singh B. 2006. *Marine Biotechnology and Aquculture Development.* Daya Publ. House
22. Stickney RR. 1979. *Principles of Warm water Aquaculture.* John - Willey & Sons Inc.
23. Swain P, Sahoo PK & Alyappan S. 2005. *Fish and Shellfish Immunology : An lntroduction.* Narendra Publ.
24. Thomas PC, Rath SC & Mohapatra KD. 2003. *Breeding and Seed Production of Finfish and Shellfish.* Daya Publ.

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ZOOLOGY **ZOO 402C (A3)** 2017-18 onwards III B.Sc

SYLLABUS

VI SEMESTER [X (A3) PAPER]

POST HARVEST TECHNOLOGY

Unit - I

1. 1 Handling and principles of fish preservation :

1.1.1 Handling of fresh fish, storage and transport of fresh fish, post mortem changes (rigor, mortis and spoilage), spoilage in marine fish and fresh water fish

1.1.2 Principles of preservation - Cleaning, lowering of temperature, rising of temperature, denudation

Unit - II

2.1 Methods of fish preservation :

2.1.1 Traditional methods - Sun drying, salt curing, pickling and smoking

2.1.2 Advanced methods - Chilling or icing, refrigerated sea water, freezing, canning

Unit - III

3.1 Processing and preservation of fish and fish by - products :

3.1.1 Fish products - fish minced meat, fish meal, fish oil, fish liquid (ensilage), fish protein concentrate, fish chowder, fish cake, fish sauce, fish salads, fish powder, pet food from trash fish, fish manure

Unit - IV

4.1 Sanitation and quality control :

4.1.1 Sanitation in processing plants - Environmental hygiene and personal hygiene in processing plants

4.1.2 Quality control of fish and fishery products - Pre - Processing control, control during processing and control after processing

Unit - V

5.1 Quality assurance, management and certification :

5.1.1 Sea food quality assurance and systems : Good Manufacturing Practices (GMPs); Good Laboratory Practices (GLPs); Standard Operating Procedures (SOPs); Concept of Hazard Analysis and Critical Control Points (HACCP) in sea food safety

Reference books :

1. Balachandran KK. 2001. *Post - Harvest Technology of Fish and Fish Products.* Daya Publ.
2. Bond, *et al.* 1971. *Fish Inspection and Quality Control.* Fishing News Books, England
3. Clucas IJ. 1981. *Fish Handling, Preservation and Processing in the Tropics,* Parts I, II. FAO
4. Gopakumar K. (Ed.). 2002. *Text Book of Fish Processing Technology.* ICAR
5. Govindan, TK 1985. *Fish Processing Technology,* Oxford - IBH
6. Hall GM. (Ed). 1992. *Fish Processing Technology.* Blackie
7. Huss HH, Jakobsen M & Liston J. 1991. *Quality Assurance in the Fish Industry.* Elsevier

8. John DEV. 1985. *Food Safety and Toxiciy*. CRC press
9. Krenzer R. l971. *Fish Inspection and Quality Control.* Fishing News
10. Larousse J & Brown BE. 1997. *Food Canning Technology*. Wiley VCH
11. Nambudiri DD. 2006. *Technology of Fishery Products.* Fihing Chimes
12. Regenssein JM & Regenssein CE. 1991. *Introduction to Fish Technology.* VanNostrand Reinhold.
13. Rudolf K. 1969. *Freezing and Irradiation of Fish.* Fishing News (Books)
14. Sen DP. 2005. *Advances in Fish Processing Technology.* Allied Publ.

2016-19 Batch Syllabus

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GENERAL ENGLISH **ENG 101C** 2016-17 onwards I DEGREE

SYLLABUS

I SEMESTER

GENERAL ENGLISH

Unit - I Prose :

1. The Knowledge Society - APJ Abdul Kalam
2. The Language of African Literature - Ngugi Wa Thiong'o

Unit - II Poetry :

1. The Road Not Taken - Robert Frost
2. Night of the Scorpion - Nissim Ezekiel

Unit - III Short Story :

1. The Lost Child - Mulk Raj Anand
2. The Loaded Dog - Henry Lawson

Unit - IV One - Act Play :

1. The Merchant of Venice (Court scene - Act IV Scene I) - William Shakespeare

Unit - V Unseen passage

Unit - VI Language Activity :

Note : All the questions of Grammar should be given from the text only

1. Sound (odd sound out)
2. Verb forms (Tenses)
3. Articles
4. Spelling
5. Question tags
6. Synonyms

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FOUNDATION COURSE **HVP 101C** 2016-17 onwards I Degree

SYLLABUS

I SEMESTER

HUMAN VALUES AND PROFESSIONAL ETHICS

UNIT-I : INTRODUCTION TO VALUE EDUCATION

1. Value education, definition, concept and need for value education
2. The concept and process of value education
3. Self - Exploration as a means of value education
4. Happiness and prosperity as parts of value education

UNIT-II : HARMONY IN THE HUMAN BEING

1. Human being is more than just the body
2. Harmony of the self ('I) with the body
3. Understanding myself as co-existence of the self and the body
4. Understanding needs of the self and the needs of the body

UNIT-III : HARMONY IN THE FAMILY AND SOCIETY AND HARMONY IN THE NATURE

1. Family as a basic unit of human interaction and values in relationships
2. The basics for respect and today's crisis : Affection, Care, Guidance, Reverence, Glory, Gratitude and Love
3. Comprehensive human goal : The five dimensions of human endeavour

UNIT-IV : SOCIAL ETHICS

1. The basics for ethical human conduct
2. Defects in ethical human conduct
3. Holistic alternative and universal order
4. Universal human order and ethical conduct

UNIT-V : PROFESSIONAL ETHICS

1. Value based life and profession
2. Professional ethics and right understanding
3. Competence in professional ethics
4. Issues in professional ethics - The current scenario
5. Vision for holistic technologies, product on system and management models

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FOUNDATION COURSE **ICT 101C** 2016-17 onwards I Degree

SYLLABUS

I SEMESTER

INFORMATION & COMMUNICATION TECHNOLOGY – I

Unit - I

Basics of Computers : Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working – Central Processing Unit – I/O Devices.

Unit - II

Primary, Auxiliary and Cache Memory – Memory Devices. Software, Hardware, Firmware and People ware – Definition and Types of Operating System – Functions of an Operating System – MS-DOS – MS Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Pane.

Unit - III

MS-Word

Features of MS-Word – MS-Word Window Components – Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Equations – Spelling and Grammar – Thesaurus – Mail Merge

Unit - IV

MS-PowerPoint

Features of PowerPoint – Creating a Blank Presentation - Creating a Presentation using a Template - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures - Inserting Other Objects, Audio, Video - Resizing and Scaling of an Object – Slide Transition – Custom Animation

Unit - V

MS-Excel

Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Formulae, Referencing cells – Inserting Rows/Columns – Changing column widths and row heights, auto format, changing font sizes, colors, shading.

Reference Books :

1. Fundamentals of Computers by ReemaThareja, Publishers : Oxford University Press, India
2. Fundamentals of Computers by V.Raja Raman, Publishers : PHI
3. Microsoft Office 2010 Bible by John Walkenbach, Herb Tyson, Michael R.Groh and FaitheWempen, Publishers : Wiley

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HISTORY **HIS 101C** 2016-17 onwards I B.A

SYLLABUS

I SEMESTER

INDIAN HISTORY AND CULTURE

UNIT - 1

Survey of the Sources - Literary sources - Archaeological sources - Influence of Geography on history - Unity in diversity - Pre-Historic period - Paleolithic Mesolithic and Neolithic cultures

Harappan civilization : Origin, extent, urban planning - Nature of polity and economic organisation, society - Religious conditions - Downfall of the civilization

Unit - 2

Vedic civilization : Vedic literature - Early vedic and later vedic civilizations - Political, economic and religious conditions in the society - Emergency of varna and caste system

Rise of new religious movements : Conditions of 6th century BC - Jainisam - Vardhamana Mahavira - Spread of Jainisam in Andhra Pradesh, Jain centres in Andhra Pradesh

Buddihism - Gauthama Buddha - Spread of Buddihism in Andhra Pradesh - Buddist places in Andhra Pradesh - Contribution to art and architecture

UNIT - 3

A brief survey of political conditions in ancient India - Mahajanapadas - Rise and expansion of Magadha - Persian, Alexander's invasions - Causes and its effects on India

The Mayuran empire : Origin - Chandragupta Maurya - Ashoka's Dhama, it's nature and propagation – Mauryan Administration, society, economy, religion, art and architecture - Downfall of the Mauryan empire

UNIT - 4

Post - Mauryan period in North India - Sunga.Kanva dynasties - Indo Greeks, Sakas, Kushans, Western Kshatrapas, contact without side world, growth of urban centres, economy, coinage, development of religious, Mahayana, social conditions, art, architecture, culture, literature and science

Unit - 5

Age of Guptas : Brief political history - Development in the Gupta period - Administartive system, society, economy, art, architecture. Literature, science and technology - Golden age of Guptas

Post Gupta period : Achievements of Harshavardhana - Hiuen Tsang

Refernces

1. An advanced history of India part - I, RC Majundar
2. A history of south India, KH Neelakanta Sastry
3. Ancient Indian history and culture, Telugu Academy text book

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POLITICS **POL 101C** 2016-17 onwards I B.A

SYLLABUS

I SEMESTER

BASIC CONCEPT OF POLITICAL SCIENCE

Unit-1: Explanatory Frameworks of Politics

1. What is Politics: Nature and Scope of Political Science
2. Approaches to the Study of Politics: Normative, Historical, Empirical Traditions

Unit-2: What is the State

1. Origin and Evolution of the Modern State
2. Different Conceptions on the role of the Modern State: Social Democratic and Neo Liberal conceptions

Unit-3: Nations and Nationalism

1. Conceptual Distinction between Nationality and Nation
2. Varieties of Nationalism: Culture and Civic Nationalism

Unit-4: Rights and Citizenship

1. Evolution of Rights: Civil and Social rights
2. Citizenship: Universal and Differential Citizenship

Unit-5: Freedom, Equality and Justice

1. Freedom: Negative and Positive Freedom
2. Equality: Formal Equality, Equality of Opportunity, Equality of Outcome
3. Justice: Justice based on Needs, Deserts and Rights

Reference books:

1. Bhargava Rajeev and Acharya Ashok (eds) (2008) Political Theory: An Introduction, Pearson, New Delhi.
2. Andrew Heywood (2007) Politics 3rd edition, Palgrave Macmillan, NewYork.

3. Bellamy R (1993) (Ed) Theories and Concepts of Politics, Manchester university press, New York.
4. Vincent A (2004) The Nature of Political Theory, Oxford Universit Press, NewYork.

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ECONOMICS **ECO 101C** 2016-17 onwards I B.A

SYLLABUS

I SEMESTER

MICRO ECONOMICS

Unit -1

Nature, definition and scope of Economics - Wealth, Welfare, Scarcity and modern definitions.

Unit - 2

Methodology in Economics - Micro & Macro; Static and Dynamic analysis; Normative and positive science, Inductive & Deductive methods; Partial and general Equilibrium.

Unit - 3

Utility analysis: - cardinal approach-The Law of diminishing Marginal utility- The Law of Equi-Marginal Utility- concept of consumer's surplus

Unit - 4

Demand analysis - Law of Demand - Elasticity of Demand - Measurement of Elasticity of Demand - Price, Income & Cross Elasticities of Demand.

Unit - 5

Ordinal Approach: Indifference Curve analysis - Properties of Indifference curves - Price or budget line - Equilibrium of the Consumer with the help of Indifference curves – Samuelson's Revealed preference theory.

REFERENCES:

1. R.G. Lipsey and K.A.Chrystal - "Economics", Oxford University Press, 10/e, 2004.
2. P.A.Samuelson & W.D. Nordhaus-"Economics", Tata Mc.Graw Hill, 18/e, 2005."4
3. N.Gregory Mankiw-"Principles of Economics", Thompson 2015 .
4. H.L.Ahuja-"Advanced Economic Theory"' S.Chand.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2015.
6. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc.Graw Hill, 1971.
7. Telugu Academy Publications
8. D.M. Mithani & G.K. Murty - Business Economics, Himalaya Publishing, 2015.

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SPL. ENGLISH **ENG 101CS** 2016-17 onwards I B.A

SYLLABUS

I SEMESTER

SPECIAL ENGLISH

I. Language

1. Scandinavian Element
2. Latin influence
3. Semantic changes (changes in meaning)
4. Word formation (growth of vocabulary)
5. Influence of Bible and Church on English language
6. The Evolution of Standard English

II. Literary forms

1. Balled
2. Ode
3. Lyric
4. Elegy
5. Sonnet
6. Pastoral Elegy

III. Poetry

1. Death, be not proud - John Donne

IV Prose

1. Of studies - Francis Bacon

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FUNDAMENTALS OFACCOUNTING-I **COM 101C** 2016-17 onwards I B.Com

SYLLABUS

I SEMESTER

FUNDAMENTALS OF ACCOUNTING – I

Unit-I – Introduction to Accounting :

Need for Accounting – Definition – Objectives, Advantages – Book keeping and Accounting–Accounting concepts and conventions - Accounting Cycle - Classification of Accounts and its rules - Double Entry Book-keeping - Journalization - Posting to Ledgers, Balancing of ledger Accounts (problems)

Unit –II: Subsidiary Books :

Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty cash Book (Problems).

Unit-III: Trail Balance and Rectification of Errors :

Preparation of Trail balance - Errors – Meaning – Types of Errors – Rectification of Errors (Problems)

Unit-IV- Bank Reconciliation Statement :

Need for bank reconciliation - Reasons for difference between Cash Book and Pass Book BalancesPreparation of Bank Reconciliation Statement- Problems on both favorable and unfavourable balances

Unit -V: Final Accounts :

Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with adjustments (Problems).

Reference Books

1. T.S.Reddy & A. Murthy, Financial Accounting , Margham Publications
2. R L Gupta & V. K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons
3. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers
4. Tulasian, Accountancy -I, Tata McGraw Hill Co.
5. V.K.Goyal, Financial Accounting, Excel Books
6. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications

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Business Organisation **COM 102C** 2016-17 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ORGANISATION

Unit-I – Introduction :

Concepts of Business, Trade , Industry and Commerce – Features of Business - Trade Classification - Aids to Trade – Industry – Classification – Relationship of Trade, Industry and Commerce.

Unit II- Business Functions and Entrepreneurship :

Functions of Business and their relationship - Factors influencing the choice of suitable form of organization – Meaning of Entrepreneurship – Characteristics of a good entrepreneur - Types – Functions of Entrepreneurship.

Unit –III – Forms of Business Organizations :

Sole Proprietorship – Meaning – Characteristics – Advantages and Disadvantages – Partnership - Meaning – Characteristics- Kinds of partners – Advantages and Disadvantages – Partnership Deed – Hindu-undivided Family – Cooperative Societies.

Unit-IV- Joint Stock Company :

Joint Stock Company – Meaning – Characteristics –Advantages – Kinds of Companies - Differences between Private Ltd and Public Ltd Companies.

Unit-V- Company Incorporation :

Preparation of important Documents for incorporation of Company – Memorandum of Association – Articles of Association – Differences Between Memorandum of Association and Articles of Association - Prospectus and its contents.

Reference Books :

1. C.D.Balaji and G. Prasad, Business Organization - Margham Publications, Chennai.
2. R.K.Sharma and Shashi K Gupta, Business Organization - Kalyani Publications.
3. C.B.Guptha, Industrial Organization and Management, Sultan Chand.
4. Y.K.Bushan, Business organization and Management, Sultan Chand.
5. Sherlekar, Business Organization and Management, Himalaya Publications.

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Business Economics - I **COM 103C** 2016-17 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ECONOMICS – I

UNIT –I : INTRODUCTION :

Meaning and definition of Business Economics – Nature and Scope of Business Economics – Micro and Macro Economics differences – Cardinal Utility & Ordinal Utility.

UNIT –II : DEMAND ANALYSIS :

Meaning and definition of demand – Determination to Demand – Demand function – Law of demand – Demand Curves – Exceptions.

UNIT-III : ELASTICITY OF DEMAND :

Meaning and definition of price Elasticity of Demand – Types of price Elasticity of demand – Measurements of price elasticity of demand – Total outlay method – Point Method – Arc Method.

UNIT-IV : CONSUMER BEHAVIOR :

Utility analysis-Cardinal and Ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility – Indifference curve – Properties of Indifference curves – Price (Budget)line – Equilibrium of the consumer with the help of Indifference curves.

UNIT-V : COST AND REVENUE ANALYSIS :

Classification of Costs – Total, average Marginal Cost and Cost function. Long run – Short run. Revenue Analysis – Total, average and Marginal revenue concepts

UNIT-VI : BREAK EVEN ANALYSIS :

Type of costs – Fixed costs – Semi variable Cost – Variable Cost – Cost behavior. Breakeven Analysis uses and limitations.

Reference Books:

1.Dr. S.Sankaran, Business Economics – Margham Publications.

2.Business Economics – Kalayani Publications

3. Business Economics – Himalaya Publishing House

4.Aryasri and Murthy Business Economics, Tata Mcgraw Hill

5. Business Economics, Maruthi Publications

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MATHEMATICS **MAT 101C** 2016-17 onwards I B.Sc

SYLLABUS

I SEMESTER

DIFFERENTIAL EQUATIONS - I & SOLID GEOMETRY – I

DIFFERENTIAL EQUATIONS

UNIT - 1

Formation of Differential equations, Differential equations of first order and first degree - Variables separable, Homogeneous differential equations, Equations reducible to homogeneous form.

Exact differential equations, integrating factors, Integrating factors of the form

(i) $\frac{1}{Mx+Ny}$ (ii) $\frac{1}{Mx-Ny}$ (iii) $\int_e f(x)dx$ (iv) $\int_e g(y)dx$ (v) $x^h y^k$

(1 short answer qeustion, 1 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations of first order, Bernoulli's equations, Change of variables, Total differential equations, Simultaneous total differential equations, Equations of the form $\frac{dx}{P}=\frac{dy}{Q}=\frac{dz}{R}$ (i) Method of grouping (ii) Method of multipliers, Orthogonal trajectories.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Differential equations of the first order but not of the first degree - Equations solvable for p , Equations solvable for y, Clairaut's equations and Equations reducible to Clairaut's form, Equations solvable for x.

(2 short answer questions, 1 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 4

Planes: General equation of a plane - Normal form - Transformation to the normal form - Determination of a plane under given conditions (i) Plane passing through a given point (ii) Plane passing through three given points (iii) Plane in terms of its intercepts on the axes (intercepts form) - Angle between two planes - Perpendicular distance of a point from the given plane - Distance between parallel planes - Two sides of a plane - plane passing through the intersection two given planes - Angle bisectors of two planes - Pair of planes.

(2 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 5

Lines: Equations of a line (i) General form (ii) Parametric form (iii) Symmetric form (iv) Two points form - Angle between a line and a plane. The condition that a given line may lie in a given plane - Coplanar lines. The condition that two given lines are coplanar.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Skew lines : The shortest distance between two skew lines. The length and equations of the line of shortest distance between two straight lines - Length of the perpendicular from a given point to a given line.

(1 short answer question, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.

2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.

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PHYSICS **PHY 101C** 2016-17 onwards I B Sc.

SYLLABUS

I SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

Unit I Vector Analysis (10):

Scalar and vector fields, (Definitions and examples), Gradient of a scalar field and its physical significance. Derivation of Divergence of a vector field. Derivation of Curl of a vector field, Definitions of line integral, Surface integral and Volume integral, statements of Stoke's Theorem, Gauss theorem, and Greens theorem . Proof of Green's theorem.

Unit II Dynamics of a system of Particle (10):

Motion of Variable mass system (Explanation with theory), Motion of a Rocket, Multi-Stage Rocket. Collisions, types of collisions, elastic collision in two dimensions, Elastic oblique collision, Definitions of Impact parameter and Scattering cross-section, Rutherford scattering - Determination of scattering angle.

Unit III Dynamics of rigid bodies (10):

Definition of Rigid body, Rotational Kinematic Relations, equation of motion of rotating rigid body. Euler's equations and its determination in three dimensions, Applications of Euler's equations- Conservation of energy & conservation of Angular momentum. Precession of a top, expression for Precessional velocity, Description and working of a Gyroscope.

WAVES AND OSCILLATIONS

Unit IV Fundamentals of Vibrations (12):

Simple harmonic oscillator, Derivation of differential equation of Simple Harmonic Oscillator and its Solution, Physical Characteristics of Simple Harmonic Motion, Derivation of potential energy, kinetic energy and total of Energy of a Simple Harmonic Oscillator, Principle of superposition, Combination of two mutually perpendicular Simple Harmonic Vibrations of Same Frequency, Uses of Lissajou's figures.

Unit V Damped and Forced Oscillations (12):

Damped Harmonic Oscillator, Derivation of differential equation of Damped Harmonic Oscillator and its Solution. Power dissipation, logarithmic decrement, relaxation time,

quality factor, Forced Harmonic Oscillator, Derivation of Differential equation of Forced Harmonic Oscillator and its solution, Amplitude resonance, Velocity resonance.

Unit VI Complex vibrations (6):

Fourier Theorem- Statement and Evaluation of the Fourier Coefficients, Analysis of Periodic wave functions -Square wave, Triangular wave. Limitations of Fourier Theorem.

Reference Books:

*1. **Berkeley Physics Course**. Vol.1, C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

***2. Mechanics** C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

*3. **Fundamentals of Physics**. Halliday/Resnick/Walker Wiley India Edition 2007.*

*4. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy Orient Longman.*

*5. **First Year Physics** - Telugu Academy.*

*6. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, New Age International.*

*7. **College Physics-I**. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.*

*8. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. McGraw Hill.*

*9. **Waves and Oscillations**. N. Subramaniyam and Brijlal Vikas Publishing House Private Limited.*

*10. **Fundamentals of Physics** by Alan Giambattista et al Tata-McGraw Hill Company Edition, 2008.*

*11. **University Physics** by Young and Freeman, Pearson Education, Edition 200*

*12. **Sears and Zemanskys University Physics** by Hugh D. Young, Roger A.Freedman Pearson Education Eleventh Edition.*

*13. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. The McGraw Hill Companies.*

*14. **Mechanics**. Hans & Puri. TMH Publications.*

*15. **Engineering Physics**. R.K. Gaur & S.L. Gupta. Dhanpat Rai Publications.*

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PHYSICS **PHY 101CP** 2016-17 onwards I B Sc.

PRACTICAL SYLLABUS

I SEMESTER

Time : 3 hrs **MECHANICS, WAVES AND OSCILLATIONS** Max. Marks : 50

At least 06 experiments from the following :

1. Measurements of density of material using vernier caliper, screw gauge.
2. Determination of the Moment of Inertia of a Rigid Body using Bifilar Pendulum.
3. Determination of the Moment of Inertia of Fly Wheel.
4. Determination of g using compound pendulum.
5. Determination of radius of capillary tube using travelling microscope
6. Determination of the frequency of the given tuning fork using Volume Resonator.
7. Determination of the Young's Modulus by non-uniform bending.
8. Determination of g and k using Kater's pendulum.
9. Melde's Experiment

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CHEMISTRY **CHE 101C** 2016-17 onwards I B.Sc

SYLLABUS

I SEMESTER

INORGANIC CHEMISTRY & ORGANIC CHEMISTRY

Inorganic Chemistry - I

Unit - I

1-P- block elements : General characteristics of elements of groups 13,14 and 15

Group - 13: Synthesis and structure of diborane and higher boranes (B_4H_{10} and B_5H_9) boron - nitrogen compounds ($B_3N_3H_6$ and BN) **- Weightage - 15 Marks**

Group - 14: Preparation and applications of silanes and silicones **- Weightage - 5 + 5 Marks**

Group - 15: Preparation and reactions of hydrazine, hydroxylamine **- Weightage - 5 + 5 Marks**

Unit - II

General characteristics of elements of groups 16 and 17

Group - 16: Classification of oxides based on (i) Chemical behaviour and (ii) Oxygen content. **- Weightage - 5 Marks**

Group - 17: Inter halogen compounds and pseudo halogens. **- Weightage - 15 Marks**

Organometallic Chemistry :

Definition and classification of organometallic compounds, nomenclature, preparation,
properties and applications of alkyls of 12 and 13 group elements **- Weightage - 15 Marks**

Organic Chemistry - I

Unit - III

Structural theory in organic Chemistry: - Weightage - 15 + 5 Marks

Types of bond fission and organic reagents (Electrophilic, Nucleophilic and free radical reagents including neutral moleculs like H_2O, NH_3 and $AlCl_3$)

Bond polarization:

Factors influencing the polarization of covalent bonds, electro nagativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance (or) mesomeric effect, application to (a) acidity of phenol and (b) acidity of carboxlic acids. Hyper conjugation and its application to stability of carbonium ions, free radicals and alkenes, carbanions, carbenes and nitrenes.

Types of organic reactions:

Addition - electrophitic - nucleophilic and free radical. Subsitution - electrophilic, nuleophilic and free radical. Elimination - Examples (Mechanism not required)

Unit - IV

1. Acyclic hydrocarbons : - Weightage - 15 + 5 + 5 Marks

Alkanes - Preparation of alkanes. Properties - Addition of hydrogen - Heat of hydrogenation and stability of alkanes. Addition of halogen and its mechanism. Addition of HX, Markonikov's rule, addition of H_2O, HOX, H_2SO_4 with mechanism and addition of HBr in the presence of peroxide (anti - Markonikov's addition). Diene - Types of dienes, reaction of conjugated dienes - 1, 2 and 1, 4 addition of HBr to 1, 3 - Butadiene and Diel's Alder reaction.

Alkynes - Preparation by dehydrohalogenation of dihalides, dehalogenation of tetrahalides. Properties - Acidity of acetylenic hydrogen (formation of metal acetylydes). Preparation of higher acetylenes, metal ammonia reductions, physical properties. Chemical reactivity, electrophilic addition of X_2, HX, H_2O (Tautomerism), oxidation with $KMnO_4$, OsO_4, reduction and polymerisation reactions of acetylene.

2. Alicyclic hydrocarbons (cycloalkanes)

Nomenclature, preparation by Freunds method, heating of dicarboxylic metal salts.

Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, stability of cycloalkanes - Baeyer's - Strain theory. Sachse and Mohr predictions and Pitzer's strain theory. Conformational structures of cyclobutane, cyclopentane, cyclohexane.

Unit - V

Benzene and its reactivity - Weightage - 15 + 5 + 5 Marks

Concept of resonance, resonance energy, heat of hydrogenation, heat of combustion of benzene, mention of c-c bond length and orbital picture of benzen. Concept of aromaticity - aromaticity (definition), Huckel's rule - application to benzenoid (benzene, Napthalene) and non – Benzenoid compounds cyclopropenyl cation, cyclopentadienyl anion and tropylium cation.)

Reactions:

General mechanism of electrophilic substitution, mechanism of nitration. Friedel craft's alkylation and acylation. Orientation of aromatic substitution - definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and phenolic). Orientation effect of (i). Amino, methoxy and methyl groups (ii). Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups (iii) Halogens (explanation by taking mimimum of one example from each type).

Additional Syllabus (Without Examination) :

Mathematical Concepts : Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation of functions like , maxima and minima. Partial differentation and reciprocity relations. Integration of some useful / relevant functions. Permutations and combinations. Factorials - Probability.

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CHEMISTRY **CHE 101CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

I SEMESTER

Time : 3hrs **QUALITATIVE INORGANIC ANALYSIS AND INORGANIC PREPARATIONS**

Max. Marks : 50

QUALITATIVE INORGANIC ANALYSIS

Analysis of simple salt containing the following one anion and one cation

Analysis of anions : Carbonate, Sulphate, Chloride, Bromide, Iodide, Acetate, Nitrate, Borate, Phosphate

Analysis of cations : Lead, Copper, Cadmium, Iron, Alluminium, Zinc, Manganese, Nickel, Calcium, Strontium, Barium, Potassium and Ammonium.

INORGANIC PREPARATIONS

Answer any ONE of the following :

1. Ferrous ammonium sulphate
2. Tetrammine copper (II) sulphate

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BOTANY **BOT 101C** 2016-17 onwards I B.Sc

SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, ALGAE AND FUNGI

UNIT- I: MICROBIAL WORLD (Origin and Evolution of Life, Microbial diversity (12hrs)

1. Discovery of microorganisms, origin of life, spontaneous, biogenesis, Pasteur experiments, germ theory of disease.

2. Classification of microorganisms – R.H. Whittaker's five kingdom concept, Carl Woese's- Domain system.

3. Brief account of special groups of bacteria- Archaebacteria, Mycoplasma, Chlamydia, Actinomycetes, Rickettsias and Cyanobacteria.

UNIT- II: VIRUSES (12hrs)

1**.** Viruses- Discovery, general account, structure& replication of –T4 Phage (Lytic, Lysogenic) and TMV, Viroids, Prions.

2. Plant diseases caused by viruses– Symptoms, transmission and control measures (Brief account only).

3. Study of Tobacco Mosaic, Bhendi Vein clearing and Papaya leaf curl diseases.

UNIT III: BACTERIA (12hrs)

1. Bacteria: Discovery, General characteristics, cell structure and nutrition.

2. Reproduction- Asexual and bacterial recombination (Conjugation, Transformation, Transduction).

3. Economic importance of Bacteria.

UNIT –IV Algae (12hrs)

1. General account - thallus organization and reproduction in Algae.

2. Fritsch classification of Algae (up to classes only) and economic importance.

3. Structure, reproduction and life history of *Oedogonium, Ectocarpus* and *Polysiphonia.*

UNIT V: FUNGI (12hrs)

1. General characteristics and outline classification (Ainsworth).

2. Structure, reproduction and life history of *Rhizopus* (Zygomycota), *Penicillium* (Ascomycota), and *Puccinia* (Basidiomycota).

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BOTANY **BOT 101CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, ALGAE AND FUNGI

1. Knowledge of Equipment used in Microbiology: Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, laminar air flow chamber and Incubator.
2. Preparation of liquid and solid media for culturing of microbes (Demonstration).
3. Study of viruses and bacteria using electron photo micrographs (TMV, Bacteriophage, HIV, Cocci, Bacillus, Spirillum bacteria).
4. Gram staining technique.
5. Study of Plant disease symptoms caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and viruses (TMV, Bhendi vein clearing and Leaf curl of Papaya),Fungi (Late blight of potato, Red rot of Sugarcane and Paddy blast).
6. Study of vegetative and reproductive structures of the following:
    a) **Cyan bacteria:** *Nostoc and Scytonema.*
    b) Algae: *Oedogonium, Ectocarpus, Polysiphonia*,
    c) Fungi: *Rhizopus*, *Penicillium and Puccinia.*
7. Study of plant material infected by Fungi (Rot of tomatoes, blue and green moulds of Citrus fruits and wheat rust (Section cutting of diseased parts of Wheat and Barberry -identification of different Spores).
8. Lichens: Morphology and of anatomy of different thalli.
9. Field Visit.

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ZOOLOGY **ZOO 101C** 2016-17 onwards I B.Sc

SYLLABUS

I SEMESTER

ANIMAL DIVERSITY - NON CHORDATES

Unit - I

1.1 Brief history, Significance of Diversity of Non Chordates

1.2 **Protozoa**

1.2.1 General characters

1.2.2 Classification of Protozoa up to classes with examples

1.2.3 *Elphidium* (type study)

1.3 **Porifera**

1.3.1 General characters

1.3.2 Classification of Porifera up to classes with examples

1.3.3 *Sycon* – External Characters, Types of cells,

1.3.4 Skelton in Sponges

1.3.5 Canal system in sponges

Unit - II

2.1 **Coelenterata**

2.1.1 General characters

2.1.2 Classification of Coelenterata up to classes with examples

2.1.3 *Obelia* - External Characters, Structure of Polyp and Medusa

2.1.4 Polymorphism in coelenterates

2.1.5 Corals and coral reef formation

2.2 **Platyhelminthes**

2.1.1 General characters

2.1.2 Classification of Platyhelminthes upto classes with examples

2.1.3 *Fasciola hepatica* - External Characters, Excretory system, Reproductive System, Life History and pathogenicity

Unit - III

3.1 **Nemathelminthes**

3.1.1 General characters

3.1.2 Classification of Nemathelminthes up to classes with examples

3.2 **Annelida**

3.2.1 General characters

3.2.2 Classification of Annelida up to classes with examples

3.2.3 *Hirudinaria granulosa* - External Characters, Digestive System, Excretory System and Reproductive System

3.2.4 Coelomoducts

3.2.5 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost

Unit - IV

4.1 **Arthropoda**

4.1.1 General characters

4.1.2 Classification of Arthropoda up to classes with examples
4.1.3 Prawn - External Characters, Appendages, Respiratory system and Circulatory System
4.1.4 *Peripatus* - Structure and affinities

4.2 Mollusca

4.2.1 General characters
4.2.2 Classification of Mollusca up to classes with examples
4.2.3 Pearl formation in Pelecypoda
4.2.4 Torsion in gastropods

Unit - V

5.1 Echinodermata

5.1.1 General characters
5.1.2 Classification of Echinodermata up to classes with examples
5.1.3 Water vascular system in star fish

5.2 Hemichordata

5.2.1 General characters
5.2.2 Classification of Hemichordata up to classes with examples
5.2.3 *Balanoglossus* - Structure and affinities

5.3 Non-Chordata larval forms

5.3.1 Amphiblastula
5.3.2 Ephyra
5.3.3 Trochophore
5.3.4 Nauplius
5.3.5 Glochidium
5.3.6 Bipinnaria
5.3.7 Tornaria

REFERENCE BOOKS

1. The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

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ZOOLOGY **ZOO 101CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

I SEMESTER

Time : 3 hrs **ANIMAL DIVERSITY - NON CHORDATES** Max. Marks : 50

Observation of the following slides / spotters / models

Protozoa : *Elphidium, Paramecium* - Binary fission and conjugation

Porifera : *Spongilla, Euspongia, Sycon, Sycon* - T.S and L.S

Coelenterata : *Obelia* - colony and medusa, *Physalia, Velella, Corallium, Gorgonia, Pennatula*

Platyhelminthes : *Planaria, Fasciola hepatica, Fasciola* larval forms - Miracidium, Redia, Cercaria, *Echinococcus granulosus*

Nemathelminthes : *Ascaris* - Male and female, *Ancylostoma duodenale*

Annelida : *Neries, Heteroneries, Aphrodite, Hirudo,* Trochophore larva

Arthropoda : Mouth parts of male and female *Anopheles* and *Culex*, Mouth parts of housefly, Mouth parts of Scorpion, Nauplius, Mysis, Zoea larvae, crab, prawn, *Scolopendra, Sacculina, Limulus, Peripatus*

Mollusca : *Chiton, Murex, Sepia, Loligo, Octopus, Nautilus,* Glochidium larva

Echinodermata : *Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon, Asterias,* Bipinnaria larva

Hemichordata : *Balanoglossus*, Tornaria larva

Demonstration of dissection / dissected / virtual dissection :

1. Leech / Prawn / Scorpion / Crab - Digestive system 2. Prawn - Appendages
3. Prawn / Scorpion / Crab - Nervous system
4. *Pila* / Unio - Digestive system
5. Mounting of Statocyst 6. Mounting of Radula

b Laboratory record work shall be submitted at the time of practical examination

b Compulsory one species to be adopted for demonstration only by the faculty

b Computer aided techniques should be adopted as per UGC guide lines

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COMPUTER SCIENCE **CSC 101C** 2016-17 onwards I B.Sc

SYLLABUS

I SEMESTER

COMPUTER FUNDAMENTALS AND MS OFFICE

Unit – I

Introduction to Computers
Input and Out Put Devices

Unit – II

Computer Memory and Processors
Number Systems and Computer Codes

Unit – III

Computer Software
Operating Systems

Unit – IV

Introduction to Algorithms and Programming Languages
MS Word :
Getting Started
Working with Microsoft Office 2007
Understanding Word Basics.Editing and Formatting Text.Formatting Documents
Working with Graphic Objects
Microsoft Powerpoint :
Understanding Powerpoint Basics. Formatting and Modifying Presentations. Enchancing the Presentation.
MS Access : Basics of Database Table, form, Query

Unit – V

Microsoft Excel :
Understanding Excel Basics. Formatting and Editing the Worksheet. Using Formulas and Functions.Working with Charts.

TEXT BOOK:

1. Fundamentals Of Computers " by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. Microsoft Office 2007 Fundamentals, 1st Edition By Laura Story, Dawna Walls UNIT IV, V.

REFERENCE BOOK:

1. "Computer Fundamentals and Programming in C" by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. **PC SOFTWARE UNDER WINDOWS** by Puneet Kumar And SushilBhardwaj From Kalyani Publishers

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COMPUTER SCIENCE **CSC 101CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

I SEMESTER

Time : 3 hrs **COMPUTER FUNDAMENTALS AND MS OFFICE** Max. Marks : 50

1. Desine a visiting card
2. Prepare a employe salary statement
3. Create microformat document
4. Create interview call letter
5. Create a pie chart
6. Create electronic spread sheet
7. Create a power point presentation
8. Crate a database tables
9. Create a header and footer
10. Create a different charts

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NCC **NCC 101C** 2016-17 onwards I DEGREE

SYLLABUS

I SEMESTER

NCC ELECTIVE – I

UNIT - I

INRODUCTION **10x2=20**

NCC - Motto - NCC Song and its meaning

NCC Flag - Its colors - Administrative setup of NCC

Incentives to NCC Cadets - NCC Awards - Divisions in NCC

UNIT-II

NATIONAL INTEGRATION AND INSIGNIA SYMBOLS OF INDIA 10x2=20

Definition of National Integration and its importance

Major religions in India - Meaning of Unity in Diversity

Neighbours of India

Measures taken by the Government for youth development

National Anthem - National Flag- National Bird - National Flower - National Animal

Names of those who wrote Janaganamana, Sare Jahan Se Achha and Vandemataram

UNIT - III

LEADERSHIP AND MOTIVATION **10x2=20**

Definition of leader - Types of leaders

Leadership traits - Values of a good leader

Duty and Discipline

Motivation - Types of motivation

UNIT - IV

CITIZEN AND DUTY **5x2=10**

Definition of citizen

Good citizen

Duty

Discipline

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GENERAL ENGLISH **ENG 102C** 2016-17 onwards I DEGREE

SYLLABUS

II SEMESTER

GENERAL ENGLISH – II

Unit - I Prose :

1. The Annihilation of caste - Dr B.R. Ambedkar
2. On Shaking Hands - A.G. Gardiner **2x5=10**

Unit - II Poetry :

1. This is a photograph of me - Margaret Atwood
2. I am not that woman - Kishwar Naheed **2x5=10**

Unit - III Non - Detailed :

1. Half a rupee worth (short story) - R.K. Narayan **2x5=10**

Unit - IV Unseen passage **5**

Unit - V Language activity :

1. Paragraph writing (general)
   Write a paragraph using the hints given below **5**
2. Synonyms and antonyms (text based) **5**
3. Correction of sentences (text based)
   articles and prepositions **5**
4. Tenses (text based)
   Fill in the blanks with correct verb form **5**
5. Curriculum vitae
   Prepare CV with the hints given below **5**
6. The Interrogatives **5**
7. Question tags (text based) **5**

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Comm. & Soft Skills - I **CSS 102C** 2016-17 onwards I DEGREE

SYLLABUS

II SEMESTER

COMMUNICATION & SOFT SKILLS - I

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1. Communication skills

2. Listening skills

3. Oral communication

4. Stress and intonation

5. Word building

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FOUNDATION COURSE **GSC 102C** 2016-17 onwards I DEGREE

SYLLABUS

II SEMESTER

ENVIRONMENTAL STUDIES

Unit-I : Natural Resources: 6 Hrs

Definition, scope and importance. Need for public awareness.
Brief description of ;
Forest recourses: Use and over-exploitation. Deforestation; timber extraction, mining, dams. Effect of deforestation environment and tribal people

Water resources: Use and over–utilization. Effects of over utilisation of surface and ground water. Floods, drought.
Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
Food resources: World food problems, Effects of modern agriculture; fertilizer pesticide, salinity problems.
Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
Land resources: Land as resources, land degradation, man induced landslides, soil erosion and desertification

Unit-II : Ecosystems, Biodiversity and its conservation 6 Hrs

Concept of an ecosystem
Structure and function of an ecosystem
Producers, consumers and decomposers
Food chains, food webs and ecological pyramids
Characteristic features of the following ecosystems:-
Forest ecosystem, Desert ecosystem, Aquatic ecosystem.
Value of biodiversity: Consumptive use, productive use. Biodiversity in India.
Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts.
Endangered and endemic species of India
Conservation of biodiversity

Unit-III : Environmental Pollution 6 Hrs

Definition
Causes, effects and control measures of :-
a. Air pollution
b. Water pollution
c. Soil pollution

d. Noise pollution
Solid waste management; Measures for safe urban and industrial waste disposal
Role of individual in prevention of pollution
Disaster management: Drought, floods and cyclones

Unit-IV : Social Issues and the Environment **6 Hrs**

From Unsustainable to Sustainable development
Water conservation, rain water harvesting, watershed management.
Climate change, global warming, ozone layer depletion,
Environment protection Act
Wildlife Protection Act, Forest Conservation Act

Unit-V : Human Population and the Environment **6 Hrs**

Population explosion, impact on environment.
Family welfare Programme
Environment and human health“
Women and Child Welfare
Value Education
Role of Information Technology in Environment and humanhealth.

Reference Books :

1. Environmental Studies by Dr.M.Satyanarayana, Dr.M.V.R.K.Narasimhacharyulu, Dr.G. Rambabu and Dr.V.VivekaVardhani, Published by Telugu Academy, Hyderabad.
2. Environmental Studies by R.C.Sharma, Gurbir Sangha, published by Kalyani Publishers.
3. Environmental Studies by Purnima Smarath, published by Kalyani Publishers.

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HISTORY **HIS 102C** 2016-17 onwards I B.A

SYLLABUS

II SEMESTER

INDIAN HISTORY AND CULTURE

UNIT - 1

A brief political survey of south India - Sangam age, literature, society and culture - The age of Satavahanas - Brief political history - Gauthamiputrasatakarni - Socio economic religious cultural developments - History and importance of Amaravathi - Pallavas - Political history their contribution of society and culture - Art and architecture

Chalukayas of Badami period : Vaapi Chalukyas - Eastern Chalukyas of Vengi - Rashtrakutas - Chalukyas of Kalyani - Polity, society, economy, evolution of bhakti tradition art and archecture

Unit - 2

The Cholas : Overview of the history of administration - Social and religious trends - Indian culture - Contacts with South - East Asia and Sri Lanka - Age of the Rajputs : Political history of Rajputs - Socio - culture conditions - Muslim invasions : Arabs, Ghazani and Ghoti and their impact

Unit - 3

Age of Delhi Sultanate : Slave dynasty, Khiji dynasty and Tughlak dynasty - Polity and administration under Delhi Sultanate, society - Composition of rural society, nobility - Status of women. Economic and technological developments. Agriculture - Industry - Trade and commerce - Urbanization, art and architecture - Education and literance - 3

Unit - 4

Impact of Islam on Indian society and culture - Bhakti and Sufi movements - Ramanujacharya Kabir, Meerabai - Emergence of composite culture

The Kakatiya : Outline of political history religious conditions and architecture, literacture - 2

Unit - 5

Vijayanagara Empire : Brief political history - Balamani - Vijayanagara relations of Srikrishnadevaraya - Administration society. Development of literature references

Sum - II Books : Telugu academy text books - Indian history and culture - I

References :

1. AL Srivastava - The Sultanate of Delhi
2. Eswar Prasad - Short history of muslim rule in India
3. KH Neelakanata Sastry - A history of south India
4. Herman Kulke (ed) - The state in India (AD 1000 - 17000 AD)
5. Mohammad Habib and KA Nizami (eds), Comprehensive history of India, Vol-V - The Delhi statement
6. Irfan Habib, Medieral India - The study of a civilization
7. Santosh Chandra - Medieral India
8. Tapan Rayachanduri and Irfan Habinb - Eds Cambridge economic history of India, Vol - I
9. KAN Sastry - The Cholas, Chennai 1975 (Rajput)
10. G. Yezdani - History of the decan, Vol - II, 1960
11. Robert sewall - A forgotten empire - Vijayanagar - A contribution to the history of India
12. Telugu - Ancient Indian history (Sanskruti) - Culture

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POLITICS **POL 102C** 2016-17 onwards I B.A

SYLLABUS

II SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS

Unit-1: Constitutionalism

1. The Purpose of Constitutional law, Theory of Separation of Powers
2. Structural Forms of the Modern State: Basic features of Parliamentary and Presidential forms of Government

Unit-2: Territorial Division of Authority of the Modern State

1. Basic features of Federal form of Government
2. Basic features of Unitary form of Government

Unit-3: Institutional forms of the Modern State

1. Democracy: Basic features of Classical and Modern Representative Democracy
2. Models of Democracy: Procedural Democracy and Substantive Democracy

Unit-4: Judiciary and Democratic State

1. The nature, role and functions of the Judiciary
2. Judicial Review: Debates on the Supremacy of legislature or Judiciary in the protection of Constitutional law

Reference books:

1. Andrew Heywood (2007) Politics 3rd edition, Palgrave Macmillan, New York
2. Held, David (2006) Models of Democracy 3rd edition Oxford Polity Press
3. Birch A.H (2000) The Concepts and Theories of Democracy, London Routledge
4. Bogdanor, V (Ed) (1988) Constitutions in Democratic Politics Gower, Aldershot
5. Scott Gordon (1999) Controlling the State: Constitutionalism from Ancient Athens to Today, Cambridge, Harvard University Press.

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ECONOMICS **ECO 102C** 2016-17 onwards I B.A

SYLLABUS

II SEMESTER

MICRO ECONOMICS - II (PRODUCTION AND PRICE THEORY)

Unit - 1

Production function-Concept of homogeneous production function-Cobb-Douglas Production function- Law of variable proportions-Law of Returns to Scale - Different Concepts of Costs – Explicit & Implicit, Opportunity, Total – fixed and Variable Costs, Marginal & Average Costs & its Relationship. Concept of Revenue – Total, Marginal & Average Revenue and Break – Even Point

Unit - 2

Analyse different types of Market structures - Perfect Competition - Price determination and equilibrium of firm and industry under perfect competition - Monopoly - Price determination - Price discrimination.

Unit - 3

Monopolistic competition - price determination - Oligopoly - Kinked demand curve approach.

Unit - 4

Marginal Productivity theory of distribution - Theories of wage determination Subsistence theory of wages, Standard of living theory of wages, Modern theory of wages Wages and collective bargaining - concept of minimum wage.

Unit - 5

Theory of Rent: Ricardian theory of rent - Quasi rent concept of Alfred Marshall. Theories of Interest - Classical, Neo-classical and Keynes Liquidity Preference theory - Profit - dynamic, innovations, Risk and Uncertainty theories.

REFERENCES:

1. R.G. Lipsey and K.A.Chrystal - "Economics", Oxford University Press, 10/e, 2004.
2. P.A.Samuelson & W.D. Nordhaus-"Economics", Tata Mc.Graw Hill, 18/e, 2005.
3. N.Gregory Mankiw-"Principles of Economics", Thompson 2015.
4. H.L.Ahuja-"Advanced Economic Theory"' S.Chand, 2004.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2015.
6. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc.Graw Hill, 1971.
7. Telugu Academy Publications
8. D.M. Mithani & G.K. Murty - Business Economics, Himalaya Publishing, 2015.
9. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc.Graw Hill, 1971.

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SPL. ENGLISH **ENG 102CS** 2016-17 onwards I B.Sc

SYLLABUS

II SEMESTER

SPECIAL ENGLISH – II

I. History of English literature

1. Elizabethan period
2. Jacobean period

II. Literary forms and terms

1. Simile
2. Personification
3. Irony
4. Tragedy
5. Comedy
6. Hyperbole

III. Drama

1. Twelfth night - William Shakespeare

IV. Poetry

1. Elegy written in a country churchyard - Thomas Gray

V. Poetry

1. Paradise lost - Book IX

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FUNDAMENTALS OF ACCOUNTING - II **COM 201C** 2016-17 onwards I B.Com

SYLLABUS

II SEMESTER

FUNDAMENTALS OF ACCOUNTING – II

Unit-I: Depreciation :

Meaning of Depreciation - Methods of Depreciation: Straight line – Written down Value – Sum of the Years' Digits - Annuity and Depletion (Problems).

Unit-II: Provisions and Reserves :

Meaning – Provision vs. Reserve – Preparation of Bad debts Account – Provision for Bad and doubtful debts – Provision for Discount on Debtors – Provision for discount on creditors - Repairs and Renewals Reserve A/c (Problems).

Unit-III: Bills of Exchange :

Meaning of Bill –Features of bill – Parties in the Bill – Discounting of Bill – Renewal of Bill –Entries in the books of Drawer and Drawee (Problems).

Unit-IV: Consignment Accounts :

Consignment - Features - Proforma invoice - Account sales – Del-credre Commission - Accounting treatment in the books of consigner and consignee - Valuation of closing stock - Normal and Abnormal losses (Problems).

Unit-V: Joint Venture Accounts :

Joint venture - Features - Differences between Joint-venture and consignment – Accounting procedure - Methods of keeping records (Problems).

Reference Books:

1. R.L. Gupta & V.K. Gupta, Principles and Practice of Accounting, Sultan Chand
2. T. S. Reddy and A. Murthy - Financial Accounting, Margham Publications.
3. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers.
4. Tulsan, Accountancy-I, Tata McGraw Hill Co.
5. V.K. Goyal, Financial Accounting, Excel Books
6. T.S. Grewal, Introduction to Accountancy, Sultan Chand & Co.
7. Haneef and Mukherjee, Accountancy-I, Tata McGraw Hill
8. Arulanandam, Advanced Accountancy, Himalaya Publishers

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BUSINESS ENVIRONMENT **COM 202C** 2016-17 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ENVIRONMENT

Unit – I: Overview of Business Environment :

Business Environment – Meaning – Macro and Micro Dimensions of Business Environment – Economic – Political – Social – Technological – Legal – Ecological – Cultural – Demographic –Changing Scenario and implications – Indian Perspective – Global perspective.

Unit – II: Economic Growth :

Meaning of Economic growth – Factors Influencing Development – Balanced Regional Development.

Unit – III - Development and Planning :

Rostow's stages of economic development - Meaning – Types of plans – Main objects of planning in India – NITI Ayog and National Development Council – Five year plans.

Unit – IV : Economic Policies :

Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Union budget – Structure and importance of Union budget – Monetary policy and RBI.

Unit – V -Social, Political and Legal Environment :

Concept of Social Justice - Schemes - Political Stability - Leal Changes.

Suggested Readings:

1. Rosy Joshi and Sangam Kapoor : Business Environment.
2. Francis Cherunilam : Business Environment.
3. S.K. Mishra and V.K. Puri : Economic Environment of Business.
4. K. Aswathappa : Essentials of Business Environment.

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Business Economics - II **COM 203C** 2016-17 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ECONOMICS – II

Unit-I : Production and costs:

Techniques of Maximization of output, Minimization of costs and Maximization of profit – Scale of Production – Economics and Dis-economics of Scale – Costs of Production – Cobb Douglas production Function.

Unit-II: Market Structure-I:

Concept of Market – Market structure – Characteristics – Perfect competition – characteristics equilibrium price – Profit maximizing output in the short and long run Monopoly – characteristics – Profit maximizing out-put in the short and long run-Defects of Monopoly – Distinction between perfect competition and Monopoly.

Unit-III: Market Structure-II:

Monopolistic Competition – Characteristics – Product differentiation – Profit maximization – Price and output in the short and long –run-Oligopoly – characteristics – Price rigidity –Kinked Demand Curve – Distribution Concept – Marginal Productivity Theory of Distribution.

Unit-IV: National Income And Economic Systems:

National Income – Definition Measurement – GDP – Meaning Fiscal deficit – Economic systems – Socialism – Mixed Economic System - Free Market economy.

Unit-V: Structural Reforms:

Concepts of Economic liberalization, Privatization, Globalization –WTO Objectives Agreements – Functions – Trade cycles – Meaning – Phases – Benefits of International Trade –Balance of Trade and Balance of payments.

UNIT-VI : Factor pricing

Theories of wages determination – Wages and Collective bargaining – Minimum wage Rent – Scarcity Rent, Differential Rent, Quasi Rent.

Reference Books:

1.Dr. S.Sankaran, Business Economics – Margham Publications.
2.Business Economics – Kalayani Publications
3. Business Economics – Himalaya Publishing House
4.Aryasri and Murthy Business Economics, Tata Mcgraw Hill
5. Business Economics, Maruthi Publications

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MATHEMATICS **MAT 102C** 2016-17 onwards I B.Sc

SYLLABUS

II SEMESTER

DIFFERENTIAL EQUATIONS - II & SOLID GEOMETRY – II

DIFFERENTIAL EQUATIONS - II

UNIT - 1

Higher order linear differential equations: Linear differential equations with constant coefficients, Solution of homogeneous linear differential equations of order n with constant coefficients, Solution of the non-hompgeneous linear differential equations with constant coefficients by means of polynomial operators. Methods of finding particular integral of $f(D)y=Q$ when $Q(x)$ is of the form i) be^{ax} ii) b sin ax or b cos ax iii) bx^k and $P(D) = D - a_0$, $a_0 0$ iv) bx^k and $P(D) = a_n D^n + a_{n-1} D^{n-1} + \ldots a1D$ v) e^{ax} V, where V is a function of x vi) be^{ax} and $P(a)=0$ vii) xV, where V is any function x

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations with non-constant coefficients - General solution in terms of nonsolution of the completary function, General by changing the dependentate variable, General solution by chaining independent variable, Method of variation of parameters, The cauchy - Euler equation.

System of linear differential equations - Solution of a system of linear equations with constant coefficients, An equivalent triangular system, Degenerate case : $p_1(D)p_4(D)-p_2(D)p_3(D)=0$

(1 short answer questions, 1 long answer questions will be given in the examination)

SOLID GEOMETRY - II

UNIT - 3

Spheres - I : Definition and equation of the sphere - Equation of the sphere through four given points - plane sections of a sphere. Intersection of two spheres - Equation of a circle. Sphere through a given circle - Intersection of a sphere and a line. Power of a point - Tangent line and tangent plane of a sphere - plane of contact. Polar plane. Pole of plane, Conjugate points, Conjugate planes.

(2 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 4

Spheres - II : Angle of intersection of two spheres. Conditions for two spheres to be orthogonal - Radical plane. Radical line. Radical centre - Coaxial system

of spheres. Simplified form of a coaxal system of spheres. Limiting points of a coaxal system of spheres.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 5

The cone: Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve - Enveloping cone - Quadratic cone - Equations of cones with vertex at origin and homogeneous - Condition that the general equation of the second degree should represent a cone - Condition that a cone may have three mutually perpendicular generators - Intersection of a line and a quadric cone - Tangent lines and tangent plane at a point - Condition that a plane may touch a cone - Reciprocal cones - Intersection of two cones with a common vertex - Right circular cone - Equation of the right circular cone with a given vertex, axis and semi-vertical angle.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

The cylinder: Definition of a cylinder - Equation to the cylinder whose generators intersect a given conic and are parallel to a given line - Enveloping cylinder - The right circular cylinder - Equation of the right circular cylinder with a given axis radius.

(1 short answer questions, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjeneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.

2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.

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PHYSICS **PHY 102C** 2016-17 onwards I B Sc.

SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

UNIT I Mechanics of continuous media (8)

Definitions of Elastic constants of isotropic solids (Y, K and n) , Derivation of relation between elastic Constants (Y, K and n), Definition of Poisson's ratio and expression for Poisson's ratio in terms of Y, K and n, Classification of beams, Types of bending, Point load, Distributed load, Shearing force and Bending moment, Cantilever with an end load.

UNIT II Central forces (12)

Central forces, definition of Central forces with examples, Conservative nature of central forces, Conservative force as a negative gradient of Potential Energy, Equation of motion under a central force, gravitational field(Definition), Kepler's laws Statements, Derivation of Kepler's laws.

UNIT III Special theory of relativity (10)

Relativity (definition), Frames of References-Difference between inertial and non- inertial frames of reference, Galilean Transformations, absolute frames of reference, Michelson-Morley experiment, Postulates of special theory of relativity. Lorentz transformations, Time dilation, length contraction, Einstein's mass - energy relation.

WAVES AND OSCILLATIONS

UNIT IV Vibrating Strings (12)

Transverse waves(Definition only),Transverse wave propagation- Wave equation-general solution of wave equation, Simple Harmonic Solution of wave equation, Velocity of Transverse wave along a stretched string, modes of vibration of stretched string clamped at both ends, Harmonics and overtones. Laws of Transverse vibrations (Laws only).

UNIT V Vibrations of bars and pendulums (12)

Longitudinal waves (Definition only),Velocity of Longitudinal vibrations in bar, Longitudinal vibrations of a bar (i) bar fixed at both ends ,(ii) bar fixed at the midpoint, Torsional pendulum - measurements of rigidity modulus (Experiment), compound pendulum - measurement of Acceleration due to gravity (Experiment).

UNIT VI Ultrasonics (6)

Ultrasonics, Properties of ultrasonic waves, Production of ultrasonics by piezo electric method , Production of ultrasonics by Magnetostriction method, Detection of ultrasonic waves – Piezo-electric method, Kundt's tube and Sensitive flame methods, Determination of wavelength and Velocity of ultrasonic waves by Sear's method. Applications of ultrasonic waves.

Reference Books

*1. **Berkeley Physics Course. Vol.1**, by C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

*2. **Mechanics** by C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

*3. **Fundamentals of Physics**. Halliday/Resnick/Walker Wiley India Edition 2007.*

*4. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy Orient Longman.*

*5. **First Year Physics** - Telugu Academy.*

*6. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, New Age International.*

*7. **College Physics-I**. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.*

*8. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. McGraw Hill.*

*9. **Waves and Oscillations**. N. Subramaniyam and Brijlal Vikas Publishing House Private Limited.*

*10. **Fundamentals of Physics** by Alan Giambattista et al Tata-McGraw Hill Company Edition, 2008.*

*11. **University Physics** by Young and Freeman, Pearson Education, Edition 2005.*

*12. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman Pearson Education Eleventh Edition.*

*13. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. The McGraw Hill Companies.*

*14. **Mechanics**. Hans & Puri. TMH Publications.*

*15. **Engineering Physics**. R.K. Gaur & S.L. Gupta. Dhanpat Rai Publications.*

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PHYSICS **PHY 102CP** 2016-17 onwards I B Sc.

PRACTICAL SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

At least 06 experiments from the following:

1. Measurement of errors – Simple Pendulum.
2. Determination of the coefficient of Viscosity of water by Poiseulli's Method.
3. Determination of the Rigidity Modulus of the material of a wire using Torsional Pendulum
4. Determination of the Surface Tension of water by Capillary Rise Method.
5. Determination of the speed of waves on a stretched string using Sonometer.
6. Verification of Laws Transverse waves of a stretched string using Sonometer.
7. Determination of Radius of Capillary tube by Hg thread method.
8. Measurements of Slit width using travelling microscope.
9. Determination of the Young's Modulus by uniform bending.

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CHEMISTRY **CHE 102C** 2016-17 onwards I B.Sc

SYLLABUS

II SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

PHYSICAL CHEMISTRY - I

Unit - I

1. Solid state: - Weightage - 15 + 5 + 5 Marks

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Definition of lattice point, space lattice, unit cell. Bravis lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Determination of crystal structure by Bragg's method and the powder method. Indexing of planes and structure of NaCl and KCl crystals.

Defects in crystals. Stoichiometric and non-stoichiometric defects. Band theory of semiconductors. Extrinsic and intrinsic semi conductors, n-type and p-type semi conductors and their applications of photo electrochemical cells.

Unit - II

1. Gaseous state : - Weightage - 15 + 5 Marks

Compression factors, deviation of real gases from ideal behaviour. Vander Waal's equation of state. P - V Isotherms of real gases, Andrew's isotherms of carbon dioxide, continuity of state. Critical phenomena. The Vander Waal's equation and the critical constant. Relationship between critical constants and Vander Waal's constants. Joule Thomson effect. Liquefaction of gases : i) Linde's method and ii) Claude's method

2. Liquid state : - Weightage - 5 Marks

Intermolecular forces. Structure of liquids (qualitative description) structural differences between solids, liquids and gases. Liquid crystals, the mesomorphic state, classification of liquid crystals into Smectic and Nematic. Differences between liquid crystal and solid / liquid. Application of liquid crystals as LCD devices.

Unit - III

1. Solutions: - Weightage - 15 + 5 + 5 Marks

Liquid - liquid - ideal solutions, Raoult's law. Ideally dilute solutions, Henry's law. Non - ideal solutions, vapour pressure - composition and vapour pressure - temperature curves. Azeotropes - HCl - H_2O, ethanol - water,

trimethylamine - water nicotine - water systems. Effects of impurity on consulate temperature. Immiscible liquids and steam distillation.

Nernst distribution law. Calculation of the partition co-efficient. Applications of distribution law.

GENERAL CHEMISTRY - I

Unit - IV

1. Surface chemistry : - Weightage - 15 + 5 Marks

Definition of colloids. Solids in liquids (sols), preparation, purification, properties - kinetic, optical, electrical. Stability of colloids, Hardy - Schulze law, protective colloid. Liquids in liquids (emulsions) preparation, properties, uses. Liquids in solids (gels) preparation, uses. Adsorption : Physical adsorption, chemisorption. Freundlisch, Langmuir adsorption isotherms. Applications of adsorption.

2. Chemical bonding : - Weightage - 15 + 5 Marks

Valence bond theory, hybridization, VB theory as applied to CIF_3, $Ni(CO)_4$, Dipole moment - Orientation of dipoles in an electric field, dipole moment, induced dipole moment. Dipole moment and structure of molecules. Molecular orbital theory - LCAO method, construction of M.O. diagrams for homo - nuclear and hetero - nuclear diatomic molecules (N_2, O_2, CO and NO).

Unit - V

Sterochemistry of carbon compounds : - Weightage - 15 + 5 + + Marks

Steroisomerism, steroisomers; enatiomers, diasteromers. Definition and examples. Conformational and configurational somerism. Definition, conformational somerism of ethane and n - butane. Enantiomers : Optical activity wave nature of light, plane polarised light, interaction with molecules, optical rotation and specific rotation. Chiral molecules - Definition and criteria - Absence of plane, center and axis of symmetry - Asymmetric and disymmetric molecules. Example of asymmetric molecules (Glyceraldehyde, lactic acid, alanine) and disymmetric molecules (trans - 1, 2 - dichloro cyclopropane).

Chiral centres : Definition - Molecules with similar chiral carbons (tartaric acid), definition of mesomers. Molecules with dissimilar chiral carbons (2, 3 - dibromo pentane). Number of enantiomers and mesomers - Calculations. DL and RS configuration for asymmetric and disymmetric molecules. Cahn - Ingold - Prelog rules. Racemic mixture, racemisation and resolution techniques.

Diasteromers : Definition - Geometrical isomerism with reference to alkenes - cis, trans and E, Z - Configuration.

Additional Syllabus (Without Examination) :

Computers : General introduction to computers, different components of a computer, hardware and software, input - output devices, binary numbers and arithmatic. Introduction to computer language, programming, operating systems.

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CHEMISTRY **CHE 102CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

Time : 3hrs **QUALITATIVE INORGANIC ANALYSIS AND INORGANIS PREPARATIONS** Max. Marks : 50

Analysis of mixtures containing two anions and two cations (of different groups) from the following

Anions :

Sulphate, Chloride, Bromide, Iodide, Acetate, Nitrate, Borate, Phosphate (without interfering)

Cations :

Lead, Copper, Iron, Aluminum, Zinc, Manganese, Calcium, Strontium, Barium, Potassium and Ammonium

Preparations :

Any ONE of the following inorganic preparations

1. Potash alum
2. Hexamine cobalt (III) chloride
3. Potassium trisoxalato chromate

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BOTANY **BOT 102C** 2016-17 onwards I B.Sc

SYLLABUS

II SEMESTER

DIVERSITY OF ARCHAEGONIATES AND PLANT ANATOMY

UNIT – I : BRYOPHYTES (12hrs)

1. Bryophytes: General characters, Classification (up to classes)

2. Structure, reproduction and Life history of *Marchantia*, and *Funaria.*

3. Evolution of Saprophyte in Bryophytes.

UNIT - II : PTERIDOPHYTES (12hrs)

1**.** Pteridophytes**:** General characters, classification (up to Classes)

2. Structure, reproduction and life history of *Lycopodium*, and *Marsilea.*

3. Heterospory and seed habit.

4. Evolution of stele in Pteridophytes.

UNIT – III : GYMNOSPERMS (12hrs)

1. Gymnosperms: General characters, classification (up to classes)

2. Morphology, anatomy**,** reproduction and life history of *Pinus and Gnetum*

3. Economic importance with reference to wood, essential oils and drugs

UNIT – IV : Tissues and Tissue systems (12hrs)

1. Meristems - Root and Shoot apical meristems and their histological organization.

2. Tissues – Meristematic and permanent tissues (simple, complex, secretory)

3. Tissue systems**–**Epidermal, ground and vascular.

UNIT – V : Secondary growth (12hrs)

1. Anomalous secondary growth in *Achyranthes, Boerhaavia* and *Dracaena*.

2. Study of local timbers of economic importance-Teak, Rosewood, Red sanders and Arjun (Tella maddi).

Suggested activity: Collection of *Marsilea* sporocarp, *Pinus* needles, male and female cones, study of *Pinus* pollen grains, collection of locally available economically useful timbers.

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BOTANY **BOT 102CP** 2016-17 onwards I B.Sc

SYLLABUS

II SEMESTER

DIVERSITY OF ARCHAEGONIATES AND PLANT ANATOMY

1. Morphology (vegetative and reproductive structures) , anatomy of the following :

Marchantia, Funaria, Lycopodium and *Pinus.*

2. Anatomy:

a) Demonstration of double staining technique.

b) Tissue organization in root and shoot apices using permanent slides

c) Preparation of double staining slides

d) Anomalous secondary structure of *Achyranthes, Boerhavia* and *Dracaena.*

e) Anatomical study of wood in T.S., T.L.S. and R.L.S.

3. Field visits to local timber depots.

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ZOOLOGY **ZOO 102C** 2016-17 onwards I B.Sc

SYLLABUS

II SEMESTER

ANIMAL DIVERSITY – CHORDATES

Unit - I

1.1 General characters of Chordata

1.2 Prochordata

1.2.1 Salient features of Cephalochordata

1.2.2 Structure of *Branchiostoma*

1.2.3 Affinities of Cephalochordata

1.2.4 Salient features of Urochordata

1.2.5 Structure and life history of *Herdmania*

1.2.6 Significance of Retrogressive metamorphosis

Unit - II

2.1 Cyclostomata

2.1.1 General characters of Cyclostomata

2.1.2 Comparision of the *Petromyzon* and *Myxine*

2.2 Pisces

2.2.1 General characters of Fishes

2.2.2 Classification of fishes up to sub - class level with examples

2.2.3 *Scoliodon* - External features, Digestive system, Respiratory system, Heart, Brain

2.2.4 Migration in Fishes

2.2.5 Types of Scales

2.2.6 Dipnoi

Unit - III

3.1 Amphibia

3.1.1 General characters of Amphibian

3.1.2 Classification of Amphibia upto orders with examples.

3.1.3 *Rana hexadactyla* - External features, Digestive system, Respiratory system, Heart, Brain

3.2 Reptilia

3.2.1 General characters of Reptilia

3.2.2 Classification of Reptilia upto orders with examples

3.2.3 *Calotes* - External features, Digestive system, Respiratory system, Heart, Brain

3.2.4 Identification of Poisonous snakes and Skull in reptiles

Unit - IV

4.1 Aves

4.1.1 General characters of Aves
4.1.2 Classification of Aves upto subclasses with examples.
4.1.3 *Columba livia* - External features, Digestive system, Respiratory system, Heart, Brain
4.1.4 Migration in Birds
4.1.5 Flight adaptation in birds

Unit - V

5.1 Mammalia

5.1.1 General characters of Mammalia
5.1.2 Classification of Mammalia upto sub - classes with examples
5.2 Comparision of Prototherians, Metatherians and Eutherians
5.3 Dentition in mammals

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ZOOLOGY PRACTICALS **ZOO 102CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

Time : 3 hrs **ANIMAL DIVERSITY - CHORDATES** Max. Marks : 50

Observation of the following slides / spotters / models

Protochordata : *Herdmania, Amphioxus, Amphioxus* T.S. through pharynx

Cyclostomata : *Petromyzon, Myxine*

Pisces : *Pristis, Torpedo, Channapleuronectes, Hippocampus, Exocoetus, Eheneis, Labeo, Catla, Clarius, Auguilla,Protopterus,* Placoid scale, Cycloid scale, Ctenoid scale

Amphibia : *Ichthyophis, Amblystoma, Siren, Hyla, Rachophous,* Axolotl larva

Reptilia : *Draco, Chemaeleon, Uromastix, Vipera russeli, Naja, Bungarus, Enhydrina, Testudo, Trionyx, Crocodilus*

Aves : *Passer, Psittacula, Bubo, Alcedo, Columba, Corvus, Pavo*

Study of different types of feathers : Quill, Contour, Filoplume, Down feather

Mammalia : *Ornithorthynchus, Tachyglossus, Pteropus, Funambulus, Manis, Loris,* Hedgehog

Osteology : Appenducular skeletons of *Varanus,* Pigeon

Rabbit - Skull, fore limbs, hind limbs and girdles

Demonstration of dissection / dissected / virtual dissection :

1. V, VII, IX, X cranial nerves of shark / locally available fishes
2. Arterial system, venous system of Shark / Calotes / Fowl / Rat
3. Digestive system of fish

b Laboratory record work shall be submitted at the time of practical examination

b Compulsory one species to be adopted for demonstration only be the faculty

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COMPUTER SCIENCE **CSC 102C** 2016-17 onwards I B.Sc

SYLLABUS

II SEMESTER

PROGRAMMING IN C

UNIT I :

Introduction to Algorithms and Programming Languages : Algorithm – Key features of Algorithms – Some more Algorithms – Flow Charts – Pseudo code – Programming Languages– Generations – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

Introduction to C : Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in CProgramming. Examples – Type Conversion and Type Casting

UNIT II :

Decision Control and Looping Statements : Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

Functions : Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions – Type of recursion – Towers of Hanoi – Recursion vs Iteration

UNIT III :

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations that can be performed on Array – one dimensional array for inter-function communication – Two dimensional Arrays – Operations on Two Dimensional Arrays - Two Dimensional Arrays for inter-function communication – Multidimensional Arrays – Sparse Matrices

Strings : Introduction –Suppressive Input – String Taxonomy – String Operations – Miscellaneous String and Character functions

UNIT IV :

Pointers : Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Generic Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function – Difference between Array Name and Pointer – Pointers and Strings – Array of pointers – Pointer and 2D Arrays – Pointer and 3D Arrays – Function Pointers – Array 0f Function Pointer – Pointers to Pointers – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Structure, Union, and Enumerated Data Types : Introduction – Nested Structures – Arrays of Structures – Structures and Functions – Self referential Structures – Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types

UNIT V :

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments – Functions for Selecting a Record Randomly - Remove() – Renaming a File – Creating a Temporary File

TEXT BOOK

1. E Balagurusamy, Programming in ANSI C, McGraw-Hill, Six Ed 2012, ISBN 978- 1259004612, 572 pages

2. Y Kanetkar, Let us C BPB, 13th Edition-2013, ISBN: 978-8183331630, 656 pages

3. Dennis M. Ritchie and Brian W. Kernighan, “The C Programming Language PHI; 2 edition, 1990 ISBN: 978-8120305960, 284 pages

REFERENCE BOOKS

1. Computer Fundamentals and Programming in C by Reema Thareja, Oxford University Press

2. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.

3. Henry Mullish & Huubert L.Cooper: The Sprit of C, Jaico Pub. House,1996.

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COMPUTER SCIENCE **CSC 102CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

PROGRAMMING IN C

1. Find the biggest of three numbers using C.
2. Write a C program to find the sum of individual digits of a positive integer.
3. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
4. Write a C program to check whether a number is Armstrong or not
5. Write a program to perform various string operations
6. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
7. Write a C program that uses functions to perform the following:
    a. Addition of Two Matrices
    b. Multiplication of Two Matrices
8. Write C program that implements searching of given item in given list
9. Write a C program to sort a given list of integers in ascending order
10. Write a C program to perform various operations using pointers?
11. Write a C program to read data of 10 employees with a structure of 1. Employee id, 2. Aadar no., 3. Title, 4. Joined date, 5. Salary, 6. Date of Birth, 7. Gender, 8. Department

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NCC **NCC 102C** 2016-17 onwards I DEGREE

SYLLABUS

II SEMESTER

NCC ELECTIVE – II

UNIT - I

HEALTH AND HYGIENE **10x2=20**

Health
Hygiene - Personal hygiene
Muscles and Bones in human body
Communicable diseases - Examples
Preventive measures for Malaria
Sanitation - Purification of water

UNIT - II

DRILL AND BASICS OF WEAPON TRAINING **10x2=20**

Aims of Drill - Commands and their meanings
Points to be observed while Saluting
Rashtriya Salute - Sequence of action while firing a shot
Laws of aiming - Difference between Loading a Rifle and Charging the Magazine
Parts of SLG - Qualities of a good firer
National Salute - General Salute Guard of honor

UNIT - III

ENVIRONMENT, ECOLOGY AND POLLUTION **10x2=20**

Definition of ecology and climate
Parasites
Pollution - Types of pollution
Reasons for Air Pollution, Water Pollution, Noise Pollution and Land Pollution
NCC Cadets and Pollution check

UNIT-1V ADVENTURE ACTIVITIES AND YOGASANAS **5x2=10**

Land based adventure activities - Adventure training and its uses to NCC Cadets
Advantages of Yogasanas- Types of Asanas- Yogasanas and how they help cure certain diseases

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GENERAL ENGLISH **ENG 201C** 2016-17 onwards II DEGREE

SYLLABUS

III SEMESTER

GENERAL ENGLISH

Unit - I

Prose :

1. M.K. Gandhi : Shyness My Shield (From the story of My Experience with Truth)
2. Alexis C. Madrigal : Why People Really Love Technology : An Interview with Genevieve Bell

Unit - II

Poetry :

1. Gabriel Okara : Once upon a Time
2. Seamus Heaney : Digging

Unit - III

Short Story :

1. Jhumpa Lahiri : The Interpreter of Maladies
2. Shashi Deshpande : The Beloved Charioteer

Unit - IV

One act play

Gurajada Appa Rao : Kanyasulkam, translated by C. Vijayasree and T. Vijaya Kumar (Acts I & II)

Unit - V

Language activity

1. Classroom and laboratory activities
    i. JAM sessions
    ii. Note taking
    iii. Reporting for the media
    iv. Expansion of an idea

2. Classroom activity
    i. Transformation of sentences (Simple - Complex - Compound sentences)
    ii. Note making iii. Report writing
    iv. Writing for the media

Note : In classroom instruction it may be ensured that the theoretical and practical components of CSS - II complement the language activity in this Semester.

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Comm. & Soft Skills - II **CSS 201C** 2016-17 onwards II DEGREE

SYLLABUS

III SEMESTER

COMMUNICATION & SOFT SKILLS - II

Unit - I

Pronunciation - I

The sounds of English

Unit - II

Pronunciation - II

1. Word accent
2. Intonation

Unit - III

Speaking skills - I

1. Conversation skills
2. Interview skills
3. Presentation skills
4. Public speaking

Unit - IV

Speaking skills - II

1. Role play
2. Debate
3. Group discussion

Unit - V

Writing skills

1. Spelling
2. Punctuation
3. Information transfer

Tables	Bar diagrams	Pie charts
Flow charts	Line graphs	Tree diagrams
Pictures		

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ENTERPRENEURSHIP **GSC 201C** 2016-17 onwards II Degree

SYLLABUS

III SEMESTER

ENTERPRENEURSHIP

Unit-I

Entrepreneurship: Entrepreneur characteristics – Classification of Entrepreneurships – Incorporation of Business – Forms of Business organizations –Role of Entrepreneurship in economic development – Start-ups.

Unit-II

Idea Generation and Opportunity Assessment : Ideas in Entrepreneurships – Sources of New Ideas – Techniques for generating ideas – Opportunity Recognition – Steps in tapping opportunities.

Unit-III

Project Formulation and Appraisal : Preparation of Project Report –Content; Guidelines for Report preparation – Project Appraisal techniques –economic – Steps Analysis; Financial Analysis; Market Analysis; Technical Feasibility.

Unit-IV

Institutions Supporting Small Business Enterprises : Central level Institutions: NABARD; SIDBI, NIC, KVIC; SIDIO; NSIC Ltd; etc. – state level Institutions –DICs- SFC- SSIDC- Other financial assistance.

Unit-V

Government Policy and Taxation Benefits : Government Policy for SSIs- tax Incentives and Concessions –Non-tax Concessions – Rehabilitation and Investment Allowances.

Reference Books :

1. Arya Kumar, Entrepreneurship, Pearson, Delhi, 2012.
2. Poornima M.CH., Entrepreneurship Development –Small Business Enterprises, Pearson, Delhi,2009“3. Michael H. Morris, ET. al., Entrepreneurship and Innovation, Cen gage Learning, New Delhi, 2011
4. KanishkaBedi, Management and Entrepreneurship, Oxford University Press, Delhi, 2009
5. Anil Kumar, S., ET.al., Entrepreneurship Development, New Age International Publishers, New Delhi, 2011
6. Khanka, SS, Entrepreneurship Development, S. Chand, New Delhi.
7. Peter F. Drucker,Innovation and Entrepreneurship.
8. A.Sahay, M. S. Chhikara, New Vistas of Entrepreneurship: Challenges & Opportunities.

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HISTORY **HIS 201C** 2016-17 onwards II B.A

SYLLABUS

III SEMESTER

HISTORY AND CULTURE OF INDIA

UNIT-1

Survey of sources - Political situation in India at the time of Babu invations. Establishment of Mughal empire - Sur interrugnam - Brief survey of political history upto 1707 AD. Decline and disintegration of Mughal empire - Rise and regional powers - Marathas Sivaji, Administration Sikhs

UNIT-2

Polity and administration - Society - Social composition - Ulema - Nobility - Peasantry - Artiswans - Saves - Status of women

Economy : Agriculture industries, trade and commerce

Economic and technological development : Towers and cities of Mughal India - Religion - Hindu - Muslim relations - Composite culture, education, literature, art, architecture and fine arts

UNIT-3

Advent of European powers - Portuguese, Dutch, English and French. Expansion and consolidation of British empire - Wars - Diplomacy - Policies pursued - Subsidiary alliance - Doctrine of Lapse

UNIT-4

Economic policies and changes - Mercantilism and free - Trade policies - Land revenue settlements - Permanent - Ryotwari - Mahalwari stystems - Intigration

Commercialization of agriculture - Condition of peasants - Famines - Decline of cottage industries (de-industrialization)

UNIT-5

Anti - colonial upsurge - Peasant and tribal revolts - 1857 revolt - Causes : Results and nature mangal pande, Bhadur Shah - II, Tantiyatope, Jantia Lope, Jhansi Lakshmi Bai, Nanasaheb.

References :

1. RC Majundar, HC Rayachandhuri and Kalikinkar Datta - An advanced history of India Part - II - Medieral India
2. LP Sharma, The Mughal empire, New Delhi, 1988
3. LP Sharma, History of Medieral India, 1000-1740 AD 2nd ed. (1987)
4. CA Bayly, Indian society and the making of the British empire
5. Rajat K Ray, ed, enterprenurship and industry in India, 1800-1947
6. Bipan Chandra, Rise and growth of economic nationalism in India
7. Bipan Chandra, KN Panikkar, Mildula Mukherjee
8. Suchetra Mahajan and Adithya Mukharjee, India's struggle for independence

9. PC Joshi, Rebellion 1857 : A sympossim
10. JF Richards, The mughal empire
11. Irfan Habib, Agrarian system of Mughal India, 1526 - 1707
12. Ashin Das Gupta, Indain merchants and the decline of Surat 1700-1750
13. Stewart Gordon, The Marathas 1600-1818
14. Ebba Koch, Mughal art and imperial ideology
15. Satish Chandra, Essays on medieral Indian history

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POLITICS **POL 201C** 2016-17 onwards II B.A

SYLLABUS

III SEMESTER

INDIAN CONSTITUTION

Unit-1: The Making of the Constitution

1. The ideological legacy of the Indian National Movement on the Constituent Assembly
2. The Nature and Composition of the Constituent Assembly

Unit-2: Philosophical Premises of the Indian Constitution

1. Preamble: The underlying values of the Indian Constitution
2. Salient features of the Constitution of India

Unit-3: Fundamental rights and Directive principles of State Policy

1. Individual and Collective Rights: Limitations on the fundamental Rights
2. Judicial Interpretation of Fundamental Rights
3. The doctrine of 'Basic Structure' of the Constitution: KesavanandaBharathi Case

Unit-4: Indian Federalism

1. Unitary and Federal features in the Indian Constitution
2. Tension Areas between the Union and State Governments Legislative, Administrative and Financial Spheres

Unit-5: Working of the Indian Constitution

1. The Values of the Indian Constitution and Ushering of Social Revolution in India
2. The causes for the Ascendency of the Executive over legislature and Judiciary; Major Controversies regarding the Amendments to the Constitution
3. Nature and Role of Higher Judiciary in India; Recent Debates on the mode of appointment of Judges

Reference books:

1. Granville Austin (1972) the Indian Constitution, Cornerstone of a Nation Oxford university Press, New Delhi.
2. Madhavkhosla (2012) the Indian Constitution, oxford university press, New Delhi
3. Granville Austin (1999) Working a Democratic Constitution; A History of the Indian Experience, Oxford University Press, New Delhi
4. Zoya Hasan, Sridharan E and Sudharshan R (Eds) 2002 India's living Constitution, Permanent black, New Delhi
5. BaxiUpendra (1980) the Indian Supreme Court and Politics Eastern book co, Lucknow

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MACRO ECONOMICS **ECO 201C** 2016-17 onwards II B.A

SYLLABUS

III SEMESTER

MACRO ECONOMICS

Unit - 1

Meaning, definition of Macro Economics - Importance of Macro Economics- Difference between Micro and Macro Economics - Paradox of Macro Economics -Limitations

Unit - 2

National Income - Definitions, Concepts of National Income - Measurement of National Income- Circular flow of Income in Two, Three and Four Sector Economy.

Unit - 3

Classical theory of Employment - Say's Law of Markets.

Unit - 4

Keynesian Theory of Employment - Consumption function – Investment Function - Marginal Efficiency of Capital (MEC)- Concepts of multiplier and accelerator

Unit - 5

Meaning and Functions of Money - Classification of money - Gresham's Law - RBI classification of Money. Theories of Money - Fisher's Quantity theory of Money Cambridge approach (Marshall, Pigou, Robertson & Keynes).

REFERENCES :

1. G.Ackley - "Macro Economics Theory and Policy", Collier Macmillan, 1978.
2. E.Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.
3. Central Statistical Organisations - "National Accounts Statistics".
4. R.Dornbush, s.Fisher and R.Startz - "Macro Economics", Tata Mc.Graw Hill, 9/e, 2004.
5. M.L.Seth-"Macro Economics", Lakshmi Narayana Agarwal, 2015.
6. K.P.M. Sundaram - "Money, banking & International Trade", Sultan Chand, 2010.
7. Dillard, D - "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. M.N.Mish ra & S.B.Mishra - "Insurance Principles & Practice" S.Chand 2012.
9. Bharati V.Pathak "The Indian Financial System Markets. Institutions & Services". Pearson 2008.
10. Telugu Academy Publication

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SPL. ENGLISH **ENG 201CS** 2016-17 onwards II B.A.

SYLLABUS

III SEMESTER

SPECIAL ENGLISH

Unit Module Topic Marks

1. History of English language :

Restoration and Augustan periods (17th and 18th Centuries) - (2 Essays)

20 Marks

2. Literary forms and terms :

Satire, Mock - Epic, Heroic Couplet, Epistle, Heroic - Tragedy, Comedy of manners, Genteel comedy, Sentimental comedy, Periodical essay (Paragraph questions) **5x4=20**

3. Poetry :

Alexander Pope : Extracts from the rape of the lock, Canto - I (Essay)

10 Marks

4. Prose :

Daniel Defoe : Robinson Crusoe (Essay) **10 Marks**

5. Drama :

William Congreve : The way of the world (1 Essay) **10 Marks**

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CORPORATE ACCOUNTING **COM 301C** 2016-17 onwards II B.Com

SYLLABUS

III SEMESTER

CORPORATE ACCOUNTING

Unit-I :

Accounting for Share Capital - Issue, forfeiture and reissue of forfeited shares- concept & process of book building - Issue of rights and bonus shares - Buyback of shares (preparation of Journal and Ledger).

Unit-II :

Issue and Redemption of Debentures - Employee Stock Options – Accounting Treatment for Convertible and Non-Convertible debentures (preparation of Journal and Ledger).

Unit –III :

Valuation of Goodwill and Shares: Need and methods - Normal Profit Method, Super Profits Method – Capitalization Method - Valuation of shares - Need for Valuation - Methods of Valuation - Net assets method, Yield basis method, Fair value method (including problems).

Unit – IV :

Company Final Accounts: Preparation of Final Accounts – Adjustments relating to preparation of final accounts – Profit and loss account and balance sheet – Preparation of final accounts using computers (including problems).

Unit –V :

Provisions of the Companies Act, 2013 relating to issues of shares and debentures – Book Building- Preparation of Balance Sheet and Profit and Loss Account – Schedule-III.

Reference Books:

1. Corporate Accounting – Haneef & Mukherji,
2. Corporate Accounting – RL Gupta & Radha swami
3. Corporate Accounting – P.C. Tulsian
4. Advanced Accountancy: Jain and Narang
5. Advanced Accountancy : R.L. Gupta and M.Radhaswamy, S Chand.
6. Advanced Accountancy : Chakraborthy
7. Modern Accounting: A. Mukherjee, M. Hanife Volume-II McGraw Hill
8. Accounting standards and Corporate Accounting Practices: T.P. Ghosh Taxman
9. Corporate Accounting: S.N. Maheswari, S.R. Maheswari, Vikas Publishing House.
10. Advanced Accountancy: Arutanandam, Raman, Himalaya Publishing House.
11. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand & Company Ltd.,
12. Management Accounting: Shashi K. Gupta, R.K. Sharma, Kalyani Publishers.

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Business Statistics **COM 302C** 2017-18 onwards II B.Com

SYLLABUS

III SEMESTER

BUSINESS STATISTICS

Unit-I - Introduction to Statistics :

Definition, importance and limitations of statistics - Collection of data - Schedule and questionnaire - Frequency distribution - Tabulation - Diagrammatic and graphic presentation of data using computers (Excel) (including problems)

Unit II - Measures of central tendency :

Characteristics of measures of central tendency - Types of averages - Arithmetic mean, geometric mean, harmonic mean, median, mode, properties of averages and their applications (including problems)

Unit - III Measures of dispersion :

Properties of dispersion - Range - Quartile deviation - Mean deviation - Standard deviation - Coefficient of variation (including problems)

Unit - IV Measures of relation :

Meaning and use of correlation - Types of correlation - Karlpearson's correlation coefficient - Spearman's rank correlation - Probable error - Calculation of correlation by using computers (including problems)

Unit - V Index numbers :

Index numbers - Methods of construction of index numbers - price index numbers - Quantity index numbers - Tests of adequacy of index numbers - Cost of index numbers - Limitations of index numbers - Use of computer software (including problems)

Reference Books

1. Business statistics, Reddy C.R., Deep Publications
2. Statistics - Problems and Solutions, Kapoor V.K
3. Fundamentals of Statistics, Elhance D.N
4. Statistical methods, Gupta S.P
5. Statistics, Gupta B.N
6. Fundamentals of Statistics, Gupta S.C
7. Statistics - Theory, methods and applications, Sancheti, D.C. & Kapoor V.K
8. Business Statistics, J.K. Sharma
9. Business Statistics, Bharat Jhunjhunwala
10. Business Statistics, R.S. Bharadwaj

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BANKING - THEORY AND PRACTICE **COM 303C** 2016-17 onwards II B.Com

SYLLABUS

III SEMESTER

BANKING - THEORY AND PRACTICE

Unit-I: Introduction :

Meaning & Definition of Bank – Functions of Commercial Banks – Kinds of Banks – Central Banking Vs. Commercial Banking.

Unit-II: Banking Systems :

Unit Banking , Branch Banking, Investment Banking- Innovations in banking – E banking - Online and Offshore Banking , Internet Banking - Anywhere Banking - ATMs - RTGS.

Unit-III: Banking Development :

Indigenous Banking - Cooperative Banks, Regional Rural banks, SIDBI, NABARD - EXIM Bank.

Unit-IV: Banker and Customer :

Meaning and Definition of Banker and customer – Types of Customers - General Relationship and Special Relationship between Banker and Customer - KYC Norms.

Unit-V: Collecting Banker and Paying Banker :

Concepts - Duties & Responsibilities of Collecting Banker – Holder for Value – Holder in Due Course – Statutory Protection to Collecting Banker - Responsibilities of Paying Banker - Payment Gateways.

Books for Reference :

1. Banking Theory: Law & Practice : K P M Sundram and V L Varsheney
2. Banking Theory, Law and Practice : B. Santhanam; Margam Publications
3. Banking and Financial Systems : Aryasri
4. .Introduction to Banking : Vijaya Raghavan
5. Indian Financial System : M.Y.Khan
6. Indian Financial System : Murthy & Venugopal

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MATHEMATICS **MAT 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

ABSTRACT ALGEBRA - I AND REAL ANALYSIS – I

ABSTRACT ALGEBRA - I

UNIT - 1

Groups : Binary operations, properties, definition of a group and elementary properties, finite groups and composition tables with examples.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 2

Subgroups : Complex definition, multiplication of two complexes, inverse of a complex, sub group definition and examples, criterion for a complex to be a sub group, criterion fo the product of two sub groups to be a sub group, union and intersection of sub groups.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Cosets and Lagranges theorm : Cosets definition, properties of cosets, index of a sub group of a finite group, Lagranges theorem

(2 short answer questions, 1 long answer questions will be given in the examination)

REAL ANALYSIS - I

UNIT - 4

Real numbers : The algebraic and order properties of R, absolute and real line, completeness property of *R*, applications of the suprimum property, intervals. **(No questions is to be given in the examination).**

Real Sequences : Sequence, method of defining sequences, range, subsequences, bounded sequences, limit of a sequence, convergent sequence, divergent sequences, algebra of convergent sequences, Cauchy's first theorem of limits, Cauchy's second theorem on limits, monotonic sequences, monotone convergence theorem, limit points of a sequence, Bolzano - Weierstrass theorem for sequences, Cauchy's general principle of convergence.

(2 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 5

Infinite series : Series, Cauchy's general principle of convergence, geometric series, auxiliary series (p-series), comparision tests, limit comparision test, Cauchy's *n*th root test, D'Alembert's ratio test, Cauchy's condensation test, Cauchy's - Maclaurin's integral test, Alternating series, Leibnitz's test, Absolute convergent series, conditionally convergent series.

(1 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Limits : Limit of a function, Algebra of limits, one sided limits, infinite limits, standerd limits. **(No questions is to be given in the examination).**

Continuity : Continuity of function, algebra of continuous functions, properties of continuous functions, Borel's theorem, Bolzano's theorem, intermediate value theorem, uniform continuity, uniform conitinuity theorem.

(2 short answer questions, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, John Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 201C** 2016-17 onwards II B Sc.

SYLLABUS

III SEMESTER

THERMODYNAMICS AND WAVE OPTICS

PART-A THERMODYNAMICS

Unit - I

1. Kinetic Theory of Gases:

Deduction of Maxwell's law of distribution of molecular speeds - Transport phenomena- Explanation, Derivation of Expression for Viscosity-Derivation of Expressions for Thermal conduction and Diffusion of gases. (6)

Unit II

2. Thermodynamics:

Introduction - Indicator diagram -work done in Isothermal and adiabatic processes - First law of thermodynamics - Second law of thermodynamics, different statements - Reversible and irreversible process - Carnot's reversible heat engine – Derivation of expression for efficiency of Carnot's cycle-Carnot's theorem-Thermodynamic scale of temperature. Entropy concept – Change in entropy in reversible process and in irreversible process. Entropy - Temperature diagram-Expression for Efficiency using T-S diagram. (12)

Unit III

3. Thermodynamic Potentials and Maxwell's Equations:

Thermodynamic potentials – Derivation of Max wells thermodynamic relations-Derivation of Clausius - Clapeyron equation using Max wells thermodynamic relations – Two specific heats of a gas- Derivations for ratio (C_p/C_v) and difference(C_p-C_v)of two specific heats of a gas using Max wells thermodynamic relations - Joule - Kelvin effect ,Explanation- Derivation of Expression for Joule - Kelvin coefficient using Max wells thermodynamic relations. (12)

PART - B WAVE OPTICS

Unit IV

4. Aberrations:

Introduction - Aberration- mono Chromatic aberration - spherical aberrations – methods of minimization of spherical aberration -Coma – Astigmatism. Chromatic aberration - The achromatic doublet – Removal of Chromatic aberration of a separated doublet (8).

Unit V

5. Interference:

The superposition principle – coherence- condition of Interference of light-Interference by division of wave front- Fresnel's biprism - determination of wavelength of light - determination of thickness of a transparent material using biprism- Stokes law-Change of phase on reflection. Interference by division of amplitude - cosine law in reflected light - colours of thin films - non reflecting thin films - determination of diameter of wire using wedge method - Newton's rings – explanation-Experimental determination of wavelength of monochromatic light by using Newton's rings (12).

Unit V I

6. Diffraction:

Fraunhofer diffraction, Fraunhofer diffraction due to a single slit and double slit. The diffraction grating - Normal incidence - Determination of wavelength of light. Fresnel diffraction - Fresnel half period zones - Zone plate - comparison of zone plate with convex lens.(10)

Reference books

1. BSc Physics -*Telugu Akademy, Hyderabad*

2. Fundamentals of Physics. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*

3. Text Book of +3 Physics – Samal, Mishra & Mohanty, National Library, Min.of Culture, Govt of India

4. Heat and Thermodynamics- MS Yadav, *Anmol Publications Pvt. Ltd, 2000*

5. University Physics, HD Young, MW Zemansky,FW Sears, *Narosa Publishers, New Delhi*

6. Unified Physics Vol.II Optics & Thermodynamics – *Jai Prakash Nath & Co.Ltd., Meerut*

7. Heat, Thermodynamics and Statistical Physics-N Brij Lal, P Subrahmanyam, PS Hemne, *S.Chand & Co.,2012*Thermodynamics - R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Econom*

8. Optics – FA Jenkins and HG White, *Mc Graw-Hill*
9. A Text Book of Optics-N Subramanyam, L Brijlal, *S.Chand & Co.*
10. Principles of Optics- BK Mathur, *Gopala Printing Press, 1995*
11. Introduction of Lasers – Avadhanlu, *S.Chand & Co.*
12. Fundamentals of Optics, H.R. Gulati and D.R. Khanna, 1991, R. Chand Publication

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PHYSICS **PHY 201CP** 2016-17 onwards II B Sc.

PRACTICAL SYLLABUS

III SEMESTER

THERMODYNAMICS AND WAVE OPTICS

At least 06 experiments from the following:

1. Boy's method.
2. Spectrometer – A & D.
3. Grating- minimum deviation.
4. Wavelength of Laser.
5. Resolving of Telescope.
6. Newton's rings-radius of curvature
7. Thermal conductivity of bad conductor-Lee's method.
8. Measurement of Stefan's constant.
9. Thermocouple

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CHEMISTRY **CHE 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

INORGANIC CHEMISTRY AND ORGANIC CHEMISTRY

Unit - I (Inorganic Chemistry)

1. Chemistry of d - block elements: **Weightage : 15+5+5**

Variable oxidation states - Their relative stability. Discussion of oxidation states with reference to ionic and covalent nature ; acidic and basic nature; oxidising and reducing nature. Colour and spectral behaviour of transition metal ion complexes. d-d transitions and origin of the colour - Explanation of absorption specturm of complex. Magnetic behaviour - Paramagnetism and diamagnetism - Definition - Their microscopic origin - Relationship between magnetic moment and number of unpaired electrons.

Complex formation behaviour. Factors influencing the stability of complexes - Nature of the metal ion such as charge, size and electronic configuration; nature of the ligand - basicity, tri and polydentate character; back bonding. Comparitive treatment of second and third transition series with their 3d analogues.

2. Chemistry of f - block elements: **Weightage : 15+5**

Position in the periodic table. Lanthanide contraction - Its causes and consequences - Anomalous behaviour of Post - Lanthanides magnetism - magnetic moment curve - Anamolies and explanation. Complexation - Type of donor ligand preferred. Most common coordination number. Separation of Lanthanides of ion-exchange and solvent extraction methods.

Chemistry of actinides - Actinide contraction - Comparison with Lanthanides with respect to spectral properties, magnetic behaviour, complex forming nature.

3. Theories of bonding in metals : **Weightage : 15**

Free - Electron theory - Valance bond theory - Their key postulates - Explanation of metallic properties like electrical and thermal conductivity with the help of these theories - Limitations - Band theory of metals - Formation of conduction band and valence band; explanation of properties, of conductors, semiconductors and insulators.

4. Metal Carbonyls : **Weightage : 5+5**

Definition : Classification with examples - Nature of M - C = O bond. EAN rule with examples - Structure and hybridization in

Unit - II (Organic Chemistry) **Weightage : 15**

1. Halogen Compounds :

Nucleophilic aliphatic substitution reactions - Classification into SN_1 and SN_2. Energy profile diagrams of SN_1 and SN_2 reactions. Stereo chemistry of SN_2 (Walden inversion) and SN_1 (Recemisation) reactions. Explanation of both by taking the example of optically active alkylhalide like 2 - bromobutane - Ease of hydrolysis - Comparison of allyl, benzyl, alkyl, vinyl and arylhalides. Nature of nucleophile, leaving group, solvent, SN_i and neighbouring group participation.

2. Hydrogy Compounds : **Weightage : 5+5**

Alcohols : Preparation with hydroboration reaction, Grignard synthesis of alcohols

Phenols : Preparation from diazonium salts - Aryl, sulphates - Cumene (with mechanism)

Properties of Phenols : Acidic nature of phenols - Ease of formation of alkoxide / phenoxide ions and their reaction with R - Y - Esterification by acids (with mechanism) - Dehydration of alchols - Special reactions of phenols with mechanism - Bromination - Kolbe - Schmidt reaction - Reimer - Tiemann reaction.

Poly hydroxy compounds : Pinacol - Pinacolone rearrangement

3. Carbonyl Compounds : **Weightage : 15+5+5**

Synthesis of aldehydes from acid chlorides, synthesis of ketones from nitrites and carboxylic acids.

Physical Properties : Absence of hydrogen bonding - keto - enol tautomerism, reactivity of carbonyl groups in aldehydes and ketones.

Chemical Properties : Nucleophilic addition reactions with a) b) c) d) 2, 4 - DNP with mechanism. Halogenation using

Base Catalysed Mechanism : a) Aldol b) Cannizzaro c) Perkin d) Benzoin condensation
e) Halofrom reaction f) Knoevenagel reaction

Oxidation of aldehydes : Baeyer - Villiger - Oxidation of ketones with mechanism

Reduction : Wolf - Kishner reduction. MPV reduction - Reduction with and

Analysis of aldehydes and ketones : With a) 2, 4 - DNP test b) Tollen's test c) Fehling test d) Schiff's test e) Halo form test all with equations.

4. Active methylene Compounds : **Weightage : 15+5**

Acetoacetic esters : Preparation by claisen condensation, Keto - enol tautomerism. Acid hydrolysis and Ketonic hydrolysis. Preparation of a) monocarboxylic acids b) di carboxylic acids. Reaction with urea.

Synthetic applications : Preparation of a) Monocarboxylic acids (Propionic acid & n-butyric acid) b) dicarboxylic acids (Succinic acid and adipic acid) c) unsaturated carboxylic acid (Crotonic acid) Reaction with Urea.

Additional syllabus (without examination)

Food Analysis : Moisture, ash, crude protein, fat, crude fibre, carbohydrates, calcium, potassium, sodium and phosphate. Food adulteration - Common adulterants in food, contamination of food stuffs. Microscopic examination of foods for adulterants. Pesticide analysis in food products. Extraction and purification of sample. HPLC. Gas chromatography for organophosphates. Thin - layer chromatography for identification of chlorinated pesticides in food products.

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CHEMISTRY **CHE 201CP** 2016-17 onwards I B.Sc

PRACTICAL SYLLABUS

III SEMESTER

Time : 3hrs **TITRIMETRIC ANALYSIS** Max. Marks : 50

Titrimetric Analysis :

1. Determination of Fe (II) using KMnO4 with oxalic acid as primary standard
2. Dtermination of Cu (II) using Na2S2O3 with K2Cr2O7 as primary standard

Organic functional group reactons :

3. Reactions of the following functional groups present in organic compounds : (atlease four) Alcohols, Phenols, Aldehydes, Ketones, Carboxylic acids and Amides

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BOTANY **BOT 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

PLANT TAXONOMY AND EMBRYOLOGY

UNIT – I : INTRODUCTION TO PLANT TAXONOMY (12hrs)

1. Fundamental components of taxonomy (identification, nomenclature, classification)

2. Taxonomic resources: Herbarium- functions& important herbaria, Botanical gardens, Flora, Keys- single access and multi-access.

3. Botanical Nomenclature- Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).

UNIT – II : CLASSIFICATION (12 hrs)

1. Types of classification- Artificial, Natural and Phylogenetic.

2. Bentham & Hooker's system of classification- merits and demerits.

3. Engler & Prantle's system of classification- merits and demerits

4. Phylogeny – origin and evolution of Angiosperms

UNIT –III : SYSTEMATIC TAXONOMY-I (12hrs)

1. Systematic study and economic importance of the following families: Annonaceae, Brassicaceae, Rutaceae, Curcurbitaceae, and Apiaceae.

UNIT –IV : SYSTEMATIC TAXONOMY-II (12hrs)

1. Systematic study and economic importance of plants belonging to the following families: Asteraceae, Asclepiadaceae, Lamiaceae, Ephorbiaceae, Arecaceae,and Poaceae.

UNIT – V: EMBRYOLOGY (12hrs)

1. Anther structure, microsporogenesis and development of male gametophyte.

2. Ovule structure and types; Megasporogenesis, development of Monosporic, Bisporic and Tetrasporic types (*Peperomia ,Drusa*, *Adoxa*) of embryo sacs.

3. Pollination and Fertilization (out lines) Endosperm development and types.

4. Development of Dicot and Monocot embryos, Polyembryony.

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BOTANY **BOT 201C** 2016-17 onwards II B.Sc

PRACTICAL SYLLABUS

III SEMESTER

PLANT TAXONOMY AND EMBRYOLOGY

1. Systematic study of locally available plants belonging to the families prescribed in theory syllabus.
2. Demonstration of herbarium techniques.
3. Structure of pollen grains using whole mounts (*Catharanthus, Hibiscus, Acacia*, and Grass).
4. Demonstration of Pollen viability test using *in- vitro* germination (*Catharanthus*).
5. Study of ovule types and developmental stages of embryo sac using permanent slides /Photographs.
6. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot Embryos using permanent slides / Photographs
7. Isolation and mounting of embryo (using *Symopsis / Senna* / *Crotalaria*)
8. Field visits.
9. Study of local flora and submission of Field Note Book.

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ZOOLOGY **ZOO 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

CYTOLOGY, GENETICS AND EVOLUTION

Unit - I

1. Cytology - I

1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma

1.2 Electron microscopic structure of eukaryotic cell.

1.3 Plasma membrane –Different models of plasma membrane.

Unit – II

2. Cell organelles

2.1 Structure and functions of Endoplasmic Reticulum

2.2 Structure and functions of Golgi apparatus

2.3 Structure and functions of Lysosomes

2.4 Structure and functions of Ribosomes

2.5 Structure and functions of Mitochondria

2.6 Nucleus

2.7. Chromatin - Structure and significance, Chromosomes - Structure, types, functions

Unit - III

3.1 Genetics - I

3.1.1 Mendel's work on transmission on traits

3.1.2 Principles of inheritance

3.1.3 Incomplete dominance and codominance

3.1.4 Lethal alleles, Epistasis, Pleiotropy

Unit - IV

4.1 Genetics - II

4.1.1 Sex determination

4.1.2 Sex linked inheritance

4.1.3 Linkage and crossing over

4.1.4 Extra chromosomal inheritance

4.1.5 Human karyotyping

Unit - V

5.1 Evolution

5.1.1 Origin of life

5.1.2 Lamarckism, Darwinism, Neo – Darwinism, Hardy-Weinberg Equilibrium.

5.1.3 Variations, isolating mechanisms, natural selection

5.1.4 Types of natural selection (directional, stabilizing, disruptive)

5.1.5 Artificial selection and forces of evolution

5.1.6 Speciation (Allopatric and Sympatric)

5.1.7 Macro evolutionary principles (Example: Darwin's finches)

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ZOOLOGY **ZOO 201CP** 2016-17 onwards II B.Sc

PRACTICAL SYLLABUS

III SEMESTER

Time : 3 hrs **CYTOLOGY, GENETICS AND EVOLUTION** Max. Marks : 50

I. Cytology

1. Preparation of temporary slides of Mitotic divisions with onion root tips
2. Observation of various stages of Mitosis and Meiosis with prepared slides
3. Mounting of salivary gland chromosomes of Chiranomous

II. Genetics

1. Study of Mendelian inheritance using suitable examples
2. Study of linkage recombination, gene mapping using the data
3. Study of human karyotypes

III. Evolution

1. Study of fossil evidences
2. Study of homology and analogy from suitable specimens and pictures
3. Phylogeny of horse with pictures
4. Darwin's finches (pictures)
5. Visit to natural history museum and submission of report

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COMPUTER SCIENCE **CSC 201C** 2016-17 onwards II B.Sc

SYLLABUS

III SEMESTER

OBJECT ORIENTED PROGRAMMING USING JAVA

UNIT I :

Object Oriented Programming: Introduction to OOP, Objects and Classes, Characteristics of OOP, Difference between OOP and Procedure Oriented Programming, Summary

Introduction to Java Programming : Introduction, Features of Java, Comparing Java and other languages, Applications and Applets, Java Development Kit, Prerequisites for Compiling and Running Java Programs.

UNIT II :

Java Language Fundamentals : The building Blocks of Java, Data types, Variable declarations, Wrapper classes, Operators and Assignment, Control Structures, Arrays, Strings, The String Buffer Class.

Java as an OOP Language : Defining classes, Modifiers, Packages, Interfaces.

UNIT III :

Exception Handling : Basics of Exception Handling in Java, Exception Hierarchy, Constructors and Methods in Throw class, Unchecked and Checked exceptions, Exception Handling with Method Overriding, Custom Exception

Multithreading : An Overview of Threads, Creating Threads, Thread Life cycle, Thread priorities and Thread scheduling, Thread synchronization, Thread groups, Communication of Threads.

UNIT IV :

Files and I/O Streams: An Overview of I/O streams, Java I/O, File streams, File Input stream and File output stream, Filter streams, Random Access File, Serialization.

Applets : Introduction, Java applications versus Java Applets, Applet Life cycle, working with Applets, The HTML Applet Tag.

UNIT V :

Database Handling using JDBC : An Overview of DBMS, JDBC Architecture, working with JDBC, Processing Queries, The Transactions

commit and Rollback, Handling Exceptions, Mapping Database types to java, Accessing Metadata, Sample Programs to Handle Database.

The Abstract window Toolkit : Introduction, Drawing with crystals class, class Hierarchy of AWT, Event Handling, AWT controls, Layout Managers, The Java2D, Java2d Shapes.

TEXT BOOKS

1. H.M.Deitel, P.J.Deitel, "Java How to Program", Sixth Edition, Pearson Education, 2007

2. E. Balagurusamy, "Programming with Java", TMH, 2014, 978-9351343202, 480 pages

REFERENCE BOOKS

1. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press (2008)

2. Programming In Java By Sachin Malhotra And Saurabh Choudhary From Oxford University Press

3. James Gosling, Bill Joy, Guy Steele, Gilad Bracha, and Alex Buckley, The Java Language Specification, March 2014, Download PDF: http://docs.oracle.com/javase/specs/jls/se8/jls8.pdf

4. Timothy Budd, "Understanding Object-Oriented Programming with Java", Pearson Education, 2007

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COMPUTER SCIENCE **CSC 201CP** 2016-17 onwards II B.Sc

PRACTICAL SYLLABUS

III SEMESTER

OBJECT ORIENTED PROGRAMMING USING JAVA

1. Write a program to perform various String Operations
    a) Sort given strings in alphabetical order.
    b) Check whether one string is sub string of another string or not.
    c) Convert the strings to uppercase
2. Write a program to illustrate Overloading & Overriding methods in Java
3. Write a program to illustrate the implementation of abstract class
4. Write a program to implement Exception handling
5. Write an interactive program to accept name of a person and validate it. If the name contains any numeric value throw an exception "InvalidName".
6. Write a program to create packages in Java
7. Write a program to Create Multiple Threads in Java
8. Write a program to Write Applets to draw the various polygons
9. Illustrate the method overriding in JAVA.
10. Write a program which illustrates the implementation of multiple Inheritance using interfaces in Java

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N C C **NCC 201C** 2016-17 onwards II Degree

SYLLABUS

III SEMESTER

N C C

UNIT - I FIRST AID **10x2=20**

First Aid in medical emergencies

Artificial respiration - Pressure points

Fractures - Symptoms and signs of fracture

First Aid for Drowning, Snake bite

Bandages

UNIT - II CIVIL DEFENSE **10x2=20**

Aims of Civil Defense

Civil Defense Services

Home guards

UNIT - III SELF DEFENSE **10x2=20**

UN Armed Combat - Attacking

Basic Throws, Release

Unit - IV COMMUNICATION **5x2=10**

Definition of communication

Types of communication

Methods of communication

Expansion of FAX, TELEX

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ANALYTICAL SKILLS **ASK 202C** 2016-17 onwards II Degree

SYLLABUS

IV SEMESTER

ANALYTICAL SKILLS

SECTION - A

UNIT I

a. Logical reasoning **5M**

b. Odd one out **5M**

UNIT II

a. Verbal reasoning **5M**

b. Coding and decoding **5M**

SECTION - B

UNIT III

Arithmetic ability : Algebraic operations BODMAS, Fractions, Divisibility rules, LCM and GCD (HCF), date, time and arrangement problems, calendar problems, clock problems, blood relationship **10M**

UNIT IV

Quantitative aptitude : Averages, ratio and proportion, problems on ages, time distance - speed **10M**

UNIT V

Business computations : Percentages, profit and loss, partnership, simple compound interest **10M**

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Comm. & Soft Skills - III **CSS 202C** 2016-17 onwards II DEGREE

SYLLABUS

IV SEMESTER

COMMUNICATION & SOFT SKILLS - III

Unit - I Soft skills

1. Positive attitude
2. Body language
3. Swot / Swoc analysis
4. Emotional intelligence
5. Netiquette

Unit - II Paragraph writing

1. Paragraph structure
2. Development of ideas

Unit - III Paraphrasing and summarising

1. Elements of effective paraphrasing
2. Techniques for paraphrasing
3. What make a good summary ?
4. Stages of summarising

Unit - IV Letter writing

1. Letter writing (Formal and informal)
2. E - Correspondence

Unit - V

1. Resume and CV
2. Cover letter

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FOUNDATION COURSE **ICT 202C** 2016-17 onwards II Degree

SYLLABUS

IV SEMESTER

INFORMATION & COMMUNICATION TECHNOLOGY – II

Unit - I

Fundamentals of Internet : Networking Concepts, Data Communication – Types of Networking, Internet and its Services, Internet Addressing – Internet Applications – Computer Viruses and its types – Browser –Types of Browsers.

Unit - II

Internet applications : Using Internet Explorer, Standard Internet Explorer Buttons, Entering a Web Site Address, Searching the Internet – Introduction to Social Networking : twitter, tumblr, Linkedin, facebook, flickr, skype, yelp, vimeo, yahoo!, google+, youtube, WhatsApp, etc

Unit - III

E-mail : Definition of E-mail - Advantages and Disadvantages – UserIds, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management,Email Inner Workings.

Unit - IV

WWW : Web Applications, Web Terminologies, Web Browsers,URL – Components of URL, Searching WWW – Search Engines and Examples

Unit - V

Basic HTML : Basic HTML – Web Terminology – Structure of a HTML Document – HTML, Head and Body tags – Semantic and Syntactic Tags – HR, Heading, Font, Image and Anchor Tags –Different types of Lists using tags – Table Tags, Image formats – Creation of simple HTML Documents.

Reference Books :

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e - by Raymond Greenlaw and Ellen Hepp, Publishers : TMH

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LEADERSHIP EDUCATION **LED 202C** 2016-17 onwards II Degree

SYLLABUS

IV SEMESTER

LEADERSHIP EDUCATION

UNIT I : Organisation - Management - Leadership - Meaning and significance - Different theories - Trait theory, Blake and Moutan theory - Other functions of Management

UNIT II : Behavioral concepts - Individual behaviour - Perception - Learning – Attitude formation and change - Motivation - Theories of motivation - Personality development

UNIT III : Inter personal behaviour - Communication - Leadership - Influencing relations - Transactional analysis

UNIT IV : Group dynamics - Roles - Morale - Conflict - Groups - Inter group behaviour - Inter group collaboration and conflict management

UNIT V : Team building and management - Developing team resources - Designing team - Participation and repercussion - Team building activities

References:

1. Fred Luthans, "Organisational behaviour", Tata McGraw Hill, Publishing Co., New Delhi
2. Robins, Stephen P, "Organisational behaviour", 9th Edition, Prentice Hall of India, New Delhi
3. Koontz and O "Donnell", Essentials of management, Tata McGraw Hill, Publishing Co., New Delhi, 2000
4. Keith Davis, "Human behaviour at work", Tata McGraw Hill, Publishing Co., New Delhi
5. Aswathappa, "Organisational behaviour", Himalaya Publishing House, Mumbai
6. Stoner Freeman, "Managment", Prentice Hall of India, New Delhi

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HISTORY **HIS 202C** 2016-17 onwards II B.A

SYLLABUS

IV SEMESTER

UNIT - 1

Factors for social change - Christian missionaries - Western education - Its impact emergences of new middle classes - Growth - Anglo India and vernacular

Unit - 2

Socio - Religious reform movements - Brahma samaj - Arya samaj - Theosophical society - Ramakrishna mission - Aligarh movement - Self - respect movements - Jyotiba Phule - Narayan Guru - Periyar and Dr BR Ambedkar

Unit - 3

Indian national movement - Factors for the growth of nationalism - Indian national congress - Three phases of freedom struggle (1885-1947) Gandhiji's role in national movement

Unit - 4

Role of women in the Indian national movement - Sarojini Naidu, Durgabhai Deshmukh - Revolutionary movements - Left wing movements - Peasants and workers movements

Unit - 5

Emergency of communal trends - Partition of India - Integration of princely states into Indian union - Sardar Vallabhai Patel, Subhash Chandra Bose

References

1. Bipan Chandra, India's struggle for independence 1857-1947
2. Bipan Chandra, Modern India, NCERT, 1983 (separate)
3. Hermann Kulke and Dietmar Rothermund, A history of India Rupa and Co., 1991
4. Alladi Vailuhi, Freedom movement in India (1858-1947)
5. Suruchi Thapon, Women in the Indian national movement unseen faces and unhand voices, 1930-1942, Delhi, 2006
6. Raj Kumar, Ramesh Vari Desi and Romula Prulhi, Women's role in Indian national movement, Delhi, 2003
7. Tudeth Brown, Gandhi's rise of power 1915-1922

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POLITICS **POL 202C** 2016-17 onwards II B.A

SYLLABUS

IV SEMESTER

INDIAN POLITICAL PROCESS

Unit-1: Approaches to Study the Political Processes in India

1. Theory of Modernization: Transition from Tradition to Modernity
2. Marxian Approach: Transition from pre-capitalism to capitalism

Unit-2: Social Structure and Democratic Process

1. Transition of Caste System: From Hierarchy to Identity: Role of Agency
2. Politicisation of Intermediate and Dalit Caste Communities
3. Evolution of Modernity in India

Unit-3: Religion and Politics

1. Competing Communalisms: Majoritarian and Minoritarian
2. Debates on Secularism; Role of the State towards religion

Unit-4: Party and Electoral Processes in India

1. Electoral Trends of the lokSabha from 1952 to 2014:From the One Party Congress System to Multi Party Coalitions
2. Determinants of Voting Behavior in India;Caste,Class,Patronage, Money etc.
3. Evolution of Party System in India: the Ideology and Social bases of major Political Parties: INC,BJP,CPM, DMK,BSP,TDP

Reference books:

1. Chandhoke N and Priyadarshini P (Eds) (2009) Contemporary Indian Economy, society, politics, Pearson, NewDelhi.
2. Vanaik A and Bhargava R (Eds) (2010) Understanding Contemporary India Critical perspectives orient black swan New Delhi.
3. Jayal N G and Mehta PB (Eds) (2010) Oxford Companion to Indian Politics Oxford University Press, New Delhi.
4. Kohliatul and Prema Singh (Ed) (2013) Routledge Hand book of Indian Politics Routledge, NewYork.
5. Jaffrelot C (2003) India's Silent Revolution: The Rise of the Lower Caste in North India, C Hrust, London.
6. Stanely A. Kochanek, Robert L.Hardgrave, India Government and Politics in a Developing Nation, Boston, Wards Worth Publishing, 2006.
7. Rajeev Bhargava (Ed) Secularism and its Critics (1998), Delhi, OUP.

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MACRO ECONOMICS **ECO 202C** 2016-17 onwards II B.A

SYLLABUS

IV SEMESTER

MACRO ECONOMICS (BANKING & INTERNATIONAL TRADE)

Unit - 1

Trade Cycles - meaning and definition - Phases of a Trade Cycle -Inflation - definition - types of inflation - causes and effects of inflation measures to control inflation.

Unit - 2

Banking: Meaning and definition -Functions of Commercial Banks - Concept of Credit creation-Functions of RBI - Recent developments in banking sectors.

Unit - 3

Non-Bank Financial Institutions – Types of NBFIs - Factors contributing to the Growth of NBFIs –-Money market – Defects of Indian money market

Unit - 4

Concepts of Shares-Debentures - Stock Market - Functions - Primary and Secondary Markets - SEBI - Insurance - Life Insurance and General Insurance.

Unit - 5

Macro Economic Policy - Fiscal, Monetary and Exchange rate policies Objectives and Significance - Importance of International Trade - Regional and International Trade – Defining Balance of Trade and Balance of Payment.

REFERENCES :

1. G.Ackley - "Macro Economics Theory and Policy", Collier Macmillan, 1978.
2. E.Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.
3. Central Statistical Organisations - "National Accounts Statistics".
4. R.Dornbush, s.Fisher and R.Startz - "Macro Economics", Tata Mc.Graw Hill, 9/e,2004.
5. M.L.Seth-"Macro Economics", Lakshmi Narayana Agarwal, 2015.
6. K.P.M. Sundaram - "Money, banking & International Trade", Sultan Chand, 2010.
7. Dillard, D - "The Economics of John Maynard Keynes", Crossby Lockwood & Sons.
8. M.N.Mish ra & S.B.Mishra - "Insurance Principles & Practice" S.Chand 2012.
9. Bharati V.Pathak "The Indian Financial System Markets. Institutions & Services".
10. Pearson

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SPL. ENGLISH **ENG 202CS** 2016-17 onwards II B.A.

SYLLABUS

IV SEMESTER

SPECIAL ENGLISH

Unit Module Topic Marks

1. History of English literature :

Romantic and Victorian periods (2 essays) **20 Marks**

2. Literary forms and terms :

Biography, Autobiography, Historical Novel, Flat character, Round character, Antagonist (4 paragraph questions) **4x5=20 Marks**

3. Poetry 1 :

John Keats : Ode to a Nightingale (1 essay) **10 Marks**

4. Prose :

Jane Austen : Pride and Prejudice (1 essay) **10 Marks**

5. Poetry 2 :

Robert Browing : How do I love thee ? (1 essay) **10 Marks**

References :

1. A history of English Literature by W.J. Long

2. A Critical History of English Literature by David Daiches (Published by Supernova)

3. The Cambridge History of English Literature by Ward and Waller (Published by Kessinger)

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ACCOUNTING FOR SERVICE ORGANISATION **COM 401C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

ACCOUNTING FOR SERVICE ORGANISATION

Unit-I: Non-Trading/ Service Organizations :

Concept - Types of Service Organizations – Section (8) and other Provisions of Companies Act, 2013.

Unit – II Electricity Supply Companies :

Accounts of Electricity supply companies: Double Accounting system – Revenue Account – Net Revenue Account – Capital Account – General Balance Sheet (including problems).

Unit – III - Bank Accounts :

Bank Accounts – Books and Registers to be maintained by Banks – Banking Regulation Act, 1969 - Legal Provisions Relating to preparation of Final Accounts (including problems).

Uni t-IV: Insurance Companies :

Life Insurance Companies –Preparation of Revenue Account, Profit and Loss Account, Balance Sheet (including problems) – LIC Act, 1956.

Unit – V: General Insurance :

Principles – Preparation of final accounts – with special reference to fire and marine insurance (including problems) – GIC Act, 1972.

Suggested Readings

1. Corporate Accounting – RL Gupta & M. Radha Swami
2. Corporate Accounting – P.C. Tulsian
3. Company Accounts : Monga, Girish Ahuja and Shok Sehagal
4. Advanced Accountancy: Jain and Narang
5. Advanced Accountancy : R.K. Gupta and M. Radhaswamy
6. Advanced Accountancy : Chakraborty
7. Advanced Accountancy: S.P. Iyengar
8. Modern Accounting: A. Mukherjee, M. Hanife McGraw Hill Company Ltd., New Delhi.
9. Accounting standards and Corporate Accounting Practices: T.P. Ghosh Taxman
10. Corporate Accounting: S.N. Maheswari, S.R. Maheswari, Vikas Publishing.
11. Advanced Accountancy: Arutanandam, Raman, Himalaya Publishing House.
12. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand.

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Business Laws **COM 402C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

BUSINESS LAWS

Unit-1 Contract

Meaning and Definition of Contract-Essential elements of valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872.

Unit-2 Offer and Acceptance

Definition of Valid Offer, Acceptance and Consideration -Essential elements of a Valid Offer, Acceptance and Consideration.

Unit-3 Capacity of the Parties and Contingent Contract

Rules regarding to Minors contracts - Rules relating to contingent contracts - Different modes of discharge of contracts-Rules relating to remedies to breach of contract.

Unit-4 Sale of Goods Act 1930

Contract of sale – Sale and agreement to sell – Implied conditions and warranties – Rights of unpaid vendor.

Unit-5 Cyber Law

Cyber Law and Contract Procedures - Digital Signature - Safety Mechanisms.

Suggested Readings:

1. J. Jayasankar, Business Laws, Margham Publication. Chennai -17
2. Kapoor ND, Mercentile Law , Sultan Chand
3. Balachandram V, Business law Tata
4. Tulsian , Business Law Tata
5. Pillai Bhagavathi, Business Law , S.Chand.
6. Business Laws, Maruthi Publishers

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Income tax **COM 403C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

INCOME TAX

Unit-I

Introduction: Income Tax Law – Basic concepts: Income, Person, Assesse, Assessment year, Agricultural Income, Capital and revenue, Residential status, Income exempt from tax (theory only).

Unit-II

Income from salary: Allowances, perquisites, profits in lieu of salary, deductions from salary

income, computation of salary income and qualified savings eligible for deduction u/s 80C (including problems).

Unit-III

Income from House Property: Annual value, let-out/self occupied/deemed to be let-out house, deductions from annual value - computation of income from house property (including problems).

Unit-IV

Income from Capital Gains – Income from other sources – (from Individual point of view) - chargeability – and assessment (including problems).

Unit-V:

Computation of total income of an individual – Deductions under section - 80 (including problems).

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications

2. B.B. Lal; Direct Taxes; Konark Publications

3. Dr. Mehrotra and Dr. Goyal; Direct Taxes – Law and Practice; Sahitya Bhavan Publication.

4. Gaur and Narang; Income Tax, Kalyani Publishers, New Delhi.

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BUSINESS ENVIRONMENT **COM 404C** 2016-17 onwards II B.Com

SYLLABUS

IV SEMESTER

BUSINESS ENVIRONMENT

Unit – I: Overview of Business Environment :

Business Environment – Meaning – Macro and Micro Dimensions of Business Environment – Economic – Political – Social – Technological – Legal – Ecological – Cultural – Demographic –

Changing Scenario and implications – Indian Perspective – Global perspective.

Unit – II: Economic Growth :

Meaning of Economic growth – Factors Influencing Development – Balanced Regional Development.

Unit – III - Development and Planning :

Rostow's stages of economic development - Meaning – Types of plans – Main objects of planning in India – NITI Ayog and National Development Council – Five year plans.

Unit – IV : Economic Policies :

Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Union budget – Structure and importance of Union budget – Monetary policy and RBI.

Unit – V -Social, Political and Legal Environment :

Concept of Social Justice - Schemes - Political Stability - Leal Changes.

Suggested Readings:

1. Rosy Joshi and Sangam Kapoor : Business Environment.
2. Francis Cherunilam : Business Environment.
3. S.K. Mishra and V.K. Puri : Economic Environment of Business.
4. K. Aswathappa : Essentials of Business Environment.

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MATHEMATICS **MAT 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

ABSTRACT ALGEBRA - II AND REAL ANALYSIS – II

ABSTRACT ALGEBRA - II

UNIT - 1

Normal subgroups : Definition of normal sub group, proper and improper normal sub groups, Hamilton group, criterion for a sub group to be normal sub group, intersection of two normal sub groups, sub group of index 2 is a normal sub group, simple group, quotient group, criteria for the existence of quotient group.

(3 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 2

Homomorphism : Definition of homomorphism of groups and elementary properties, image of homomorphism, kernel, isomorphism, automorphism definitions and elementary properties, fundamental theorem of homo-morphism.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 3

Permutation groups and cyclic groups : Permutation, group of permutations, cycles and cyclic notation, even and odd permutations, the alternating group, Cayley's theorem. Cyclic groups - elementary properties, subgroups of finite cyclic groups, the classification of cyclic groups.

(1 short answer questions, 2 long answer questions will be given in the examination)

REAL ANALYSIS - II

UNIT - 4

Differentiation and mean value theorems : Derivative of a function, algebra of derivable functions, increasing and decreasing functions, Darboux's theorem, Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, L 'Hospital's rules, Taylor's generalized mean value theorem, Maclaurin's theorem, expansions of some basic functions.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 5

Riemann integration - 1 : Partitions, Riemann sums, lower and upper Riemann integrals, Riemann integral, a necessary and sufficent condition for R-integrable, some classes integrable functions, algebra of integrable functions, fundamental theorem of integral calculus.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 6

Riemann integration - 2 : Integral as the limit of a sum, first mean value theorem of integral calculus, Bonnet's mean value theorem of integral calculus, second mean value theorem of integral calculus, integration by substitution, integration by parts.

(2 short answer question, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. II, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. II, S CHAND & Co.
2. John B. Fraleigh, The first course in abstract algebra, Narosa publishing house.
3. I.N. Herstein, Topics in algebra, Wiley Eastern publishing house.
4. Robbert G. Bartle and Donald R. Sherbert, Introduction to real analysis, Hohn Wiley.
5. Shanthi Narayan and P.K. Mittal, A course of mathematical analysis, S.Chand & Co.

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PHYSICS **PHY 202C** 2016-17 onwards II B Sc.

SYLLABUS

IV SEMESTER

THERMODYNAMICS AND WAVE OPTICS

PART - A THERMODYNAMICS

UNIT - I

1. Low Temperature Physics:

Liquefaction of gases using Joule - Kelvin effect - Porous plug experiment - Distinction between: Joules expansion, adiabatic expansion and Joule, Thomson's expansion - Expression for Joule Thomson cooling - Adiabatic demagnetization- Derivation of expression for fall in temperature, Liquefaction of Helium by Kaptizas method, Refrigeration-principle of Refrigeration- Refrigerant - Vapour Compression type. (12).

UNIT II

2. Thermal Radiation:

Classical theory of radiation: Introduction-Black body - Ferry's black body - Distribution of energy in the spectrum of a black body (Lummer & pringheim experiment) – Pyrometers - Types of pyrometers - Disappearing filament optical pyrometer (8)

UNIT III

3. Quantum theory of Radiation:

Quantum theory of radiation: Introduction-Planck's law –Plank's hypothesis- Derivation of plank's radiation law- Deduction of Wien's law, Raleigh Jeans law, Wien's displacement law from Planck's law, Solar constant-Determination of solar constant- Angstrom's Pyroheliometer-Temperature of Sun.–(10).

PART - B WAVEOPTICS

UNIT - IV

4. Polarization:

Polarised light, Brewster's law - Malus law - Phenomenon of double refraction in calcite – construction and working of Nicol prism- Applications of Nicol prism. Quarter & Half wave plate - Statement of Optical activity. Babinet's compensator (10)

UNIT V

5. Lasers and Holography:

Lasers: Introduction-Spontaneous, stimulated emission - Laser principle - Population inversion - Einstein coefficients - Types of lasers, He - Ne and Ruby lasers and the application of lasers. Holography: Basic Principles of holography - Gabor Hologram and its limitations, applications of Holography. (10)

UNIT VI

6. Fiber Optics:

Introduction- different types of fibers, rays and modes in an optical fiber, fiber material, principles of fiber communication (qualitative treatment only), advantages of fiber optic communication.(10)

Reference books

1 BSc Physics -*Telugu Akademy, Hyderabad*
2. Fundamentals of Physics. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*
3. Text Book of +3 Physics – Samal, Mishra & Mohanty, National Library, Min.of Culture, Govt of India
4. Heat and Thermodynamics- MS Yadav, *Anmol Publications Pvt. Ltd, 2000*
5. University Physics, HD Young, MW Zemansky,FW Sears, *Narosa Publishers, New Delhi*
6. Unified Physics Vol.II Optics & Thermodynamics – *Jai Prakash Nath & Co.Ltd., Meerut*
7. Heat, Thermodynamics and Statistical Physics-N Brij Lal, P Subrahmanyam, PS Hemne, *S.Chand & Co.,2012*
8. Thermodynamics - R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition*.
9. II BSc Physics -*Telugu Akademy, Hyderabad*
10. Fundamentals of Physics. Halliday/Resnick/Walker.*C. Wiley India Edition 2007*
11. Text Book of +3 Physics – Samal, Mishra & Mohanty, National Library, Min.of Culture, Govt of India
12. Heat and Thermodynamics- MS Yadav, *Anmol Publications Pvt. Ltd, 2000*
13. University Physics, HD Young, MW Zemansky,FW Sears, *Narosa Publishers, New Delhi*
14. Unified Physics Vol.II Optics & Thermodynamics – *Jai Prakash Nath & Co.Ltd., Meerut*
15. Heat, Thermodynamics and Statistical Physics-N Brij Lal, P Subrahmanyam, PS Hemne, *S.Chand & Co.,2012*
16. Thermodynamics - R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition*.

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PHYSICS **PHY 202CP** 2016-17 onwards II B Sc.

PRACTICAL SYLLABUS

IV SEMESTER

THERMODYNAMICS AND WAVE OPTICS

At least 06 experiments from the following:

1. Spectrometer – dispersive power.
2. Grating- normal incidence.
3. Resolving of grating.
4. Heating efficiency of Kettle.
5. Wedge method.
6. Newton's rings-wavelength
7. Hollow prism- A & D
8. Specific heat - Joule's calorimeter.
9. Thermister.

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CHEMISTRY **CHE 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

SPECTROSCOPY AND PHYSICAL CHEMISTRY

UNIT - I

SPECTROSCOPY **Weightage : 15 marks = 2, 5 marks = 3**

UNIT - I : MOLECULAR SPECTROSCOPY

1. Electronic spectroscopy : Interaction of electromagnetic radiation with molecules and types of molecular spectra. Potential energy curves for bonding and antibonding molecular orbital energy levels of molecules . Selection rules for electronic spectra. Types of electron transitions in molecules effect of conjugation. Concept of chromophore.

2. Infra red spectroscopy : Energy levels of simple harmonic oscillator, molecular vibration spectrum selection rules. Determination of force constant. Qualitative relation of force constant to bond energies. An harmonic motion of real molecules and energy levels. Modes of vibrations in polyatomic molecules. Characteristic absorption bands of of various functional groups. Finger print nature of infrared spectrum.

3. Protan magnetic resonance spectroscopy (H^1 NMR) : Principles of nuclear magnetic reasonance, equivalent and non equivalent protons, positions of signals, chemical shift, NMR splitting of signals, spin - spin coupling, coupling constants. Applications of NMR with suitable examples - Ethylbromide, Ethanol, Acetaldehyde, 1, 1, 2 ` Tribromethane, Ethyl acetate, Toluene and Acetophenone.

UNIT - II : SPECTRO PHOTOMETRY **Weightage : 15 marks = 1, 5 marks = 2**

General features of absorption - Spectroscopy, Beer - Lambert's law and its limitations, transmittance, absorbance and molar absorptivity. Single and double beam spectrophotometer. Application of Beer - Lambert's law for quantitative analysis of

i. Chromium in $K_2Cr_2O_7$

ii. Manganese in manganous sulphate

PHYSICAL CHEMISTRY

UNIT - III : DILUTE SOLUTIONS : Weightage : 15 marks = 1, 5 marks = 1

Colligative properties. Raoult's law, relative lowering of vapour pressure, its relation to molecular weight of non volatile solute. Elevation of boiling point and depression of freezing point. Derivation of relation between molecular weight and elevation in boiling point and depression in freezing point. Experimental methods of determination - Osmosis, Osmotic pressure, Experimental determination. Theory of dilute solutions. Determination of molecular weight of non - volatile solute from osmotic pressure. Abnormal colligative properties.

Unit - IV

Electro chemistry - I : Weightage : 15 marks = 1, 5 marks = 2

Specific conductance, equivalent conductance variation of equivalent conductance with dilution. Migration of ions, Kohlrausch's law. Arheneous theory of electrolyte dissociation and its limitations.Ostwalds dilution law. Debye - Huckel - Onsager equation for strong electrolytes (elementary treatment only). Definition of transport number, its determination by Hittorf's method, application of conductivity its measurement, conductiometric titrations. Types of reversible electrodes. The gas electrode, metal - metal ion, metal - insoluble salt and redox electrodes, electrode reactions, Nearnst equation, single electrode potential.

Unit - V

1. Electrochemistry - II : Weightage : 15 marks = 1, 5 marks = 2

Standard hydrogen electrode, reference electrodes, standard electrode potential, sign convention, electrochemical series and its significance. Reversible and irreversible cells, conventional representation of electro chemical cells. EMF of a cell and its measurements. Computation of cell EMF. Applications of EMF measurements, potentiometric titrations.

2. Phase rule :

Concept of phase, component degrees of freedom. Derivation of Gibbs phase rule, phase equilibrium of one component. Water system. Phase equilibrium of two component system : Solid - Liquid equilibrium. Simple eutectic diagram of Pb - Ag system, desilverisation of lead. Freezing mixtures.

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CHEMISTRY **CHE 202CP** 2016-17 onwards II B.Sc

PRACTICAL SYLLABUS

IV SEMESTER

Time : 3hrs **PHYSICAL CHEMISTRY & IR SPECTRAL ANALYSIS**

Max. Marks : 50

Physical chemistry :

1. Critical solution temperature
2. Effect of Nacl on critical solution temperature
3. Determination of concentration of HCl conductometrically by using standard NaOH solution
4. Determination of concentration of acetic acid conductometrically by using standard NaOH solution

IR spectral analysis

1. IR spectral analysis of the following functional groups with examples
    a. Hydroxyl groups
    b. Carbonyl groups
    c. Amino groups
    d. Aromatic groups

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BOTANY **BOT 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

PLANT PHYSIOLOGY AND METABOLISM

UNIT – I: Plant – Water relations (12 hrs)

1. Physical properties of water, Importance of water to plant life.
2. Diffusion, imbibition and osmosis; concept & components of Water potential.
3. Absorption and transport of water and ascent of sap.
4. Transpiration –Definition, types of transpiration, structure and opening and closing mechanism of stomata.

UNIT –II: Mineral nutrition & Enzymes (12hrs)

1. Mineral Nutrition**:** Essential elements (macro and micronutrients) and their role in Plant metabolism, deficiency symptoms.
2. Mineral ion uptake (active and passive transport).
3. Nitrogen metabolism- biological nitrogen fixation in *Rhizobium* outlines of protein synthesis (transcription and translation).
4. Enzymes**:** General characteristics, mechanism of enzyme action and factors regulating enzyme action.

UNIT –III: PHOTOSYNTHESIS (12 hrs)

1. Photosynthesis: Photosynthetic pigments, photosynthetic light reactions, photo phosphorylation, carbon assimilation pathways: C3, C4, and CAM (brief account)
2. Photorespiration and its significance.
3. Translocation of organic solutes: mechanism of phloem transport, source-sink relationships.

UNIT – IV: PLANT METABOLISM (12 hrs)

1. Respiration: Glycolysis, anaerobic respiration, TCA cycle, electron transport system.

Mechanism of oxidative phosphorylation.

2. Lipid Metabolism**:** Types of lipids, Beta-oxidation.

UNIT –V: GROWTH AND DEVELOPMENT (12hrs)

1. Growth and development: definition, phases and kinetics of growth.
2. Physiological effects of phytohormones - Auxins, Gibberellins, Cytokinins, ABA, Ethylene and Brassinosteroids.
3. Physiology of flowering -photoperiodism, role of phytochrome in flowering : Vernalization.
4. Physiology of Scenescence and Ageing.

SYLLABUS

IV SEMESTER

PLANT PHYSIOLOGY AND METABOLISM

Suggested Laboratory Exercises:

1. Osmosis – by potato osmoscope experiment
2. Determination of osmotic potential of plant cell sap by plasmolytic method using leaves of *Rhoeo / Tradescantia.*
3. Structure of stomata (dicot & monocot)
4. Determination of rate of transpiration using cobalt chloride method.
5. Demonstration of transpiration by Ganongs' photometer
6. Demonstration of ascent of sap/Transpiration pull.
6. Effect of Temperature on membrane permeability by colorimetric method.
7. Study of mineral deficiency symptoms using plant material/photographs.
8. Separation of chloroplast pigments using paper chromatography technique.
9. Rate of photosynthesis under varying Co2 concentrations.
10. Effect of light intensity on oxygen evolution in photosynthesis using Wilmott' bubbler.

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ZOOLOGY **ZOO 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

EMBROLOGY, PHYSIOLOGY AND ECOLOGY

Unit - I

1.1 Developmental Biology and Embryology

1.1.1 Gametogenesis

1.1.2 Fertilization

1.1.3 Types of eggs

1.1.4 Types of cleavages

1.2 Development of Frog upto formation of primary germ layers

1.3 Formation and functions of Foetal membrane in chick embryo

1.4 Development, types and functions of Placenta in mammals

Unit - II

2.1 Physiology - I

2.1.1 Elementary study of process of digestion

2.1.2 Absorption of digested food

2.1.3 Respiration - Pulmonary ventilation, transport of oxygen and carbondioxide

2.1.4 Circulation - Structure and functioning of heart, Cardiac cycle

2.1.5 Excretion - Structure of nephron, urine formation, counter current mechanism

Unit - III

3.1 Physiology - II

3.1.1 Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers

3.1.2 Muscle contraction - Ultra structure of muscle fibre, molecular and chemical basis of muscle contraction

3.1.3 Endocrine glands - Structure, secretions and the functions (of hormones) of pituitary, thyroid, parathyroid, adrenal glands and pancreas

3.1.4 Hormonal control of reproduction in a mammal

Unit - IV

4.1 Ecology - I

4.1.1 Meaning and scope of Ecology

4.1.2 Important abiotic factors of Ecosystem - Temperature, light, water, oxygen and CO2

4.1.3 Nutrient cycles - Nitrogen, carbon and phosphorus“4.1.4 Components of Ecosystem

(Example : lake), food chains and food web, energy flow in ecosystem

Unit - V

5.1 Ecology - II

5.1.1 Habitat and ecological niche

5.1.2 Community interactions - Mutualism, commensalism, parasitism, competition, predation

5.1.3 Ecological succession

5.1.4 Population studies

5.2 Zoogeography

5.2.1 Zoogeographical regions

5.2.2 Study of physical and faunal peculiarities of Oriental, Australian and Ethiopian regions

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ZOOLOGY PRACTICALS **ZOO 202CP** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

Time : 3 hrs **EMBROLOGY, PHYSIOLOGY AND ECOLOGY** Max. Marks : 50

I. Embryology

1. Study of T.S. of testis, ovary of a mammal
2. Study of different stages of cleavages (2, 4, 8 cell stages)
3. Study of chick embryos of 18 hours, 24 hours, 33 hours and 48 hours of incubation

II. Physiology

1. Qualitative tests for identification of carbohydrates, proteins and fats
2. Qualitative tests for identification of ammonia, urea and uric acid
3. Study of activity of salivary amylase under optimum conditions
4. Study of prepared slides of T.S. of duodenum, liver, lung, kidney, spinal cord, bone and cartilage

III. Ecology

1. Determination of pH of given sample
2. Estimation of dissolved oxygen of given sample
3. Estimation of total alkalinity of given sample
4. Estimation of salinity of given sample

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COMPUTER SCIENCE **CSC 202C** 2016-17 onwards II B.Sc

SYLLABUS

IV SEMESTER

DATA STRUCTURES WITH JAVA

UNIT I :

Concept of Abstract Data Types (ADTs) : Data Types, Data Structures, Storage Structures, and File Structures, Primitive and Non-primitive Data Structures, Linear and Nonlinear Structures.

Linear Lists : ADT, Array and Linked representations, Pointers.

Arrays : ADT, Mappings, Representations, Sparse Matrices, Sets - ADT, Operations

UNIT II :

Stacks : Definition, ADT, Array and Linked representations, Implementations and Applications

Queues : Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Implementations and Applications.

UNIT III :

Trees : Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications.

Priority Queues : Definition, ADT, Heaps and Applications, Binary Search Trees (BST) - Definition, ADT, Operations and Implementations, BST with Duplicates and Applications.

Balanced Search Tress : AVL, Red-Black and Splay Trees.

UNIT IV :

Graphs : Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees

UNIT- V :

Sorting and Searching : Selection, Insertion, Bubble, Merge, Quick, Heap, Sequential and Binary Searching.

TEXT BOOKS

1. Hubbard John R. and Huray Anita, Data Structures with Java Paperback Prentice-Hall 2005 ISBN-10: 8120327454

2. David Cousins, Introducing Data Structures with Java Kindle Edition, Pearson Education; First edition, 2011, ISBN-10: 8131758648, 464 pages

REFERENCE BOOKS

1. SamanthaD, Classic Data Structures, Prentice-Hall of India, 2001.

2. Tremblay .1 P, and Sorenson P G, Introduction to Data Structures and Applications, Tata McGraw-Hill,

3. Sahani S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002

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COMPUTER SCIENCE **CSC 202CP** 2016-17 onwards II B.Sc

PRACTICAL SYLLABUS

IV SEMESTERS

1. Write Program to implement the Stack operations using an array and a singly linked list
2. Write Programs to implement the Queue operations using an array and a singly linked list
3. Write a program to implement queque using a doubly linked list
4. Write a program to evaluate postfix expression by using Stack?
5. Write a program to implement insert and delete operations on Priority Queue
6. Write a program to construct Binary Search Tree and implement tree traversing techniques
7. Write a program to search an item in a given list using Linear Search and Binary Search
8. Write a program to Find number of Leaf nodes and Non-Leaf nodes in a Binary Search Tree.
9. Write a program with any Algorithm to Find the Minimum Spanning Tree of a Graph
10. Write programs for Selection Sort, Bubble Sort, Quick Sort, Selection Sort, Merge Sort

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N C C **NCC 202C** 2016-17 onwards II Degree

SYLLABUS

IV SEMESTER

N C C

UNIT - I MAP READING **10x2=20**

Maps - Types of maps - Cardinal points - Conventional signs of bridge, temple, spring, mosque etc - Types of north - Kinds of north

UNIT - II FIELD CRAFT AND BALE CRAFT **10x2=20**

Subjects included in Field Craft

Types of ground - Observation and Concealment

Judging distance during night - Stops

UNIT - III DISASTER MANAGEMENT AND SOCIAL SERVICE **10x2=20**

Classification of disasters - Man made disasters and Natural Disasters - Examples

Role of NCC in Disaster Management

Methods of removing debris

Precautions to be taken during flood and earthquake

Types of social services

Arguments in favour of and against reservation

UNIT - IV ARMED FORCES **5x2=10**

Armed Forces - Army commands - Training Institutes of Indian Army - NCC Awards

2017-20 Batch Syllabus

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GENERAL ENGLISH **ENG 101C** 2017-18 onwards I DEGREE

SYLLABUS

I SEMESTER

GENERAL ENGLISH

Unit - I Prose :

1. The Knowledge Society - APJ Abdul Kalam
2. The Language of African Literature - Ngugi Wa Thiong'o

Unit - II Poetry :

1. The Road Not Taken - Robert Frost
2. Night of the Scorpion - Nissim Ezekiel

Unit - III Short Story :

1. The Lost Child - Mulk Raj Anand
2. The Loaded Dog - Henry Lawson

Unit - IV One - Act Play :

1. The Merchant of Venice (Court scene - Act IV Scene I) - William Shakespeare

Unit - V Unseen passage

Unit - VI Language Activity :

Note : All the questions of Grammar should be given from the text only

1. Sound (odd sound out)
2. Verb forms (Tenses)
3. Spelling
4. Synonyms

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FOUNDATION COURSE **HVP 101C** 2016-17 onwards I Degree

SYLLABUS

I SEMESTER

HUMAN VALUES AND PROFESSIONAL ETHICS

UNIT-I : INTRODUCTION TO VALUE EDUCATION

1. Value education, definition, concept and need for value education
2. The concept and process of value education
3. Self - Exploration as a means of value education
4. Happiness and prosperity as parts of value education

UNIT-II : HARMONY IN THE HUMAN BEING

1. Human being is more than just the body
2. Harmony of the self ('I) with the body
3. Understanding myself as co-existence of the self and the body
4. Understanding needs of the self and the needs of the body

UNIT-III : HARMONY IN THE FAMILY AND SOCIETY AND HARMONY IN THE NATURE

1. Family as a basic unit of human interaction and values in relationships
2. The basics for respect and today's crisis : Affection, Care, Guidance, Reverence, Glory, Gratitude and Love
3. Comprehensive human goal : The five dimensions of human endeavour

UNIT-IV : SOCIAL ETHICS

1. The basics for ethical human conduct
2. Defects in ethical human conduct
3. Holistic alternative and universal order
4. Universal human order and ethical conduct

UNIT-V : PROFESSIONAL ETHICS

1. Value based life and profession
2. Professional ethics and right understanding
3. Competence in professional ethics
4. Issues in professional ethics - The current scenario
5. Vision for holistic technologies, product on system and management models

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FOUNDATION COURSE **ICT 101C** 2016-17 onwards I Degree

SYLLABUS

I SEMESTER

INFORMATION & COMMUNICATION TECHNOLOGY – I

Unit - I

Basics of Computers : Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working – Central Processing Unit – I/O Devices.

Unit - II

Primary, Auxiliary and Cache Memory – Memory Devices. Software, Hardware, Firmware and People ware – Definition and Types of Operating System – Functions of an Operating System – MS-DOS – MS Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Pane.

Unit - III

MS-Word

Features of MS-Word – MS-Word Window Components – Creating, Editing, Formatting and

Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Equations – Spelling and Grammar – Thesaurus – Mail Merge

Unit - IV

MS-PowerPoint

Features of PowerPoint – Creating a Blank Presentation - Creating a Presentation using a Template - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures - Inserting Other Objects, Audio, Video - Resizing and Scaling of an Object – Slide Transition – Custom Animation

Unit - V

MS-Excel

Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Formulae, Referencing cells – Inserting Rows/Columns – Changing column widths and row heights, auto format, changing font sizes, colors, shading.

Reference Books :

1. Fundamentals of Computers by ReemaThareja, Publishers : Oxford University Press, India

2. Fundamentals of Computers by V.Raja Raman, Publishers : PHI

3. Microsoft Office 2010 Bible by John Walkenbach, Herb Tyson, Michael R.Groh and FaitheWempen, Publishers : Wiley

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HISTORY **HIS 101C** 2017-18 onwards I B.A

SYLLABUS

I SEMESTER

INDIAN HISTORY AND CULTURE

UNIT - 1

Survey of the Sources - Literary sources - Archaeological sources - Influence of Geography on history - Unity in diversity - Pre-Historic period - Paleolithic Mesolithic and Neolithic cultures

Harappan civilization : Origin, extent, urban planning - Nature of polity and economic organisation, society - Religious conditions - Downfall of the civilization

Unit - 2

Vedic civilization : Vedic literature - Early vedic and later vedic civilizations - Political, economic and religious conditions in the society - Emergency of varna and caste system

Rise of new religious movements : Conditions of 6th century BC - Jainisam - Vardhamana Mahavira - Spread of Jainisam in Andhra Pradesh, Jain centres in Andhra Pradesh

Buddihism - Gauthama Buddha - Spread of Buddihism in Andhra Pradesh - Buddist places in Andhra Pradesh - Contribution to art and architecture

UNIT - 3

A brief survey of political conditions in ancient India - Mahajanapadas - Rise and expansion of Magadha - Persian, Alexander's invasions - Causes and its effects on India

The Mayuran empire : Origin - Chandragupta Maurya - Ashoka's Dhama, it's nature and propagation – Mauryan Administration, society, economy, religion, art and architecture - Downfall of the Mauryan empire

UNIT - 4

Post - Mauryan period in North India - Sunga.Kanva dynasties - Indo Greeks, Sakas, Kushans, Western Kshatrapas, contact without side world, growth of urban centres, economy, coinage, development of religious, Mahayana, social conditions, art, architecture, culture, literature and science

Unit - 5

Age of Guptas : Brief political history - Development in the Gupta period - Administartive system, society, economy, art, architecture. Literature, science and technology - Golden age of Guptas

Post Gupta period : Achievements of Harshavardhana - Hiuen Tsang

Refernces

1. An advanced history of India part - I, RC Majundar
2. A history of south India, KH Neelakanta Sastry
3. Ancient Indian history and culture, Telugu Academy text book

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POLITICS **POL 101C** 2017-18 onwards I B.A

SYLLABUS

I SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS OF POLITICAL SCIENCE

Unit-1: Explanatory Frameworks of Politics

1. What is Politics: Nature and Scope of Political Science
2. Approaches to the Study of Politics: Normative, Historical, Empirical Traditions

Unit-2: What is the State

1. Origin and Evolution of the Modern State
2. Different Conceptions on the role of the Modern State: Social Democratic and Neo Liberal conceptions

Unit-3: Nations and Nationalism

1. Conceptual Distinction between Nationality and Nation
2. Varieties of Nationalism: Culture and Civic Nationalism

Unit-4: Rights and Citizenship

1. Evolution of Rights: Civil and Social rights
2. Citizenship: Universal and Differential Citizenship

Unit-5: Freedom, Equality and Justice

1. Freedom: Negative and Positive Freedom
2. Equality: Formal Equality, Equality of Opportunity, Safeguards of Equality
3. Justice: Justice based on Needs, Deserts and Rights

Reference books:

1. Bhargava Rajeev and Acharya Ashok (eds) (2008) Political Theory : An Introduction, Pearson, New Delhi.
2. Andrew Heywood (2007) Politics 3rd edition, Palgrave Macmillan, NewYork.
3. Bellamy R (1993) (Ed) Theories and Concepts of Politics, Manchester university press, New York.
4. Vincent A (2004) The Nature of Political Theory, Oxford Universit Press, NewYork.

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ECONOMICS **ECO 101C** 2017-18 onwards I B.A

SYLLABUS

I SEMESTER

MICRO ECONOMICS

Unit -1

Nature, definition and scope of Economics - Wealth, Welfare, Scarcity and modern definitions.

Unit - 2

Methodology in Economics - Micro & Macro; Static and Dynamic analysis; Normative and positive science, Inductive & Deductive methods; Partial and general Equilibrium.

Unit - 3

Utility analysis: - cardinal approach-The Law of diminishing Marginal utility-The Law of Equi-Marginal Utility- concept of consumer's surplus

Unit - 4

Demand analysis - Law of Demand - Elasticity of Demand - Measurement of Elasticity of Demand - Price, Income & Cross Elasticities of Demand.

Unit - 5

Ordinal Approach: Indifference Curve analysis - Properties of Indifference curves - Price or budget line - Equilibrium of the Consumer with the help of Indifference curves – Samuelson's Revealed preference theory.

REFERENCES:

1. R.G. Lipsey and K.A.Chrystal - "Economics", Oxford University Press, 10/e, 2004.
2. P.A.Samuelson & W.D. Nordhaus-"Economics", Tata Mc.Graw Hill, 18/e, 2005.“4
3. N.Gregory Mankiw-"Principles of Economics", Thompson 2015 .
4. H.L.Ahuja-"Advanced Economic Theory"' S.Chand.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2015.

6. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc.Graw Hill, 1971.
7. Telugu Academy Publications
8. D.M. Mithani & G.K. Murty - Business Economics, Himalaya Publishing, 2015.

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SPL. ENGLISH **ENG 101CS** 2017-18 onwards I B.A

SYLLABUS

I SEMESTER

SPECIAL ENGLISH

I. Language

1. Scandinavian Element
2. Latin influence
3. Semantic changes (changes in meaning)
4. Word formation (growth of vocabulary)
5. Influence of Bible and Church on English language
6. The Evolution of Standard English

II. Literary forms

1. Balled
2. Ode
3. Lyric
4. Elegy
5. Sonnet
6. Pastoral Elegy

III. Poetry

1. Death, be not proud - John Donne

IV Prose

1. Of studies - Francis Bacon

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FUNDAMENTALS OFACCOUNTING-I **COM 101C** 2017-18 onwards I B.Com

SYLLABUS

I SEMESTER

FUNDAMENTALS OF ACCOUNTING – I

Unit-I – Introduction to Accounting :

Need for Accounting – Definition – Objectives, Advantages – Book keeping and Accounting–Accounting concepts and conventions - Accounting Cycle - Classification of Accounts and its rules - Double Entry Book-keeping - Journalization - Posting to Ledgers, Balancing of ledger Accounts (problems)

Unit –II: Subsidiary Books :

Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty cash Book (Problems).

Unit-III: Trail Balance and Rectification of Errors :

Preparation of Trail balance - Errors – Meaning – Types of Errors – Rectification of Errors (Problems)

Unit-IV- Bank Reconciliation Statement :

Need for bank reconciliation - Reasons for difference between Cash Book and Pass Book BalancesPreparation of Bank Reconciliation Statement- Problems on both favorable and unfavourable balances

Unit -V: Final Accounts :

Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with adjustments (Problems).

Reference Books

1. T.S.Reddy & A. Murthy, Financial Accounting , Margham Publications
2. R L Gupta & V. K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons
3. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers
4. Tulasian, Accountancy -I, Tata McGraw Hill Co.
5. V.K.Goyal, Financial Accounting, Excel Books
6. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications

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Business Organisation **COM 102C** 2017-18 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ORGANISATION

Unit-I – Introduction :

Concepts of Business, Trade , Industry and Commerce – Features of Business - Trade Classification - Aids to Trade – Industry – Classification – Relationship of Trade, Industry and Commerce.

Unit II- Business Functions and Entrepreneurship :

Functions of Business and their relationship - Factors influencing the choice of suitable form of organization – Meaning of Entrepreneurship – Characteristics of a good entrepreneur - Types – Functions of Entrepreneurship.

Unit –III – Forms of Business Organizations :

Sole Proprietorship – Meaning – Characteristics – Advantages and Disadvantages – Partnership - Meaning – Characteristics- Kinds of partners – Advantages and Disadvantages – Partnership Deed – Hindu-undivided Family – Cooperative Societies.

Unit-IV- Joint Stock Company :

Joint Stock Company – Meaning – Characteristics –Advantages – Kinds of Companies - Differences between Private Ltd and Public Ltd Companies.

Unit-V- Company Incorporation :

Preparation of important Documents for incorporation of Company – Memorandum of Association – Articles of Association – Differences Between Memorandum of Association and Articles of Association - Prospectus and its contents.

Reference Books :

1. C.D.Balaji and G. Prasad, Business Organization - Margham Publications, Chennai.
2. R.K.Sharma and Shashi K Gupta, Business Organization - Kalyani Publications.
3. C.B.Guptha, Industrial Organization and Management, Sultan Chand.
4. Y.K.Bushan, Business organization and Management, Sultan Chand.
5. Sherlekar, Business Organization and Management, Himalaya Publications.

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Business Economics - I **COM 103C** 2017-18 onwards I B.Com

SYLLABUS

I SEMESTER

BUSINESS ECONOMICS – I

UNIT –I : INTRODUCTION :

Meaning and definition of Business Economics – Nature and Scope of Business Economics – Micro and Macro Economics differences – Cardinal Utility & Ordinal Utility.

UNIT –II : DEMAND ANALYSIS :

Meaning and definition of demand – Determination to Demand – Demand function – Law of demand – Demand Curves – Exceptions.

UNIT-III : ELASTICITY OF DEMAND :

Meaning and definition of price Elasticity of Demand – Types of price Elasticity of demand – Measurements of price elasticity of demand – Total outlay method – Point Method – Arc Method.

UNIT-IV : CONSUMER BEHAVIOR :

Utility analysis-Cardinal and Ordinal approaches – Law of Diminishing marginal utility, Law of Equi-marginal utility – Indifference curve – Properties of Indifference curves – Price (Budget)line – Equilibrium of the consumer with the help of Indifference curves.

UNIT-V : COST AND REVENUE ANALYSIS :

Classification of Costs – Total, average Marginal Cost and Cost function. Long run – Short run. Revenue Analysis – Total, average and Marginal revenue concepts

UNIT-VI : BREAK EVEN ANALYSIS :

Type of costs – Fixed costs – Semi variable Cost – Variable Cost – Cost behavior. Breakeven Analysis uses and limitations.

Reference Books:

1.Dr. S.Sankaran, Business Economics – Margham Publications.

2.Business Economics – Kalayani Publications

3. Business Economics – Himalaya Publishing House

4.Aryasri and Murthy Business Economics, Tata Mcgraw Hill

5. Business Economics, Maruthi Publications

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MATHEMATICS **MAT 101C** 2017-18 onwards I B.Sc

SYLLABUS

I SEMESTER

DIFFERENTIAL EQUATIONS - I & SOLID GEOMETRY – I

DIFFERENTIAL EQUATIONS

UNIT - 1

Formation of Differential equations, Differential equations of first order and first degree - Variables separable, Homogeneous differential equations, Equations reducible to homogeneous form.

Exact differential equations, integrating factors, Integrating factors of the form

(i) $\frac{1}{Mx+Ny}$ (ii) $\frac{1}{Mx-Ny}$ (iii) $\int_e f(x)dx$ (iv) $\int_e g(y)dx$ (v) $x^h y^k$

(1 short answer qeustion, 1 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations of first order, Bernoulli's equations, Change of variables, Total differential equations, Simultaneous total differential equations, Equations of the form $\frac{dx}{P}=\frac{dy}{Q}=\frac{dz}{R}$ (i) Method of grouping (ii) Method of multipliers, Orthogonal trajectories.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 3

Differential equations of the first order but not of the first degree - Equations solvable for p , Equations solvable for y, Clairaut's equations and Equations reducible to Clairaut's form, Equations solvable for x.

(2 short answer questions, 1 long answer questions will be given in the examination)

SOLID GEOMETRY

UNIT - 4

Planes: General equation of a plane - Normal form - Transformation to the normal form - Determination of a plane under given conditions (i) Plane passing through a given point (ii) Plane passing through three given points (iii) Plane in terms of its intercepts on the axes (intercepts form) - Angle between two planes - Perpendicular distance of a point from the given plane - Distance between parallel planes - Two sides of a plane - plane passing through the intersection two given planes - Angle bisectors of two planes - Pair of planes.

(2 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 5

Lines: Equations of a line (i) General form (ii) Parametric form (iii) Symmetric form (iv) Two points form - Angle between a line and a plane. The condition that a given line may lie in a given plane - Coplanar lines. The condition that two given lines are coplanar.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

Skew lines : The shortest distance between two skew lines. The length and equations of the line of shortest distance between two straight lines - Length of the perpendicular from a given point to a given line.

(1 short answer question, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjaneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.

2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.

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PHYSICS **PHY 101C** 2017-18 onwards I B Sc.

SYLLABUS

I SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

Unit I Vector Analysis (10):

Scalar and vector fields, (Definitions and examples), Gradient of a scalar field and its physical significance. Derivation of Divergence of a vector field. Derivation of Curl of a vector field, Definitions of line integral, Surface integral and Volume integral, statements of Stoke's Theorem, Gauss theorem, and Greens theorem . Proof of Green's theorem.

Unit II Dynamics of a system of Particle (10):

Motion of Variable mass system (Explanation with theory), Motion of a Rocket, Multi-Stage Rocket. Collisions, types of collisions, elastic collision in two dimensions, Elastic oblique collision, Definitions of Impact parameter and Scattering cross-section, Rutherford scattering - Determination of scattering angle.

Unit III Dynamics of rigid bodies (10):

Definition of Rigid body, Rotational Kinematic Relations, equation of motion of rotating rigid body. Euler's equations and its determination in three dimensions, Applications of Euler's equations- Conservation of energy & conservation of Angular momentum. Precession of a top, expression for Precessional velocity, Description and working of a Gyroscope.

WAVES AND OSCILLATIONS

Unit IV Fundamentals of Vibrations (12):

Simple harmonic oscillator, Derivation of differential equation of Simple Harmonic Oscillator and its Solution, Physical Characteristics of Simple Harmonic Motion, Derivation of potential energy, kinetic energy and total of Energy of a Simple Harmonic Oscillator, Principle of superposition, Combination of two mutually perpendicular Simple Harmonic Vibrations of Same Frequency, Uses of Lissajou's figures.

Unit V Damped and Forced Oscillations (12):

Damped Harmonic Oscillator, Derivation of differential equation of Damped Harmonic Oscillator and its Solution. Power dissipation, logarithmic decrement, relaxation time,

quality factor, Forced Harmonic Oscillator, Derivation of Differential equation of Forced Harmonic Oscillator and its solution, Amplitude resonance, Velocity resonance.

Unit VI Complex vibrations (6):

Fourier Theorem- Statement and Evaluation of the Fourier Coefficients, Analysis of Periodic wave functions -Square wave, Triangular wave. Limitations of Fourier Theorem.

Reference Books:

*1. **Berkeley Physics Course**. Vol.1, C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

***2. Mechanics** C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

*3. **Fundamentals of Physics**. Halliday/Resnick/Walker Wiley India Edition 2007.*

*4. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy Orient Longman.*

*5. **First Year Physics** - Telugu Academy.*

*6. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, New Age International.*

*7. **College Physics-I**. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.*

*8. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. McGraw Hill.*

*9. **Waves and Oscillations**. N. Subramaniyam and Brijlal Vikas Publishing House Private Limited.*

*10. **Fundamentals of Physics** by Alan Giambattista et al Tata-McGraw Hill Company Edition, 2008.*

*11. **University Physics** by Young and Freeman, Pearson Education, Edition 200*

*12. **Sears and Zemanskys University Physics** by Hugh D. Young, Roger A.Freedman Pearson Education Eleventh Edition.*

*13. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. The McGraw Hill Companies.*

*14. **Mechanics**. Hans & Puri. TMH Publications.*

*15. **Engineering Physics**. R.K. Gaur & S.L. Gupta. Dhanpat Rai Publications.*

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PHYSICS **PHY 101CP** 2017-18 onwards I B Sc.

PRACTICAL SYLLABUS

I SEMESTER

Time : 3 hrs **MECHANICS, WAVES AND OSCILLATIONS** Max. Marks : 50

At least 06 experiments from the following :

1. Measurements of density of material using vernier caliper, screw gauge.
2. Determination of the Moment of Inertia of a Rigid Body using Bifilar Pendulum.
3. Determination of the Moment of Inertia of Fly Wheel.
4. Determination of g using compound pendulum.
5. Determination of radius of capillary tube using travelling microscope
6. Determination of the frequency of the given tuning fork using Volume Resonator.
7. Determination of the Young's Modulus by non-uniform bending.
8. Determination of g and k using Kater's pendulum.
9. Melde's Experiment

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CHEMISTRY **CHE 101C** 2017-18 onwards I B.Sc

SYLLABUS

I SEMESTER

INORGANIC CHEMISTRY & ORGANIC CHEMISTRY

Inorganic Chemistry - I

Unit - I - Weightage - 2x10 + 2x5 Marks = 30 Marks

P- block elements : General characteristics of elements of groups 13,14 and 15

Group - 13: Synthesis and structure of diborane and higher boranes (B_4H_{10} and B_5H_9) boron - nitrogen compounds ($B_3N_3H_6$ and BN)

Group - 14: Preparation and applications of silanes and silicones

Group - 15: Preparation and reactions of hydrazine, hydroxylamine

Unit - II - Weightage - 2x10 + 1x5 Marks = 25 Marks

General characteristics of elements of groups 16 and 17

Group - 16: Classification of oxides based on (i) Chemical behaviour and (ii) Oxygen content.

Group - 17: Inter halogen compounds and pseudo halogens.

Organometallic Chemistry :

Definition and classification of organometallic compounds, nomenclature, preparation, properties and applications of alkyls of 12 and 13 group elements

Organic Chemistry - I

Unit - III - Weightage - 10 + 5 Marks = 15 Marks

Structural theory in organic Chemistry:

Types of bond fission and organic reagents (Electrophilic, Nucleophilic and free radical reagents including neutral moleculs like H_2O, NH_3 and $AlCl_3$)

Bond polarization:

Factors influencing the polarization of covalent bonds, electro nagativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance (or) mesomeric effect, application to (a) acidity of phenol and (b) acidity of carboxlic acids. Hyper conjugation and its application to stability of carbonium ions, free radicals and alkenes, carbanions, carbenes and nitrenes.

Types of organic reactions:

Addition - electrophitic - nucleophilic and free radical. Subsitution - electrophilic, nuleophilic and free radical. Elimination - Examples (Mechanism not required)

Unit - IV - Weightage - 2x10 + 2x5 Marks = 30 Marks

Acyclic hydrocarbons :

Alkanes - Preparation of alkanes. Properties - Addition of hydrogen - Heat of hydrogenation and stability of alkanes. Addition of halogen and its mechanism. Addition of HX, Markonikov's rule, addition of H_2O, HOX, H_2SO_4 with mechanism and addition of HBr in the presence of peroxide (anti - Markonikov's addition). Diene - Types of dienes, reaction of conjugated dienes - 1, 2 and 1, 4 addition of HBr to 1, 3 - Butadiene and Diel's Alder reaction.

Alkynes - Preparation by dehydrohalogenation of dihalides, dehalogenation of tetrahalides. Properties - Acidity of acetylenic hydrogen (formation of metal acetylydes). Preparation of higher acetylenes, metal ammonia reductions, physical properties. Chemical reactivity, electrophilic addition of X_2, HX, H_2O (Tautomerism), oxidation with $KMnO_4$, OsO_4, reduction and polymerisation reactions of acetylene.

Alicyclic hydrocarbons (cycloalkanes)

Nomenclature, preparation by Freunds method, heating of dicarboxylic metal salts. Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, stability of cycloalkanes - Baeyer's - Strain theory. Sachse and Mohr predictions and Pitzer's strain theory. Conformational structures of cyclobutane, cyclopentane, cyclohexane.

Unit - V - Weightage - 10 + 2x5 Marks = 20 Marks

Benzene and its reactivity

Concept of resonance, resonance energy, heat of hydrogenation, heat of combustion of benzene, mention of c-c bond length and orbital picture of benzen. Concept of aromaticity - aromaticity (definition), Huckel's rule - application to benzenoid (benzene, Napthalene) and non - Benzenoid compounds cyclopropenyl cation, cyclopentadienyl anion and tropylium cation.)

Reactions:

General mechanism of electrophilic substitution, mechanism of nitration. Friedel craft's alkylation and acylation. Orientation of aromatic substitution -

definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and phenolic). Orientation effect of (i). Amino, methoxy and methyl groups (ii). Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups (iii) Halogens (explanation by taking mimimum of one example from each type).

Additional Syllabus (Without Examination) :

Mathematical Concepts : Logarithmic relations, curve sketching, linear graphs and

calculation of slopes, differentiation of functions like , maxima and minima. Partial differentation and reciprocity relations. Integration of some useful / relevant functions. Permutations and combinations. Factorials - Probability.

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CHEMISTRY **CHE 101CP** 2017-18 onwards I B.Sc

PRACTICAL SYLLABUS

I SEMESTER

Time : 3hrs **QUALITATIVE INORGANIC ANALYSIS AND INORGANIC PREPARATIONS**

Max. Marks : 50

QUALITATIVE INORGANIC ANALYSIS

Analysis of simple salt containing the following one anion and one cation

Analysis of anions : Carbonate, Sulphate, Chloride, Bromide, Iodide, Acetate, Nitrate, Borate, Phosphate

Analysis of cations : Lead, Copper, Cadmium, Iron, Alluminium, Zinc, Manganese, Nickel, Calcium, Strontium, Barium, Potassium and Ammonium.

INORGANIC PREPARATIONS

Answer any ONE of the following :

1. Ferrous ammonium sulphate
2. Tetrammine copper (II) sulphate

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BOTANY **BOT 101C** 2017-18 onwards I B.Sc

SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, ALGAE AND FUNGI

UNIT- I: MICROBIAL WORLD (Origin and Evolution of Life, Microbial diversity (12hrs)

1. Discovery of microorganisms, origin of life, spontaneous, biogenesis, Pasteur experiments, germ theory of disease.

2. Classification of microorganisms – R.H. Whittaker's five kingdom concept, Carl Woese's- Domain system.

3. Brief account of special groups of bacteria- Archaebacteria, Mycoplasma, Chlamydia, Actinomycetes, Rickettsias and Cyanobacteria.

UNIT- II: VIRUSES (12hrs)

1**.** Viruses- Discovery, general account, structure& replication of –T4 Phage (Lytic, Lysogenic) and TMV, Viroids, Prions.

2. Plant diseases caused by viruses– Symptoms, transmission and control measures (Brief account only).

3. Study of Tobacco Mosaic, Bhendi Vein clearing and Papaya leaf curl diseases.

UNIT III: BACTERIA (12hrs)

1. Bacteria: Discovery, General characteristics, cell structure and nutrition.

2. Reproduction- Asexual and bacterial recombination (Conjugation, Transformation, Transduction).

3. Economic importance of Bacteria.

UNIT –IV Algae (12hrs)

1. General account - thallus organization and reproduction in Algae.

2. Fritsch classification of Algae (up to classes only) and economic importance.

3. Structure, reproduction and life history of *Oedogonium, Ectocarpus* and *Polysiphonia*

UNIT V: FUNGI (12hrs)

1. General characteristics and outline classification (Ainsworth).

2. Structure, reproduction and life history of *Rhizopus* (Zygomycota), *Penicillium* (Ascomycota), and *Puccinia* (Basidiomycota).

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GENERAL ENGLISH **ENG 102C** 2017-18 onwards I DEGREE

SYLLABUS

II SEMESTER

GENERAL ENGLISH – II

Unit - I Prose :

1. The Annihilation of caste - Dr B.R. Ambedkar
2. On Shaking Hands - A.G. Gardiner **2x5=10**

Unit - II Poetry :

1. This is a photograph of me - Margaret Atwood
2. I am not that woman - Kishwar Naheed **2x5=10**

Unit - III Non - Detailed :

1. Half a rupee worth (short story) - R.K. Narayan **2x5=10**

Unit - IV Unseen passage **5**

Unit - V Language activity :

1. Paragraph writing (general)

Write a paragraph using the hints given below **5**

2. Synonyms and antonyms (text based) **5**
3. Correction of sentences (text based)

articles and prepositions **5**

4. Curriculum vitae

Prepare CV with the hints given below **5**

5. Question tags (text based) **5**

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Comm. & Soft Skills - I **CSS 102C** 2016-17 onwards I DEGREE

SYLLABUS

II SEMESTER

COMMUNICATION & SOFT SKILLS - I

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1. Communication skills

2. Listening skills

3. Oral communication

4. Stress and intonation

5. Word building

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FOUNDATION COURSE **GSC 102C** 2016-17 onwards I DEGREE

SYLLABUS

II SEMESTER

ENVIRONMENTAL STUDIES

Unit-I : Natural Resources: 6 Hrs

Definition, scope and importance. Need for public awareness.
Brief description of ;
Forest recourses: Use and over-exploitation. Deforestation; timber extraction, mining, dams. Effect of deforestation environment and tribal people

Water resources: Use and over–utilization. Effects of over utilisation of surface and ground water. Floods, drought.
Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
Food resources: World food problems, Effects of modern agriculture; fertilizer pesticide, salinity problems.
Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
Land resources: Land as resources, land degradation, man induced landslides, soil erosion and desertification

Unit-II : Ecosystems, Biodiversity and its conservation 6 Hrs

Concept of an ecosystem
Structure and function of an ecosystem
Producers, consumers and decomposers
Food chains, food webs and ecological pyramids
Characteristic features of the following ecosystems:-
Forest ecosystem, Desert ecosystem, Aquatic ecosystem.
Value of biodiversity: Consumptive use, productive use. Biodiversity in India.
Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts.
Endangered and endemic species of India
Conservation of biodiversity

Unit-III : Environmental Pollution 6 Hrs

Definition
Causes, effects and control measures of :-
a. Air pollution
b. Water pollution
c. Soil pollution
d. Noise pollution

Solid waste management; Measures for safe urban and industrial waste disposal
Role of individual in prevention of pollution
Disaster management: Drought, floods and cyclones

Unit-IV : Social Issues and the Environment **6 Hrs**

From Unsustainable to Sustainable development
Water conservation, rain water harvesting, watershed management.
Climate change, global warming, ozone layer depletion,
Environment protection Act
Wildlife Protection Act, Forest Conservation Act

Unit-V : Human Population and the Environment **6 Hrs**

Population explosion, impact on environment.
Family welfare Programme
Environment and human health“
Women and Child Welfare
Value Education
Role of Information Technology in Environment and humanhealth.

Reference Books :

1. Environmental Studies by Dr.M.Satyanarayana, Dr.M.V.R.K.Narasimhacharyulu, Dr.G. Rambabu and Dr.V.VivekaVardhani, Published by Telugu Academy, Hyderabad.
2. Environmental Studies by R.C.Sharma, Gurbir Sangha, published by Kalyani Publishers.
3. Environmental Studies by Purnima Smarath, published by Kalyani Publishers.

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HISTORY **HIS 102C** 2017-18 onwards I B.A

SYLLABUS

II SEMESTER

INDIAN HISTORY AND CULTURE

UNIT - 1

A brief political survey of south India - Sangam age, literature, society and culture - The age of Satavahanas - Brief political history - Gauthamiputrasatakarni - Socio economic religious cultural developments - History and importance of Amaravathi - Pallavas - Political history their contribution of society and culture - Art and architecture

Chalukayas of Badami period : Vaapi Chalukyas - Eastern Chalukyas of Vengi - Rashtrakutas - Chalukyas of Kalyani - Polity, society, economy, evolution of bhakti tradition art and archecture

Unit - 2

The Cholas : Overview of the history of administration - Social and religious trends - Indian culture - Contacts with South - East Asia and Sri Lanka - Age of the Rajputs : Political history of Rajputs - Socio - culture conditions - Muslim invasions : Arabs, Ghazani and Ghoti and their impact

Unit - 3

Age of Delhi Sultanate : Slave dynasty, Khiji dynasty and Tughlak dynasty - Polity and administration under Delhi Sultanate, society - Composition of rural society, nobility - Status of women. Economic and technological developments. Agriculture - Industry - Trade and commerce - Urbanization, art and architecture - Education and literance - 3

Unit - 4

Impact of Islam on Indian society and culture - Bhakti and Sufi movements - Ramanujacharya Kabir, Meerabai - Emergence of composite culture

The Kakatiya : Outline of political history religious conditions and architecture, literacture - 2

Unit - 5

Vijayanagara Empire : Brief political history - Balamani - Vijayanagara relations of Srikrishnadevaraya - Administration society. Development of literature references

Sum - II Books : Telugu academy text books - Indian history and culture - I

References :

1. AL Srivastava - The Sultanate of Delhi
2. Eswar Prasad - Short history of muslim rule in India
3. KH Neelakanata Sastry - A history of south India
4. Herman Kulke (ed) - The state in India (AD 1000 - 17000 AD)
5. Mohammad Habib and KA Nizami (eds), Comprehensive history of India, Vol-V - The Delhi statement
6. Irfan Habib, Medieral India - The study of a civilization
7. Santosh Chandra - Medieral India
8. Tapan Rayachanduri and Irfan Habinb - Eds Cambridge economic history of India, Vol - I
9. KAN Sastry - The Cholas, Chennai 1975 (Rajput)
10. G. Yezdani - History of the decan, Vol - II, 1960
11. Robert sewall - A forgotten empire - Vijayanagar - A contribution to the history of India
12. Telugu - Ancient Indian history (Sanskruti) - Culture

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POLITICS **POL 102C** 2017-18 onwards I B.A

SYLLABUS

II SEMESTER

CONCEPTS, THEORIES AND INSTITUTIONS

Unit-1: Constitutionalism

1. The Purpose of Constitutional law, Theory of Separation of Powers
2. Structural Forms of the Modern State: Basic features of Parliamentary and Presidential forms of Government

Unit-2: Territorial Division of Authority of the Modern State

1. Basic features of Federal form of Government
2. Basic features of Unitary form of Government

Unit-3: Institutional forms of the Modern State

1. Democracy: Basic features of Classical and Modern Representative Democracy
2. Models of Democracy: Procedural Democracy and Substantive Democracy

Unit-4: Judiciary and Democratic State

1. The nature, role and functions of the Judiciary
2. Judicial Review: Debates on the Supremacy of legislature or Judiciary in the protection of Constitutional law

Reference books:

1. Andrew Heywood (2007) Politics 3rd edition, Palgrave Macmillan, New York
2. Held, David (2006) Models of Democracy 3rd edition Oxford Polity Press
3. Birch A.H (2000) The Concepts and Theories of Democracy, London Routledge
4. Bogdanor, V (Ed) (1988) Constitutions in Democratic Politics Gower, Aldershot
5. Scott Gordon (1999) Controlling the State: Constitutionalism from Ancient Athens to Today, Cambridge, Harvard University Press.

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ECONOMICS **ECO 102C** 2017-18 onwards I B.A

SYLLABUS

II SEMESTER

MICRO ECONOMICS - II (PRODUCTION AND PRICE THEORY)

Unit - 1

Production function-Concept of homogeneous production function-Cobb-Douglas Production function- Law of variable proportions-Law of Returns to Scale - Different Concepts of Costs – Explicit & Implicit, Opportunity, Total – fixed and Variable Costs, Marginal & Average Costs & its Relationship. Concept of Revenue – Total, Marginal & Average Revenue and Break – Even Point

Unit - 2

Analyse different types of Market structures - Perfect Competition - Price determination and equilibrium of firm and industry under perfect competition - Monopoly - Price determination - Price discrimination.

Unit - 3

Monopolistic competition - price determination - Oligopoly - Kinked demand curve approach.

Unit - 4

Marginal Productivity theory of distribution - Theories of wage determination Subsistence theory of wages, Standard of living theory of wages, Modern theory of wages Wages and collective bargaining - concept of minimum wage.

Unit - 5

Theory of Rent: Ricardian theory of rent - Quasi rent concept of Alfred Marshall. Theories of Interest - Classical, Neo-classical and Keynes Liquidity Preference theory - Profit - dynamic, innovations, Risk and Uncertainty theories.

REFERENCES:

1. R.G. Lipsey and K.A.Chrystal - "Economics", Oxford University Press, 10/e, 2004.
2. P.A.Samuelson & W.D. Nordhaus-"Economics", Tata Mc.Graw Hill, 18/e, 2005.
3. N.Gregory Mankiw-"Principles of Economics", Thompson 2015.
4. H.L.Ahuja-"Advanced Economic Theory"' S.Chand, 2004.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2015.
6. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc.Graw Hill, 1971.
7. Telugu Academy Publications
8. D.M. Mithani & G.K. Murty - Business Economics, Himalaya Publishing, 2015.
9. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc.Graw Hill, 1971.

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SPL. ENGLISH **ENG 102CS** 2017-18 onwards I B.Sc

SYLLABUS

II SEMESTER

SPECIAL ENGLISH – II

I. History of English literature

1. Elizabethan period
2. Jacobean period

II. Literary forms and terms

1. Simile
2. Personification
3. Irony
4. Tragedy
5. Comedy
6. Hyperbole

III. Drama

1. Twelfth night - William Shakespeare

IV. Poetry

1. Elegy written in a country churchyard - Thomas Gray

V. Poetry

1. Paradise lost - Book IX

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FUNDAMENTALS OF ACCOUNTING - II **COM 201C** 2017-18 onwards I B.Com

SYLLABUS

II SEMESTER

FUNDAMENTALS OF ACCOUNTING – II

Unit-I: Depreciation :

Meaning of Depreciation - Methods of Depreciation: Straight line – Written down Value – Sum of the Years' Digits - Annuity and Depletion (Problems).

Unit-II: Provisions and Reserves :

Meaning – Provision vs. Reserve – Preparation of Bad debts Account – Provision for Bad and doubtful debts – Provision for Discount on Debtors – Provision for discount on creditors - Repairs and Renewals Reserve A/c (Problems).

Unit-III: Bills of Exchange :

Meaning of Bill –Features of bill – Parties in the Bill – Discounting of Bill – Renewal of Bill –Entries in the books of Drawer and Drawee (Problems).

Unit-IV: Consignment Accounts :

Consignment - Features - Proforma invoice - Account sales – Del-credre Commission - Accounting treatment in the books of consigner and consignee - Valuation of closing stock - Normal and Abnormal losses (Problems).

Unit-V: Joint Venture Accounts :

Joint venture - Features - Differences between Joint-venture and consignment – Accounting procedure - Methods of keeping records (Problems).

Reference Books:

1. R.L. Gupta & V.K. Gupta, Principles and Practice of Accounting, Sultan Chand
2. T. S. Reddy and A. Murthy - Financial Accounting, Margham Publications.
3. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers.
4. Tulsan, Accountancy-I, Tata McGraw Hill Co.
5. V.K. Goyal, Financial Accounting, Excel Books
6. T.S. Grewal, Introduction to Accountancy, Sultan Chand & Co.
7. Haneef and Mukherjee, Accountancy-I, Tata McGraw Hill
8. Arulanandam, Advanced Accountancy, Himalaya Publishers

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BUSINESS ENVIRONMENT **COM 202C** 2017-18 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ENVIRONMENT

Unit – I: Overview of Business Environment :

Business Environment – Meaning – Macro and Micro Dimensions of Business Environment – Economic – Political – Social – Technological – Legal – Ecological – Cultural – Demographic –Changing Scenario and implications – Indian Perspective – Global perspective.

Unit – II: Economic Growth :

Meaning of Economic growth – Factors Influencing Development – Balanced Regional Development.

Unit – III - Development and Planning :

Rostow's stages of economic development - Meaning – Types of plans – Main objects of planning in India – NITI Ayog and National Development Council – Five year plans.

Unit – IV : Economic Policies :

Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Union budget – Structure and importance of Union budget – Monetary policy and RBI.

Unit – V -Social, Political and Legal Environment :

Concept of Social Justice - Schemes - Political Stability - Leal Changes.

Suggested Readings:

1. Rosy Joshi and Sangam Kapoor : Business Environment.
2. Francis Cherunilam : Business Environment.
3. S.K. Mishra and V.K. Puri : Economic Environment of Business.
4. K. Aswathappa : Essentials of Business Environment.

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Business Economics - II **COM 203C** 2017-18 onwards I B.Com

SYLLABUS

II SEMESTER

BUSINESS ECONOMICS – II

Unit-I : Production and costs:

Techniques of Maximization of output, Minimization of costs and Maximization of profit – Scale of Production – Economics and Dis-economics of Scale – Costs of Production – Cobb Douglas production Function.

Unit-II: Market Structure-I:

Concept of Market – Market structure – Characteristics – Perfect competition – characteristics equilibrium price – Profit maximizing output in the short and long run Monopoly – characteristics – Profit maximizing out-put in the short and long run-Defects of Monopoly – Distinction between perfect competition and Monopoly.

Unit-III: Market Structure-II:

Monopolistic Competition – Characteristics – Product differentiation – Profit maximization – Price and output in the short and long –run-Oligopoly – characteristics – Price rigidity –Kinked Demand Curve – Distribution Concept – Marginal Productivity Theory of Distribution.

Unit-IV: National Income And Economic Systems:

National Income – Definition Measurement – GDP – Meaning Fiscal deficit – Economic systems – Socialism – Mixed Economic System - Free Market economy.

Unit-V: Structural Reforms:

Concepts of Economic liberalization, Privatization, Globalization –WTO Objectives Agreements – Functions – Trade cycles – Meaning – Phases – Benefits of International Trade –Balance of Trade and Balance of payments.

UNIT-VI : Factor pricing

Theories of wages determination – Wages and Collective bargaining – Minimum wage Rent – Scarcity Rent, Differential Rent, Quasi Rent.

Reference Books:

1.Dr. S.Sankaran, Business Economics – Margham Publications.
2.Business Economics – Kalayani Publications
3. Business Economics – Himalaya Publishing House
4.Aryasri and Murthy Business Economics, Tata Mcgraw Hill
5. Business Economics, Maruthi Publications

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MATHEMATICS **MAT 102C** 2017-18 onwards I B.Sc

SYLLABUS

II SEMESTER

DIFFERENTIAL EQUATIONS - II & SOLID GEOMETRY – II

DIFFERENTIAL EQUATIONS - II

UNIT - 1

Higher order linear differential equations: Linear differential equations with constant coefficients, Solution of homogeneous linear differential equations of order n with constant coefficients, Solution of the non-hompgeneous linear differential equations with constant coefficients by means of polynomial operators. Methods of finding particular integral of $f(D)y=Q$ when $Q(x)$ is of the form i) be^{ax} ii) b sin ax or b cos ax iii) bx^k and $P(D) = D - a_0$, a_00 iv) bx^k and $P(D) = a_nD^n+a_{n-1}D^{n-1} + ... a1D$ v) e^{ax} V, where V is a function of x vi) be^{ax} and $P(a)=0$ vii) xV, where V is any function x

(3 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 2

Linear differential equations with non-constant coefficients - General solution in terms of nonsolution of the completary function, General by changing the dependentate variable, General solution by chaining independent variable, Method of variation of parameters, The cauchy - Euler equation.

System of linear differential equations - Solution of a system of linear equations with constant coefficients, An equivalent triangular system, Degenerate case : $p_1(D)p_4(D)-p_2(D)p_3(D)=0$

(1 short answer questions, 1 long answer questions will be given in the examination)

SOLID GEOMETRY - II

UNIT - 3

Spheres - I : Definition and equation of the sphere - Equation of the sphere through four given points - plane sections of a sphere. Intersection of two spheres - Equation of a circle. Sphere through a given circle - Intersection of a sphere and a line. Power of a point - Tangent line and tangent plane of a sphere - plane of contact. Polar plane. Pole of plane, Conjugate points, Conjugate planes.

(2 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 4

Spheres - II : Angle of intersection of two spheres. Conditions for two spheres to be orthogonal - Radical plane. Radical line. Radical centre - Coaxial system of spheres. Simplified form of a coaxal system of spheres. Limiting points of a coaxal system of spheres.

(1 short answer questions, 1 long answer questions will be given in the examination)

UNIT - 5

The cone: Definitions of a cone, vertex, guiding curve, generators. Equation of the cone with a given vertex and guiding curve - Enveloping cone - Quadratic cone - Equations of cones with vertex at origin and homogeneous - Condition that the general equation of the second degree should represent a cone - Condition that a cone may have three mutually perpendicular generators - Intersection of a line and a quadric cone - Tangent lines and tangent plane at a point - Condition that a plane may touch a cone - Reciprocal cones - Intersection of two cones with a common vertex - Right circular cone - Equation of the right circular cone with a given vertex, axis and semi-vertical angle.

(2 short answer questions, 2 long answer questions will be given in the examination)

UNIT - 6

The cylinder: Definition of a cylinder - Equation to the cylinder whose generators intersect a given conic and are parallel to a given line - Enveloping cylinder - The right circular cylinder - Equation of the right circular cylinder with a given axis radius.

(1 short answer questions, 1 long answer questions will be given in the examination)

PRESCRIBED BOOK

Dr. A. Anjeneyulu, A text book of B.Sc. Mathematics, Vol. I, DEEPTI PUBLICATIONS, Tenali

REFERENCE BOOKS

1. V.Venkateswara Rao and others, A text book of B.Sc. Mathematics, Vol. I, S CHAND & Co.

2. Zafar Ahsan, Differential Equations and their applications, Prentice-Hall of India Pvt. Ltd.

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PHYSICS **PHY 102C** 2017-18 onwards I B Sc.

SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

MECHANICS

UNIT I Mechanics of continuous media (8)

Definitions of Elastic constants of isotropic solids (Y, K and n) , Derivation of relation between elastic Constants (Y, K and n), Definition of Poisson's ratio and expression for Poisson's ratio in terms of Y, K and n, Classification of beams, Types of bending, Point load, Distributed load, Shearing force and Bending moment, Cantilever with an end load.

UNIT II Central forces (12)

Central forces, definition of Central forces with examples, Conservative nature of central forces, Conservative force as a negative gradient of Potential Energy, Equation of motion under a central force, gravitational field(Definition), Kepler's laws Statements, Derivation of Kepler's laws.

UNIT III Special theory of relativity (10)

Relativity (definition), Frames of References-Difference between inertial and non- inertial frames of reference, Galilean Transformations, absolute frames of reference, Michelson-Morley experiment, Postulates of special theory of relativity. Lorentz transformations, Time dilation, length contraction, Einstein's mass - energy relation.

WAVES AND OSCILLATIONS

UNIT IV Vibrating Strings (12)

Transverse waves(Definition only),Transverse wave propagation- Wave equation-general solution of wave equation, Simple Harmonic Solution of wave equation, Velocity of Transverse wave along a stretched string, modes of vibration of stretched string clamped at both ends, Harmonics and overtones. Laws of Transverse vibrations (Laws only).

UNIT V Vibrations of bars and pendulums (12)

Longitudinal waves (Definition only),Velocity of Longitudinal vibrations in bar, Longitudinal vibrations of a bar (i) bar fixed at both ends ,(ii) bar fixed at the midpoint,

Torsional pendulum - measurements of rigidity modulus (Experiment), compound pendulum - measurement of Acceleration due to gravity (Experiment).

UNIT VI Ultrasonics (6)

Ultrasonics, Properties of ultrasonic waves, Production of ultrasonics by piezo electric method , Production of ultrasonics by Magnetostriction method, Detection of ultrasonic waves – Piezo-electric method, Kundt's tube and Sensitive flame methods, Determination of wavelength and Velocity of ultrasonic waves by Sear's method. Applications of ultrasonic waves.

Reference Books

*1. **Berkeley Physics Course. Vol.1**, by C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

*2. **Mechanics** by C. Kittel, W. Knight, M.A.Ruderman - Tata-McGraw hill Company Edition 2008.*

*3. **Fundamentals of Physics**. Halliday/Resnick/Walker Wiley India Edition 2007.*

*4. **Waves and Oscillations**. S. Badami, V. Balasubramanian and K. Rama Reddy Orient Longman.*

*5. **First Year Physics** - Telugu Academy.*

*6. **Mechanics of Particles, Waves and Oscillations**. Anwar Kamal, New Age International.*

*7. **College Physics-I**. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.*

*8. **Introduction to Physics for Scientists and Engineers**. F.J. Ruche. McGraw Hill.*

*9. **Waves and Oscillations**. N. Subramaniyam and Brijlal Vikas Publishing House Private Limited.*

*10. **Fundamentals of Physics** by Alan Giambattista et al Tata-McGraw Hill Company Edition, 2008.*

*11. **University Physics** by Young and Freeman, Pearson Education, Edition 2005.*

*12. **Sears and Zemansky.s University Physics** by Hugh D. Young, Roger A.Freedman Pearson Education Eleventh Edition.*

*13. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. The McGraw Hill Companies.*

*14. **Mechanics**. Hans & Puri. TMH Publications.*

*15. **Engineering Physics**. R.K. Gaur & S.L. Gupta. Dhanpat Rai Publications.*

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PHYSICS **PHY 102CP** 2017-18 onwards I B Sc.

PRACTICAL SYLLABUS

II SEMESTER

MECHANICS, WAVES AND OSCILLATIONS

At least 06 experiments from the following:

1. Measurement of errors – Simple Pendulum.
2. Determination of the coefficient of Viscosity of water by Poiseulli's Method.
3. Determination of the Rigidity Modulus of the material of a wire using Torsional Pendulum
4. Determination of the Surface Tension of water by Capillary Rise Method.
5. Determination of the speed of waves on a stretched string using Sonometer.
6. Verification of Laws Transverse waves of a stretched string using Sonometer.
7. Determination of Radius of Capillary tube by Hg thread method.
8. Measurements of Slit width using travelling microscope.
9. Determination of the Young's Modulus by uniform bending.

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CHEMISTRY **CHE 102C** 2017-18 onwards I B.Sc

SYLLABUS

II SEMESTER

PHYSICAL CHEMISTRY & GENERAL CHEMISTRY

PHYSICAL CHEMISTRY - I

Unit - I

1. Solid state: - Weightage - 10 + 5 + 5 Marks

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Definition of lattice point, space lattice, unit cell. Bravis lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Determination of crystal structure by Bragg's method and the powder method. Indexing of planes and structure of NaCl and KCl crystals.

Defects in crystals. Stoichiometric and non-stoichiometric defects. Band theory of semiconductors. Extrinsic and intrinsic semi conductors, n-type and p-type semi conductors and their applications of photo electrochemical cells.

Unit - II

1. Gaseous state : - Weightage - 10 + 5 Marks

Compression factors, deviation of real gases from ideal behaviour. Vander Waal's equation of state. P - V Isotherms of real gases, Andrew's isotherms of carbon dioxide, continuity of state. Critical phenomena. The Vander Waal's equation and the critical constant. Relationship between critical constants and Vander Waal's constants. Joule Thomson effect. Liquefaction of gases : i) Linde's method and ii) Claude's method

2. Liquid state : - Weightage - 10 + 5 Marks

Intermolecular forces. Structure of liquids (qualitative description) structural differences between solids, liquids and gases. Liquid crystals, the mesomorphic state, classification of liquid crystals into Smectic and Nematic. Differences between liquid crystal and solid / liquid. Application of liquid crystals as LCD devices.

Unit - III

1. Solutions: - Weightage - 10 + 5 Marks

Liquid - liquid - ideal solutions, Raoult's law. Ideally dilute solutions, Henry's law. Non - ideal solutions, vapour pressure - composition and vapour pressure - temperature curves. Azeotropes - HCl - H_2O, ethanol - water, trimethylamine - water nicotine - water systems. Effects of impurity on consulate temperature. Immiscible liquids and steam distillation.

Nernst distribution law. Calculation of the partition co-efficient. Applications of distribution law.

GENERAL CHEMISTRY - I

Unit - IV

1. Surface chemistry : - Weightage - 10 + 5 Marks

Definition of colloids. Solids in liquids (sols), preparation, purification, properties - kinetic, optical, electrical. Stability of colloids, Hardy - Schulze law, protective colloid. Liquids in liquids (emulsions) preparation, properties, uses. Liquids in solids (gels) preparation, uses. Adsorption : Physical adsorption, chemisorption. Freundlisch, Langmuir adsorption isotherms. Applications of adsorption.

2. Chemical bonding : - Weightage - 10 + 5 Marks

Valence bond theory, hybridization, VB theory as applied to CIF_3, $Ni(CO)_4$, Dipole moment - Orientation of dipoles in an electric field, dipole moment, induced dipole moment. Dipole moment and structure of molecules. Molecular orbital theory - LCAO method, construction of M.O. diagrams for homo - nuclear and hetero - nuclear diatomic molecules (N_2, O_2, CO and NO).

Unit - V

Sterochemistry of carbon compounds : - Weightage - 10 + 10 + 5 Marks

Steroisomerism, steroisomers; enatiomers, diasteromers. Definition and examples. Conformational and configurational somerism. Definition, conformational somerism of ethane and n - butane. Enantiomers : Optical activity wave nature of light, plane polarised light, interaction with molecules, optical rotation and specific rotation. Chiral molecules - Definition and criteria - Absence of plane, center and axis of symmetry - Asymmetric and disymmetric molecules. Example of asymmetric molecules (Glyceraldehyde, lactic acid, alanine) and disymmetric molecules (trans - 1, 2 - dichloro cyclopropane).

Chiral centres : Definition - Molecules with similar chiral carbons (tartaric acid), definition of mesomers. Molecules with dissimilar chiral carbons (2, 3 - dibromo pentane). Number of enantiomers and mesomers - Calculations. DL and RS configuration for asymmetric and disymmetric molecules. Cahn - Ingold - Prelog rules. Racemic mixture, racemisation and resolution techniques.

Diasteromers : Definition - Geometrical isomerism with reference to alkenes - cis, trans and E, Z - Configuration.

Additional Syllabus (Without Examination) :

Computers : General introduction to computers, different components of a computer,

hardware and software, input - output devices, binary numbers and arithmatic. Introduction to computer language, programming, operating systems.

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CHEMISTRY **CHE 102CP** 2017-18 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

Time : 3hrs **QUALITATIVE INORGANIC ANALYSIS AND INORGANIS PREPARATIONS** Max. Marks : 50

Analysis of mixtures containing two anions and two cations (of different groups) from the following

Anions :

Sulphate, Chloride, Bromide, Iodide, Acetate, Nitrate, Borate, Phosphate (without interfering)

Cations :

Lead, Copper, Iron, Aluminum, Zinc, Manganese, Calcium, Strontium, Barium, Potassium and Ammonium

Preparations :

Any ONE of the following inorganic preparations

1. Potash alum
2. Hexamine cobalt (III) chloride
3. Potassium trisoxalato chromate

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BOTANY **BOT 102C** 2017-18 onwards I B.Sc

SYLLABUS

II SEMESTER

DIVERSITY OF ARCHAEGONIATES AND PLANT ANATOMY

UNIT – I : BRYOPHYTES (12hrs)

1. Bryophytes: General characters, Classification (up to classes)

2. Structure, reproduction and Life history of *Marchantia*, and *Funaria.*

3. Evolution of Saprophyte in Bryophytes.

UNIT - II : PTERIDOPHYTES (12hrs)

1**.** Pteridophytes**:** General characters, classification (up to Classes)

2. Structure, reproduction and life history of *Lycopodium*, and *Marsilea.*

3. Heterospory and seed habit.

4. Evolution of stele in Pteridophytes.

UNIT – III : GYMNOSPERMS (12hrs)

1. Gymnosperms: General characters, classification (up to classes)

2. Morphology, anatomy**,** reproduction and life history of *Pinus and Gnetum*

3. Economic importance with reference to wood, essential oils and drugs

UNIT – IV : Tissues and Tissue systems (12hrs)

1. Meristems - Root and Shoot apical meristems and their histological organization.

2. Tissues – Meristematic and permanent tissues (simple, complex, secretory)

3. Tissue systems**–**Epidermal, ground and vascular.

UNIT – V : Secondary growth (12hrs)

1. Anomalous secondary growth in *Achyranthes, Boerhaavia* and *Dracaena*.

2. Study of local timbers of economic importance-Teak, Rosewood, Red sanders and Arjun (Tella maddi).

Suggested activity: Collection of *Marsilea* sporocarp, *Pinus* needles, male and female cones, study of *Pinus* pollen grains, collection of locally available economically useful timbers.

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BOTANY **BOT 102CP** 2017-18 onwards I B.Sc

SYLLABUS

II SEMESTER

DIVERSITY OF ARCHAEGONIATES AND PLANT ANATOMY

1. Morphology (vegetative and reproductive structures) , anatomy of the following :

Marchantia, Funaria, Lycopodium and *Pinus.*

2. Anatomy:

a) Demonstration of double staining technique.

b) Tissue organization in root and shoot apices using permanent slides

c) Preparation of double staining slides

d) Anomalous secondary structure of *Achyranthes, Boerhavia* and *Dracaena.*

e) Anatomical study of wood in T.S., T.L.S. and R.L.S.

3. Field visits to local timber depots.

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ZOOLOGY **ZOO 102C** 2017-18 onwards I B.Sc

SYLLABUS

II SEMESTER

ANIMAL DIVERSITY – CHORDATES

Unit - I

1.1 General characters of Chordata

1.2 Prochordata

1.2.1 Salient features of Cephalochordata

1.2.2 Structure of *Branchiostoma*

1.2.3 Affinities of Cephalochordata

1.2.4 Salient features of Urochordata

1.2.5 Structure and life history of *Herdmania*

1.2.6 Significance of Retrogressive metamorphosis

Unit - II

2.1 Cyclostomata

2.1.1 General characters of Cyclostomata

2.1.2 Comparision of the *Petromyzon* and *Myxine*

2.2 Pisces

2.2.1 General characters of Fishes

2.2.2 Classification of fishes up to sub - class level with examples

2.2.3 *Scoliodon* - External features, Digestive system, Respiratory system, Heart, Brain

2.2.4 Migration in Fishes

2.2.5 Types of Scales

2.2.6 Dipnoi

Unit - III

3.1 Amphibia

3.1.1 General characters of Amphibian

3.1.2 Classification of Amphibia upto orders with examples.

3.1.3 *Rana hexadactyla* - External features, Digestive system, Respiratory system, Heart, Brain

3.2 Reptilia

3.2.1 General characters of Reptilia

3.2.2 Classification of Reptilia upto orders with examples

3.2.3 *Calotes* - External features, Digestive system, Respiratory system, Heart, Brain

3.2.4 Identification of Poisonous snakes and Skull in reptiles

Unit - IV

4.1 Aves

4.1.1 General characters of Aves
4.1.2 Classification of Aves upto subclasses with examples.
4.1.3 *Columba livia* - External features, Digestive system, Respiratory system, Heart, Brain
4.1.4 Migration in Birds
4.1.5 Flight adaptation in birds

Unit - V

5.1 Mammalia

5.1.1 General characters of Mammalia
5.1.2 Classification of Mammalia upto sub - classes with examples
5.2 Comparision of Prototherians, Metatherians and Eutherians
5.3 Dentition in mammals

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ZOOLOGY PRACTICALS **ZOO 102CP** 2017-18 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

Time : 3 hrs **ANIMAL DIVERSITY - CHORDATES** Max. Marks : 50

Observation of the following slides / spotters / models

Protochordata : *Herdmania, Amphioxus, Amphioxus* T.S. through pharynx

Cyclostomata : *Petromyzon, Myxine*

Pisces : *Pristis, Torpedo, Channapleuronectes, Hippocampus, Exocoetus, Eheneis, Labeo, Catla, Clarius, Auguilla,Protopterus*, Placoid scale, Cycloid scale, Ctenoid scale

Amphibia : *Ichthyophis, Amblystoma, Siren, Hyla, Rachophous,* Axolotl larva

Reptilia : *Draco, Chemaeleon, Uromastix, Vipera russeli, Naja, Bungarus, Enhydrina, Testudo, Trionyx, Crocodilus*

Aves : *Passer, Psittacula, Bubo, Alcedo, Columba, Corvus, Pavo*

Study of different types of feathers : Quill, Contour, Filoplume, Down feather

Mammalia : *Ornithorthynchus, Tachyglossus, Pteropus, Funambulus, Manis, Loris,* Hedgehog

Osteology : Appenducular skeletons of *Varanus,* Pigeon

Rabbit - Skull, fore limbs, hind limbs and girdles

Demonstration of dissection / dissected / virtual dissection :

1. V, VII, IX, X cranial nerves of shark / locally available fishes
2. Arterial system, venous system of Shark / Calotes / Fowl / Rat
3. Digestive system of fish

b Laboratory record work shall be submitted at the time of practical examination

b Compulsory one species to be adopted for demonstration only be the faculty

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COMPUTER SCIENCE **CSC 102C** 2017-18 onwards I B.Sc

SYLLABUS

II SEMESTER

PROGRAMMING IN C

UNIT I :

Introduction to Algorithms and Programming Languages : Algorithm – Key features of Algorithms – Some more Algorithms – Flow Charts – Pseudo code – Programming Languages– Generations – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

Introduction to C : Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in CProgramming. Examples – Type Conversion and Type Casting

UNIT II :

Decision Control and Looping Statements : Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

Functions : Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions – Type of recursion – Towers of Hanoi – Recursion vs Iteration

UNIT III :

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations that can be performed on Array – one dimensional array for inter-function communication – Two dimensional Arrays – Operations on Two Dimensional Arrays - Two Dimensional Arrays for inter-function communication – Multidimensional Arrays – Sparse Matrices

Strings : Introduction –Suppressive Input – String Taxonomy – String Operations – Miscellaneous String and Character functions

UNIT IV :

Pointers : Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Generic Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function – Difference between Array Name and Pointer – Pointers and Strings – Array of pointers – Pointer and 2D Arrays – Pointer and 3D Arrays – Function Pointers – Array 0f Function Pointer – Pointers to Pointers – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Structure, Union, and Enumerated Data Types : Introduction – Nested Structures – Arrays of Structures – Structures and Functions – Self referential Structures – Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types

UNIT V :

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments – Functions for Selecting a Record Randomly - Remove() – Renaming a File – Creating a Temporary File

TEXT BOOK

1. E Balagurusamy, Programming in ANSI C, McGraw-Hill, Six Ed 2012, ISBN 978- 1259004612, 572 pages

2. Y Kanetkar, Let us C BPB, 13th Edition-2013, ISBN: 978-8183331630, 656 pages

3. Dennis M. Ritchie and Brian W. Kernighan, “The C Programming Language PHI; 2 edition, 1990 ISBN: 978-8120305960, 284 pages

REFERENCE BOOKS

1. Computer Fundamentals and Programming in C by Reema Thareja, Oxford University Press

2. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.

3. Henry Mullish & Huubert L.Cooper: The Sprit of C, Jaico Pub. House,1996.

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COMPUTER SCIENCE **CSC 102CP** 2017-18 onwards I B.Sc

PRACTICAL SYLLABUS

II SEMESTER

PROGRAMMING IN C

1. Find the biggest of three numbers using C.
2. Write a C program to find the sum of individual digits of a positive integer.
3. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
4. Write a C program to check whether a number is Armstrong or not
5. Write a program to perform various string operations
6. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
7. Write a C program that uses functions to perform the following:
    a. Addition of Two Matrices
    b. Multiplication of Two Matrices
8. Write C program that implements searching of given item in given list
9. Write a C program to sort a given list of integers in ascending order
10. Write a C program to perform various operations using pointers?
11. Write a C program to read data of 10 employees with a structure of 1. Employee id, 2. Aadar no., 3. Title, 4. Joined date, 5. Salary, 6. Date of Birth, 7. Gender, 8. Department

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NCC **NCC 102C** 2017-18 onwards I DEGREE

SYLLABUS

II SEMESTER

NCC ELECTIVE – II

UNIT - I

HEALTH AND HYGIENE **8x2=16**

Hygiene - Personal hygiene
Muscles and Bones in human body
Communicable diseases - Examples
Preventive measures for Malaria
Sanitation - Purification of water

UNIT - II

DRILL AND BASICS OF WEAPON TRAINING **8x2=16**

Aims of Drill - Commands and their meanings
Points to be observed while Saluting
Rashtriya Salute - Sequence of action while firing a shot
Laws of aiming - Difference between Loading a Rifle and Charging the Magazine
Parts of SLG - Qualities of a good firer
National Salute - General Salute Guard of honor

UNIT - III

ENVIRONMENT, ECOLOGY AND POLLUTION **9x2=18**

Definition of ecology and climate
Parasites - Pollution - Types of pollution
Reasons for Air Pollution, Water Pollution, Noise Pollution and Land Pollution
NCC Cadets and Pollution check

UNIT-1V ADVENTURE ACTIVITIES AND YOGASANAS **5x2=10**

Land based adventure activities - Adventure training and its uses to NCC Cadets
Advantages of Yogasanas- Types of Asanas- Yogasanas and how they help cure certain diseases.

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BOTANY **BOT 101CP** 2017-18 onwards I B.Sc

PRACTICAL SYLLABUS

I SEMESTER

MICROBIAL DIVERSITY, ALGAE AND FUNGI

1. Knowledge of Equipment used in Microbiology: Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, laminar air flow chamber and Incubator.
2. Preparation of liquid and solid media for culturing of microbes (Demonstration).
3. Study of viruses and bacteria using electron photo micrographs (TMV, Bacteriophage, HIV, Cocci, Bacillus, Spirillum bacteria).
4. Gram staining technique.
5. Study of Plant disease symptoms caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and viruses (TMV, Bhendi vein clearing and Leaf curl of Papaya),Fungi (Late blight of potato, Red rot of Sugarcane and Paddy blast).
6. Study of vegetative and reproductive structures of the following:
    a) **Cyan bacteria:** *Nostoc and Scytonema.*
    b) Algae: *Oedogonium, Ectocarpus, Polysiphonia*,
    c) Fungi: *Rhizopus, Penicillium and Puccinia.*
7. Study of plant material infected by Fungi (Rot of tomatoes, blue and green moulds of Citrus fruits and wheat rust (Section cutting of diseased parts of Wheat and Barberry -identification of different Spores).
8. Lichens: Morphology and of anatomy of different thalli.
9. Field Visit.

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ZOOLOGY **ZOO 101C** 2017-18 onwards I B.Sc

SYLLABUS

I SEMESTER

ANIMAL DIVERSITY - NON CHORDATES

Unit - I

1.1 Brief history, Significance of Diversity of Non Chordates

1.2 **Protozoa**

1.2.1 General characters

1.2.2 Classification of Protozoa up to classes with examples

1.2.3 *Elphidium* (type study)

1.3 **Porifera**

1.3.1 General characters

1.3.2 Classification of Porifera up to classes with examples

1.3.3 *Sycon* – External Characters, Types of cells,

1.3.4 Skelton in Sponges

1.3.5 Canal system in sponges

Unit - II

2.1 **Coelenterata**

2.1.1 General characters

2.1.2 Classification of Coelenterata up to classes with examples

2.1.3 *Obelia* - External Characters, Structure of Polyp and Medusa

2.1.4 Polymorphism in coelenterates

2.1.5 Corals and coral reef formation

2.2 **Platyhelminthes**

2.1.1 General characters

2.1.2 Classification of Platyhelminthes upto classes with examples

2.1.3 *Fasciola hepatica* - External Characters, Excretory system, Reproductive System, Life History and pathogenicity

Unit - III

3.1 **Nemathelminthes**

3.1.1 General characters

3.1.2 Classification of Nemathelminthes up to classes with examples

3.2 **Annelida**

3.2.1 General characters

3.2.2 Classification of Annelida up to classes with examples

3.2.3 *Hirudinaria granulosa* - External Characters, Digestive System, Excretory System and Reproductive System

3.2.4 Coelomoducts

3.2.5 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost

Unit - IV

4.1 **Arthropoda**

4.1.1 General characters

4.1.2 Classification of Arthropoda up to classes with examples
4.1.3 Prawn - External Characters, Appendages, Respiratory system and Circulatory System
4.1.4 *Peripatus* - Structure and affinities

4.2 Mollusca

4.2.1 General characters
4.2.2 Classification of Mollusca up to classes with examples
4.2.3 Pearl formation in Pelecypoda
4.2.4 Torsion in gastropods

Unit - V

5.1 Echinodermata

5.1.1 General characters
5.1.2 Classification of Echinodermata up to classes with examples
5.1.3 Water vascular system in star fish

5.2 Hemichordata

5.2.1 General characters
5.2.2 Classification of Hemichordata up to classes with examples
5.2.3 *Balanoglossus* - Structure and affinities

5.3 Non-Chordata larval forms

5.3.1 Amphiblastula
5.3.2 Ephyra
5.3.3 Trochophore
5.3.4 Nauplius
5.3.5 Glochidium
5.3.6 Bipinnaria
5.3.7 Tornaria

REFERENCE BOOKS

1. The Invertebrates. by L.H. Hyman. Vol I, II and V. . M.C. Graw Hill Company Ltd .
2. Invertebrate Zoology. - A functional Evolutionary approach. Ruppert, Fox and Barnes., Thomas publishers. Indian Edition.
3. Invertebrate Zoology. by E.L. Jordan and P.S. Verma., S.Chand and Company.
4. Invertebrate Zoology. by R.D. Barnes : W.B. Sauwonders CO., 1986.
5. Invertebrate structure and Function. by Barrington. E.J.W ., ELBS.
6. A student text book of Zoology. by Sedgwick, A., Vol-I, II and III . Central Book Depot, Allahabad.
7. A text book of Zoology. by Parker, T.J. and Haswell, W.A., Mac Millan Co. London.
8. Textbook of Invertebrates. by Kavita Juneja and H.S. Bhamrah.

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PRACTICAL SYLLABUS

I SEMESTER

Time : 3 hrs **ANIMAL DIVERSITY - NON CHORDATES** Max. Marks : 50

Observation of the following slides / spotters / models

Protozoa : *Elphidium, Paramecium* - Binary fission and conjugation

Porifera : *Spongilla, Euspongia, Sycon, Sycon* - T.S and L.S

Coelenterata : *Obelia* - colony and medusa, *Physalia, Velella, Corallium, Gorgonia, Pennatula*

Platyhelminthes : *Planaria, Fasciola hepatica, Fasciola* larval forms - Miracidium, Redia, Cercaria, *Echinococcus granulosus*

Nemathelminthes : *Ascaris* - Male and female, *Ancylostoma duodenale*

Annelida : *Neries, Heteroneries, Aphrodite, Hirudo,* Trochophore larva

Arthropoda : Mouth parts of male and female *Anopheles* and *Culex*, Mouth parts of housefly, Mouth parts of Scorpion, Nauplius, Mysis, Zoea larvae, crab, prawn, *Scolopendra, Sacculina, Limulus, Peripatus*

Mollusca : *Chiton, Murex, Sepia, Loligo, Octopus, Nautilus,* Glochidium larva

Echinodermata : *Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon, Asterias,* Bipinnaria larva

Hemichordata : *Balanoglossus*, Tornaria larva

Demonstration of dissection / dissected / virtual dissection :

1. Leech / Prawn / Scorpion / Crab - Digestive system 2. Prawn - Appendages
3. Prawn / Scorpion / Crab - Nervous system
4. *Pila* / Unio - Digestive system
5. Mounting of Statocyst 6. Mounting of Radula

b Laboratory record work shall be submitted at the time of practical examination

b Compulsory one species to be adopted for demonstration only by the faculty

b Computer aided techniques should be adopted as per UGC guide lines

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COMPUTER SCIENCE **CSC 101C** 2017-18 onwards I B.Sc

SYLLABUS

I SEMESTER

COMPUTER FUNDAMENTALS AND MS OFFICE

Unit – I

Introduction to Computers
Input and Out Put Devices

Unit – II

Computer Memory and Processors
Number Systems and Computer Codes

Unit – III

Computer Software
Operating Systems

Unit – IV

Introduction to Algorithms and Programming Languages
MS Word :
Getting Started
Working with Microsoft Office 2007
Understanding Word Basics.Editing and Formatting Text.Formatting Documents
Working with Graphic Objects
Microsoft Powerpoint :
Understanding Powerpoint Basics. Formatting and Modifying Presentations. Enchancing the Presentation.
MS Access : Basics of Database Table, form, Query

Unit – V

Microsoft Excel :
Understanding Excel Basics. Formatting and Editing the Worksheet. Using Formulas and Functions.Working with Charts.

TEXT BOOK:

1. Fundamentals Of Computers " by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. Microsoft Office 2007 Fundamentals, 1st Edition By Laura Story, Dawna Walls UNIT IV, V.

REFERENCE BOOK:

1. "Computer Fundamentals and Programming in C" by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. **PC SOFTWARE UNDER WINDOWS** by Puneet Kumar And SushilBhardwaj From Kalyani Publishers

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COMPUTER SCIENCE **CSC 101CP** 2017-18 onwards I B.Sc

PRACTICAL SYLLABUS

I SEMESTER

Time : 3 hrs **COMPUTER FUNDAMENTALS AND MS OFFICE** Max. Marks : 50

1. Desine a visiting card
2. Prepare a employe salary statement
3. Create microformat document
4. Create interview call letter
5. Create a pie chart
6. Create electronic spread sheet
7. Create a power point presentation
8. Crate a database tables
9. Create a header and footer
10. Create a different charts

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NCC **NCC 101C** 2017-18 onwards I DEGREE

SYLLABUS

I SEMESTER

NCC ELECTIVE – I

UNIT - I

INRODUCTION **8x2=16**

NCC - Motto - NCC Song and its meaning

NCC Flag - Its colors - Administrative skeleton of NCC

Incentives to NCC Cadets - NCC Awards - Divisions in NCC

UNIT-II

NATIONAL INTEGRATION AND INDIA'S INSIGNIA SYMBOLS

8x2=16

Definition of National Integration and its importance

Major religions in India - Meaning of Unity in Diversity

Neighbours of India - Measures taken by the Government for youth development

National Anthem - National Flag- National Bird - National Flower - National Animal

Names of those who wrote Janaganamana, Sare Jahan Se Achha and Vandemataram

UNIT - III

LEADERSHIP AND MOTIVATION **9x2=18**

Definition of leader - Types of leaders

Leadership traits - Values of a good leader

Duty and Discipline - Motivation - Types of motivation

UNIT - IV

CITIZEN AND DUTY **5x2=10**

Who is a citizen ?

Good citizen Duty Discipline