B.Sc. LL.B. (Hons.)

ENGLISH -I

Paper 1.1 **Maximum Marks : 50**

Aims / Learning Objectives

1. Enable the students to use the language correctly and effectively.
2. Enhance the comprehension and analytical skills of the students.
3. Enrich their vocabulary.
4. help students acquire the ability to speak effectively in English in real-life situations
5. Develop the art of expression and train students in composition skills.

Module- 1

The Joy of Reading (Orient Longman): The following stories

(a) "An Astrologer's Day" R.K. Narayan

(b) "The Child" Premchand

"The Gift of the Magi" O. Henry

Module- 2

The Joy of Reading (Orient Longman): The following prose places

(a) "Education: Indian and American" Anurag Mathur

(b) (1) "Bangle Sellers" Sarojini Naidu

(2) "Where the Mind is Without Fear" Rabindranath Tagore

Module- 3

The Joy of Reading (Orient Longman): The following poems

(a) "My Financial Career" Stephen Leacock

(b) The World is Too Much with US" William Wordsworth

Module- 4

The Joy of Reading (Orient Longman): The following Poems

(a) Speech on Indian Independence Jawaharlal Nehru

(b) (1) Sonnet : "When in disgrace…" William Shakespeare

(2) Success is Counted Sweetest" Emily Dickinson

Module- 5

(a) Legal Terms : FIR, plant, written statement, plaintiff, defendant, appeal, tribunal, divorce, legitimate, illegitimate, adoption, maintenance, alimony, valid void, litigation, monogamy, bigamy, polygamy, crime, agreement, contract, fraud, minor, indemnity, guarantee, bailment, pledge, libel, slander, defamation, homicide, genocide, suicide, executive, legislature, judiciary, constitution, negligence, nuisance, precedent, prospective, mortgage, retrospective, summons, ultra vires, will, warrant, public, private

(b) (1) Paragraph Writing

(2) Punctuation

Module- 6

Transformation of sentences

(a) Active/passive

(b) Interrogative

Module- 7

(a) Tenses

(b) (1) Tenses

(2) Comprehension

Text Book

1.The Joy of Reading (Orient Longman)

Reference Books

1.Thomson, A.J., and A.V. Martinet. *A Practical English Grammar*, New Delhi : OUP, 2005

Legal and Constitutional History

Paper- 1.2 **Maximum marks-50**

OBJECTIVES OF THE COURSE

Study of law relating to a particular country is not complete without understanding the history and development of the laws and legal institutions.the growth of judicial and legislative institutions has to be taught in order to give an insight and awareness of how the present sysytem had emerged from ancient and medival times.

MODULE I

Charters of the East India Company: 1600, 1661,

Settlements: Surat, Madras, Bombay and Calcutta

Courts: Mayor's Court of 1726 and Supreme Court of 1774

MODULE II

Statutes: Regulating Act, 1773, Pitts India Act, 1784, The Act of Settlement, 1781

Conflict: Raja Nand Kumar, Patna Case and Cossijurah

Warren Hastings: Judicial Plans of 1772, 1774 and 1780

MODULE III

Lord Cornwallis: Judicial Plans of 1787, 1790 and 1793

Lord William Bentinck (With special focus on Appraisal of Criminal Law)

Development of law in Presidency Towns

Development of Civil law in Mufassil: Special emphasis on justice, equity and good conscience

MODULE IV

Codification of Laws: Charter of 1833, the First Law Commission, The Charter of 1853, The Second Law Commission, Establishment of High Courts, 1861

MODULE V

Privy Council and Federal Court: Appeals and working of Privy Council

The Indian Councils Act, 1861

The Indian Councils Act, 1892

The Indian Councils Act, 1909

MODULE VI

The Government of India Act, 1919

The Government of Indian Act, 1935 (Nature and characteristics under the Act, Executive

Powers of Governor General, Federal Legislature, Federal Court)

MODULE VII

Important Constitutionl Development before framing of Constitution of India:Round tableconfrernces,The cripps Mission,Cabinet Mission Wavell Paln 1945 And shimla conference,1945,Attlee's Statement(1947)Mountbatten plan,(1947)

Indian Independence Act 1947

BOOKS RECOMMENDED

Jain,M.P: Outlines of Indian Legal History

Keith, A.B: Constitutional History of Indian (1973), Chapters VII, VIII,X,XI and XII only.

Banerjee,A.C: The Making of the Indian Constitution

Jois,M.Rama: Legal History of India

Kulshrashtha, VD: Landmarks in Indian Legal and Constitutional History.

Jain,M.P: Bharatka Vidhi ka Itihas

Mittal,J.K.: Bharat ka Vaidhanik avam Samvedhanik Itihas

Chemistry-I
(ORGANIC CHEMISTRY)

Paper 1.3 **Maximum Marks: 50**

Objective:
There can be several objectives such as: (a) arriving at truth in criminal administration of justice with the help of forensic evidences, (b) to appreciate issues related to environment,(c) to attain qualifications to become patent agents and IPR lawyers, and (d) to develop regulative and protective structure in view of growing complex of industry chemistry..

Module 1:
Stereochemistry: Elements of symmetry, Molecular Chirality, Enantiomers, Stereogenic center, Optical activity, Properties of enantiomers, Chiral and achiral molecules with two stereogenic centers, Disastereomers, threo and erythro diastereomers,Meso compounds, Racemisation and resolution, relative and absolute configuration, Sequence rules, Systems of nomenclature (D,L,R and S), Optical isomerism due to restricted rotation - diphenyl systems.

Module 2
Reactive Intermediaries: carbenes, nitrenes, yields, Structure-activity relationship, Slected name freactions – Acyloin Condensation, Perkin Reaction, Wittig reaction, Amdt Eistert Reaction, Birch Reduction; Geometric isomerism – determination of configuration of geometric isomers, E and Z systems of nomenclature, Geometric isomerism in oximes and alicyclic compound – Confirmations of mono and disubstituted cyclohexanes

Module 3
Heterocyclic Compounds: Theory and applications, Heterocyclic Compounds – Chemistry of furan, pyrrole, pyridine, indole, quioline, isoquinoline, imidazole, pyrimidine and purine – chemistry of mono and disaccharides

Module 4
Amines: Nomenclature and classification; Basic nature; Preparation of alkyl and aryl amines – Reduction of nitro compounds, Nitriles, Reductive amination of carbonyl compounds, Gabriel-phthalimide synthesis and Hofmann bromamide reaction, Diazotization.Reactions of amines as nucleophiles, diazotisation; distinguishing reaction between 1, 2 and 3 degree amines, Synthetic application of diazonium salt

Module 5
Principles of Organic Synthesis : Methods of Carbon – Carbon bond formation, use of organometallic reagents, Ring forming Reactions, Baldwin‖ Rule, Umpolung and functional group manipulations, protecting groups, asymmetric synthesis- chemical and Enzymatic Approaches
Novel Oxidizing and Reducing Agents, Phase Transfer, Transition Metal and Enzyme catalysis, Chiral Reagents and Catalysis

Module 6

Natural Products: *Carbohydrates:* Introduction, Classification, Ring structure of glucose in detail, Interconversion of glucose and fructose – Mechanism of mutarotation structure of galatose, Mannose and fructose; Glycosidic bond – Disaccharides, structure of maltose, Lactose, sucrose
Terpenoids: Occurrence, Classification and isoprene rule; Elucidation of structure and synthesis of citral and a-terphenol; Structure of menthol, Camphor, Limonene and Bita-carotene and their uses
Alkaloids: Classification, General characteristics; Structure elucidation and synthesis of nicotine; Uses of Quinine, Morphine, Strychnine, Cocaine, Atropine, Reserpine and nicotine

Module 7
Spectroscopy:Application of UV, FT-IR Mass and NMR Spectroscopy in organic, inorganic and biological systems, Exercises on structure elucidation by joint application. Atomic spectroscopy; Molecular spectroscopy (rotational, vibrational and electronic)

Experiments
1. Qualitative tests for Identification of Organic Compounds, Separation and Purification Techniques in Organic Chemistry, Recrystallization, Distillation, Extraction
2. Perkin Reaction of Salicyldehyde, Cannizaro Reaction of Furfural, Synthesis of O – Iodobenzoic acid, Benzilic acid and m – Nitrobenzoic acid
3. Kinetics of salt effect and ionic strength; determination of activation of energy in the bromide-bromate clock reaction and acid hydrolysis of ethyl acctate

Recommended books:
L.Indira & G.R.Chatwal, College Chemistry vol V, Himalaya, Mumbai 13

Law of Torts

Paper 1.4 **Maximum Marks-50**

Objectives:

This course is designed to study the principles of tortious liability, the defences available in an action for torts, the capacity of parties to sue and be sued and matters connection there with.

Further, this course is designed to study specific torts against the individual and property. With rapid industrialization, inadequacy of the law to protect the individual is exposed. An attempt shall be accorded to the individuals against mass torts and industrial torts. Keeping in the expensive character of judicial proceedings the students should reflect on the alternative forms, and also the remedies provided under the Consumer Protection Act, 1986.

Course contents:

Module- I

- Evolution of law of torts ,
- Meaning, Nature and scope of law of torts ,
- Torts distinguished from Contract& Crime,
- Development of Ubi jus ibi Remedium ,
- Mental elements ,Intention, Motive, Malice in Law and in Fact.

Module- II

- General Defences,
- Vicarious Liability,
- Absolute and Strict liability.

Module- III

- Negligence ,
- Nuisance,
- Legal Remedies ,
- Remoteness of damage.

Module- IV

- Torts affecting body- Assault, Battery, Mayhem and False Imprisonment;
- Torts affecting reputation ,Libel and Slander,
- Torts affecting freedom-Malicious Prosecution, Malicious Civil Action and Abuse of Legal Process.
- Torts affecting domestic and other rights-Marital Rights, Parental Rights, Rights to Service, Contractual Rights, Intimidation and Conspiracy,
- Torts against property.

Module- V

Consumer Protection Act, 1986

Prescribed Books:

- Ratanlal and Dhirajlal- Law of Torts.
- Singh Gurubax- Law of Consumer Protection.

Reference Books:

- Winfield and Jolowicz- Tort
- Hepple and Mathews- Tort: Cases and Materials
- Baxi Upendra and Danda Amita- Valiant victims and Lethal
- Salmond- On Torts.
- Avtar Singh - The law of Torts.
- D. N. Saraf - Law of Consumer Protection in India.
- Litigation-The Bhopal Case

COMPUTER -I

Paper 1.5 **Maximum Marks : 50**

Module-1

1. Computer Fundamentals: Characteristics of Computers(Versatility, Basic operations, speed accuracy, automation, storage, etc.).
2. Anatomy of Computer: Input Devices, Output Devices, Central Processing Unit, Storage Devises.
3. Classification of Computers: Micro, Mini, Mainframe, Super Computer).
4. Computer Software: Definition, Types of software-System and application software.
5. Operating System: Definition, Need, Types, Functions, Popular operating system and their applications.
6. Programming languages: Types of programming languages-Low level, high level programming languages and their evolution, oops.
7. Communication System: Data communication system, different data transmission mediums (twisted pair, Coaxial, Microwave, Communication Satellite. optical fiber) and their advantages.
8. Networking systems: Need, types, Internet working, Networking Standards.

Module- 2 (Operating System-MS-Windows)

1. Windows: Definition, Evolution of Windows, components, moving, resizing and closing a window. Features (User interface, file naming, easier mailing facility, easier remote access,
2. Working with Dialog boxes: Text boxes, list boxes, drop-down list boxes, option button, check box.
3. Using Menus: Special indicators in window, a triangle, ellipses, a dot, a key combination, grey option using scroll bars.
4. Navigating Windows: Using Windows explorer, Searching files and folders. Accessing a drive. Creating and moving a shortcuts
5. File & Folders: Difference between file and folders, Creating a file in an application, Creating a folder, copying files in a folder.

6. Creating copy of a file, creating subfolfers, moving and renaming files and folders,.
7. Customizing desktop: Customizing Task bar, Setting time & date of the system, using desktop themes, changing desktop of system, Setting patterns, Color palette, setting screen savers, changing appearance of a window.
8. Installing a printer, making a default printer, Printing a document.

Module- 3 (MS-Word)

1. Word Processing: Definition, Advantages, Functions, Popular word processors.
2. Working with MS-Word: Word application window, Getting help, creating, saving, closing and opening a document.
3. Editing a document: Navigating a document, Undo and Redo, Character level editing, Forming a block, Text correction and deletion. Moving, copying, finding and replacing text.
4. Templates and Wizards: Introduction of templates, using documents on templates, using wizards to create a document.
5. Page Formatting: Meaning, Setting paper size, orientation, setting margins. Setting header and footer. Inserting page no. and date. Inserting page break. Text alignment and indentation. Setting Tabs.
6. Text Formatting: Copying removing characters, using styles, modifying the styles. Setting border and shading.
7. Tables: Creating a table, changing the display of table, adjusting row column width. Appling arithmetic computation in table.
8. Mail merging: Meaning, Setting up main document, creating data source, merging a document, Using labels and Envelop wizards.

Module- 4 (MS-Excel)

1. Electronic Spread sheet: Definition, History, Terminology, Features, Application and Advantages.
2. Basics of MS-Excel: Starting MS-Excel, Components, Workbook, Worksheet, online help. Creating a Workbook, Data Entry in a work book. Copying and moving data saving a work book. Saving and Retrieving a work book.
3. Editing: Editing a cell, selecting range, deleting cell, column, row, worksheet. Renaming, moving, copying and moving a worksheet. Protecting a workbook.
4. Formatting: Adjusting a column width, row height, hiding /unhiding rows and columns, aligning a worksheet data. Number, currency, date formats.
5. Functions: Types of function in MS-Excel, Syntax, Mathematical function, logical function, date/time function. Function Wizard
6. Formula: Entering a formula, referencing technique, naming range, moving & copying formula.
7. Charts: Creating Charts, Components of a chart, types of a chart, using chart wizard, Moving and resizing charts, saving & retrieving charts.
8. Printing: Defining page layouts, setting header and footers, hiding gridlines, print preview, printing a worksheet.

Module- 5 Power Point

Module- 6 (Internet)

1. Definition, Scope, History, Applications, services.
2. Getting Connected: Dial-up Connection, Direct& Dedicated connections.
3. World Wide Web: Meaning, Webpage, website, hyperlinks. Using web browsers. Domain name system. IP Address.TCP/IP Account (2 Lect.)
4. E-mailing: concept, Working, protocol, free email services.
5. HTML: Tags layout of HTML document, Creating HTML Document, Adding comment, Heading, color settings, inserting an image, Hyper link. (3 Lect.)

Module-7 (Networking system)

1. Concept of Networking: Meaning, Need, Types, Media.
2. Information System: Types of information, Levels , Quality, Components, functional areas.
3. Data Communication: Meaning, Elements, Modes, Speed, Mediums, Types of data transmission. (2 Lect.).
4. Computer Networks: definition, Terminology, Technology (LAN, WAN, MAN etc.), Server, client, Work group , Host, System administrator. (2 lect.)
5. Network Applications: Topologies and their advantages, Role of Protocols, Communication Protocols.
6. Internetworks: Definition, Advantages, Popular Internetwork in India.

Books:

1. Introduction to computers, Peter Norton,TMH
2. Computer Fundamentals, P.K.Sinha,BPB
3. MS-Word 2003 complete reference.
4. MS-Excel 2003 complete reference.
5. MS-Access 2003 complete reference.
6. Internet-An Introduction , CIStems-TMHseries.
7. Computer Sciences, D.P.Nagpal, PHI
8. Internet- Every Thing You Need To Know, D.E. Comer, PHI
9. Comdex Computer Course Kit, Vikas Gupta, Dreamtech, N.Delhi

PHYSICS – I

(MECHANICS AND WAVE MOTION)

Paper 1.6 **Maximum Marks: 50**

Module 1:

Frames of Reference: Inertial frames, Galiean transformations; Non-inertial frames, fictitious forces, displacement, velocity and acceleration in rotating co-ordinate systems and their transformations, Coriolis force, Focault's pendulum, motion of moving bodies relative to earth, effect of earth rotational motion on wind and oceanic currents

Module 2:

Conservation of Momentum and Motion in Central force: Centre of mass momentum of an extended body, Newton's law for an extended object; Collision of particles in laboratory and Centre of Mass frames, relation between angles of scattering in laboratory and CM frames, kinetic energy for elastic and inelastic collision.

Motion of Systems with variable mass, rocket motion, two stage rocket motion

Module 3:

Central force and planar motion, spherically symmetric central force, Trajectories of bodies under central inverse square law force with example of planetary motion, inter planetary flights and Hohmann transfer orbits, exploitation of gravitational force of planetary bodies to increase energy in space flights (Boomerang effect).

Module 4

Special Theory of Relativity: Invariance of —c (velocity of light in vacuum).

Michelson-Morley experiment, Lorentz transformations, addition of velocities, Time dilation and length contraction.Conservation of momentum in collision at relativistic speed and variation of mass with velocity, relativistic energy, mass-energy relation, transformation equations for momentum, energy and for rate of change of momentum

Module 5

Oscillations: Qualitative idea of oscillations in an arbitrary potential motion, general differential equations for the harmonic motion, explanation of Helmholtz resonator in terms of shm, oscillation of a mass connected to spring, oscillation of two mass connected by a spring, reduced mass.

Coupled oscillations, normal modes and co-ordinates of two linear coupled oscillators:

general analytic method for finding normal frequencies and solution to coupled differential equation of motion.

Damped harmonic motion, example of a galvanometer with small damping

Forced oscillations and resonances, resonance width and quality factor, LCR circuits and phase relations.

Module 6

Waves: General differential equation of one dimensional wave motion and its solution, plane progressive harmonic wave; Differential calculus method for speed of transverse waves on a uniform string and for longitudinal waves in a fluid, energy density and energy transmission in waves; Superposition of waves, group and phase velocities, non-linear superposition and consequences. Fourier series, Fourier analysis of square and sawtooth waves

Module 7

Rigid Body Dynamics: Angular momentum of a rigid body, calculation of moment of inertia, equation of motion for a rotation of a rigid body, rotation of a body with cons angular momentum with application of torque, general motion of a rigid body under no external torque; Gyroscopic motion with example of precessing top; gyroscope in navigation, atoms and nuclei as gyroscopes nutation, precession of equinoxes.

Suggested Books

1. A. P. French, Vibrations and Waves, CBS Pub. & Dist., 1987.

2. K. Uno Ingard, Fundamentals of Waves & Oscillations, Cambridge University Press, 1988.

3. Daniel Kleppner and Robert J. Kolenkow An Introduction to Mechanics, McGraw-Hill, 1973.

4. Franks Crawford, Waves: BERKELEY PHYSICS COURSE (SIE), Tata McGrawHill, 2007.

5. M. S. Seymour Lipschutz, Schaum's Outline of Vector Analysis, McGraw-Hill, 2009

PHYSICS LAB- I

Mechanical Workshop

List of Exercises

Machine Shop Study of lathe machine, drilling machine and shaper, their parts and demonstration of

operations performed on them.

1. Prepare a job on lathe machine by performing turning, facing and chamfering as per given drawing.

2. Prepare a job on shaper as per given drawing.

Fitting Shop Study of fitting tools, their uses and demonstration of operations by using different tools.

3. Prepare a job including finishing of all four sides by filing and make a square notch.

4. Prepare a job by finishing its two sides and perform drilling and taping on it.

Welding Shop Definition of welding and brazing process and their applications. Study of tools used in arc and gas welding shop.

7. Prepare a lap/butt joint in arc welding shop.

8. Demonstration of different types of flames in gas welding shop.

9. Study of common welding defects.

***Suggested Books*:**

1. Hajra Choudhury Workshop Technology Vol 1 & 2, Media Promoters & Publishers P. Ltd,Bombay.
2. Chapman W. A. J., *Workshop* Technology Parts 1 & 2, Viva Books P. Ltd., New Delhi.

ENGLISH - II

Paper 2.7 **Maximum Marks : 50**

Aims / Learning Objectives

1. Enable the students to use the language correctly and effectively.
2. Generate interest of student in English language.
3. Make the student write correctly in English language and help them to express their ideas.
4. Enrich their vocabulary
5. Train students in composition skills

Module- 1

M.C. Chagla: *Roses in December* : The following chapter

(a) The Bar (Page 49 – 62)

(b) The Bar (Page 63 – 74)

Module- 2

M.C. Chagla: *Roses in December* : The following chapter

(a) Chief Justice (Page147 – 158)

(b) Chief Justice (Page159 – 169)

Module- 3

M.C. Chagla: *Roses in December* : The following chapter

(a) Chief Justice (Page170 – 180)

(b) Chief Justice (Page180 – 189)

Module- 4

M.C. Chagla: *Roses in December* : The following chapters

(a) International Court

(b) Epilogue

Module- 5

Foreign words:

(a) axiom, joie-de vivre, judicature, jussoli, suo jure, suo loco, ad absurdum, addendum, a deux, ad extremum, ad fin, ad infinitum, ad initium, bon jour, monsieur, en masse, en route, sans, vis-à-vis, post script, post meridian, ante meridian, milieu, haute couture, petite, plaza, summum bonum, synopsis, virtuoso

(b) Essential of brief writing; to make a brief about the loss of vehicle

Module- 6

Vocabulary

(a) Idioms

(b) i. One Word Substitutions

ii. Prefixes/Suffixes, correction of verb

Module- 7

(a) Report Writing

(b) Letter writing (letter to Editor, resume writing)

Text Book

M.C. Chagla: *Roses in December* : Mumbai: Bhatriya Vidya Bhavan, 2000.

References

1. Thomson, A.J., and A.V. Martinet. A Practical English Grammar, New Delhi: OUP, 2005.
2. Best, Wilfred D. The Students Companion, New Delhi: Rupa & Co., 2005

Trust, Equity and Fiduciary Relations

Paper 2.8 **Maximum Marks : 50**

Objectives of Course:

Trust being an obligation connected with property, the law has to play a key role in protecting interests of persons for whose benefit trust is created and for balancing the right and duties of persons connected with trust transactions. There are also instances where even in the absence of specific trust, law has to protect the beneficial interests of persons on the equitable considerations. Trust may also be created for public purposes of charitable and religious nature. The existing laws in respect of trusts, equitable and fiduciary relations connected with property are to be taught in detail.

Module- 1

(a) i. The concept and evolution of Equity in Roman law

ii. Equity in Common Law

(B) i. Equity in India and its application in land matters

ii. Modern application of equity

Module- 2

(a) i. Concept of equitable remedies

ii. Equitable remedies of :-

- Specific performance
- Equitable estoppels
- Equitable rectifications
- Cancellations

(b) Various kinds of Injunctions

Module- 3

(a) i. concept of trust and distinction from agency

ii. Development of trust law – common law and equity

(b) i. Creation i.e. rules and kinds of trust

ii. Resulting trust

iii. Charitable and non charitable trusts

Module- 4

(a) i. Law relating to trustees in India

ii. Appointment

iii. Removal

(b) i. Right of trustees

ii. Duties of trustees

Module- 5

(a) i. Power of trustees

ii. Disabilities of trustees

iii. Trustee's liability for breach of trust

(b) i. Defense available to trustees against an allegation of breach

ii. Discharge of trustees

Module- 6

(a) i. Rights of beneficiaries

(b) ii. Liabilities of beneficiaries

Module- 7

Constructive Trust: The Equitable & Fiduciary Relations

(a) i. Transfer without intent to dispose beneficial interest

ii. The Cypress doctrine

iii. Property acquired with notice of existing contract

(b) i. Possession of property without whole beneficial interest

ii. Duties of constructive trustees

iii. Rights of bona fide purchaser

Referred Books

1. Rao C.R., The Indian Trust Act and Allied Laws (1999)
2. Rajarathnam, Natarajan and Thanksraj, commentary on Charitable Trust and Religious institutions (2000) Universal, Delhi
3. Philip H. Pettit, Equity and Law of Trust (1970)
4. R.E. Megarry and P.V. Baker, Snell's Principles of Equity (1964) ELBS, Sneet and Maxwell
5. S. Krishnamurty Aiyar and Harbans Lal Swin, Principles and Digest of Trust Laws (1998), University Book Agency, Allahabad

Chemistry-II

(Inorganic and biochemistry chemistry)

Paper 2.9 **Maximum Marks: 50**

Module 1
Structure and Bonding Lattice energy, metallic bond, HSAB theory, General trends in s- and p- block elements; Selected topics on Metal borides, boron hydrides and nitrides, borates, boron case compounds

Module 2
Sulfur, Nitrogen and Phsphorus Compounds Preparations, properties, structures, structures and of extra pure silicon, silicates and silanes; phosphagenes, sulfur-nitrogen and sulfur-phosphorus compounds, polyhalogens

Module 3
General chemistry of transition metals: Spectral and thermodynamic behaviour of transition metal compounds; use of transition metal compounds in catalysis – hydrogenation, carbonylation, hydraformylation, Ziegler Natta polymerization, Alkene metathesis

Module 4
Inorganic Materials for Advanced Technology: Recent trends in ionic conductor, synthetic metal, liquid crystal, superconductor, glass and nanocrystallites, thin film deposition

Module 5
Bioinorganic Chemistry: Essential and trace elements in biological processes, Metalloporphyrins with special reference to hemoglobin and myoglobin
Bioinorganic chemistry of iron, zinc, cobalt, copper and molybdenum

Module 6
Biochemistry: Structures and Functions of Biological Molecules Amino acids and proteins, enzymes, vitamins and coenzymes; carbohydrates and lipids, nucleic acids and their components. Principles of bioenergetics and special reference carbohydrate metabolism

Module 7
Biochemistry II (15 hours): Metabolism and biosynthesis of fatty acids, proteins, nucleotides, and related molecules, Information Pathways – genes and chromosomes, Regulation of gene expressions, Recombinant DNA technology – cloning and PCR, their application

Experiments
1. Qualitative analysis of inorganic salts containing not more than four ions (spot test included)
2. Quantitative analysis: copper (volumetric and gravimetric), nickel (gravimetric), iron (ignition method) magnesium (gravimetric), aluminium (volumetric)
3. Estimation of sodium and potassium in soil samples, turbidimetric titration

4. Isolation, purification and characterization of proteins and nucleic acids, SDS-PAGE and agarose gel electrophoresis, estimation of proteins, nucleic acids, cholesterol and sugar, enzyme inhibition studies, microbial growth and antibacterial assay

Recommended books:

L.Indira & M.R.Padma, College Chemistry- VI, Himalaya, Mumbai 133

Banking Law and Practice

Paper 2.10 **Maximum Marks : 50**

OBJECTIVES OF THE COURSE

Bank and the banking system evolved into a vital socio-economical institution in the modern age and backbone of any country. This has been largely influenced by the socio-political and economic changes that have been witnessed at large.As a developing State,India has been influencedby these developments leading to the evolutionary effect on banking structure, policies, patterns and practices. A study of these developments reveals the development from banking as a generic entity to specialized one. One could quote Commercial banks, Cooperative Banks, Development Banks and Specialized Banks as a paradigm.The evolutionary process still continues with global phenomenon of liberalization. This has witnessed the entry of Foreign Banking Companies in the Indian market leading to deviation in the banking policy.

Moreover new means such as E-Banking and E-Commerce has made it essential that the Indian legal system adopt new modus operandi to cope with the modern scenario.In a backdrop of the above scene the course is designed to enlighten the students with

- The conceptual and legal parameters including the Judicial interpretation of banking law.
- New emerging dimensions in banking system including e-commerce and e-banking.
- An abridged comparative analysis of International Banking System with that of banking system in India

Module [I] Introduction

I.Evolution of Banking and its history in India.

Ii.Bank, Banking and Bank Regulation.

Iii.Structure and function of Banking Institutions—The different types of Banks viz. Central Bank, Commercial Bank, Co-operative Banks, specializedbanks, Regional Rural Banks (rrbs), NABARD, Financial Institutions and their respective functions –An Overview.

Iv.Commercial banks: Structure and function.

V.Systems of Banking: Unit banking, branch banking, group banking and chain banking.

Module [II] Relation between bankerand customer

I.Legal character of Banker –Customer relationship.

Ii.Rights and obligationsof Banker.

Iii.Types of Accounts.

Iv.Principles of good lending.

Module [III] The Negotiable Instrument Act, 1881

Legal aspects of negotiable instrument in general and special features of the following instruments in

Particular:

I. Promissory Note, Bill of Exchange, Cheque, Drawer, Drawee, Payee, Holder, Holder In due course, Inland Instrument, Foreign Instrument, negotiable Instrument, Negotiation, Indorsement, Inchoate stamped Instruments.

II.Crossing of Cheques--Criminal liability on dishonour of Cheque (Section 138 –142) the law relating to payment of customers cheque--rights and duties of paying banker and a collecting banker.

Module [IV] Reserve Bank of India: Structure and Functions

I.Central Banking: Organizational Structure of RBI

II.Functions ofthe Reserve Bank

•Primary functions

•Secondary functions

III. Controlling function of RBI over Banking and Non-bankingcompanies

MODULE [V] BANKING REGULATION ACT, 1949

I.Control over Management.

II.Prohibition of certain activities in relation to Banking Companies.

III.Acquisition of the undertakings of Banking Companies.

IV.Suspension of Business and winding up of Banking Companies.

V.Special provisions for speedy disposal of winding up proceedings.

Vi.Powers of the Central Government towards Banking Companies.

Module [VI] Control of Banks in India

The role of banking institutions in the socio-economic development of the country-Advanced to priority

Sector and Credit Guarantee Scheme.

I.Social Control of Banks.

Ii.Nationalisation of Banks.

Iii.Priority lending.

Iv.Protection of Depositors, Promotion of underprivileged classes, Development work and participation in national economy. [Narshimam Committee Recommendations]

Module [vi] Emerging dimensions in banking system

I.E-commerce

II.E-banking

REFERENCES:

Narasimham Committee report on the Financial System (1991)–Second Report (1999)Information Technology Act,2000.

M.L. Tannan, Tannan's Banking Law and Practice in India(Eighth Edition-2008),India Law House, New Delhi,2 volumes Ellinger's Modern Banking Law(Fourth Edition) [

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V. Conti and Hamaui (eds.), Financial Markets' Liberalization and the Role of Banks', CambridgeUniversity Press, Cambridge, (1993)

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COMPUTER -II

Paper 2.11 **Maximum Marks : 50**

Module- 1 (DOS/UNIX)

(a) **Disk Operating System:** Introduction to operating system, How DOS works, Internal Commands: PROMPT, CLS, DATE, TIME, DIR, REN DEL, MD, CD, RD, COPY, TYPE, VOL, VER, PATH. External Commands: XCOPY, DELTREE, FORMAT, CHKDSK,DISKCOPY, DISKCOMP, SCANDISK, TREE, APPEND, ATTRIB, LABEL, EDIT, DOSKEY.

(b) Unix Operating System: Introduction, History, features, simple Unix commands.

Module- 2 (Page Maker)

(a) **Introduction to page maker**: introduction**,** creating publications, setting up a new publication, opening editing and existing publication. Typing text moving a text block**,** page orientation

(b) **Type menu :** applying a font, formatting and word processing, formatting characters, changing borders and applying fills, graphics and text blocks, wrapping text around graphics and drop down menus

Module- 3 (Excel)

(a) Electronic Spread sheet: Definition, History, Terminology, Features, Application and Advantages.
Basics of MS-Excel: Starting MS-Excel, Components, Workbook, Worksheet, online help. Creating a Workbook, Data Entry in a work book. Copying and moving data saving a work book. Saving and retrieving a work book.

(b) Editing: Editing a cell, selecting range, deleting cell, column, row, worksheet. Renaming, moving, copying and moving a worksheet. Protecting a workbook.

Formatting: Adjusting a column width, row height, hiding /unhiding rows and columns, aligning a worksheet data. Number, currency, date formats.

Module- 4 (Excel)

(a) Functions: Types of function in MS-Excel, Syntax, Mathematical function, logical function, date/time function. Function Wizard Formula: Entering a formula, referencing technique, naming range, moving & copying formula.

(b) Charts: Creating Charts, Components of a chart, types of a chart, using chart wizard, Moving and resizing charts, saving & retrieving charts.

Printing: Defining page layouts, setting header and footers, hiding gridlines, print preview, printing a worksheet.

Module- 5 (Access)

(a) i. Database: Definition, component, understanding RDBMS, basic object of a RDBMS.

ii. Creating Table: Methods for creating table, setting datatypes, naming fields, entering records,

saving, closing retrieving table. Adding validation in a table.

(b) i. Modifying a Table: Rearranging fields, adding deleting, changing column width, editing record,

selecting multiple fields, hiding/unhiding and freezing a field.

ii. Report: Creating a report of table, query, designing a report, moving report to MS- word

Module- 6 (Multimedia)

(a) **Multimedia :** What is multimedia, components **(**Text, graphics, Animation, Audio, video), Multimedia Applications : Multimedia Presentation, Foreign language learning, Video games, Special effects in movies,, Multimedia conferencing, media center computer

(b) **Topology :** introduction, star topology, Ring or circular Topolpgy, tree topology, graph topology, mesh topology, Repeater, bridge, Router gateway

Module- 7 (Networking system)

(a) Concept of Networking: What is a network, network goals, Types, Media, Data Communication: Meaning, Elements, Modes, Speed, Mediums, Types of data transmission

(b) Computer Networks: definition, Terminology, Technology (LAN, WAN, MAN etc.), Server, client, Work group, Host, System administrator. Network Applications.

Suggested Readings:

1. Introduction to computers, Peter Norton,TMH
2. Computer Fundamentals, P.K.Sinha,BPB
3. MS-Excel 2003 complete reference.
4. MS-Access 2003 complete reference.
5. Internet-An Introduction , CIStems-TMHseries.
6. Computer Sciences, D.P.Nagpal, PHI
7. Internet- Every Thing You Need To Know, D.E. Comer, PHI
8. Comdex Computer Course Kit, Vikas Gupta, Dreamtech, N.Delhi

PHYSICS – II

(ELECTROMAGNETICS)

Paper 2.12 **Maximum Marks: 50**

Module 1:

Vector Fields: Scalar and vector fields, gradient of a scalar field, divergence of vector field and their physical significance curl of vector field, line integral of vector field, surface integral and flux of a vector field. Gauss law, its integral and differential form, statement and explanation of Gauss theorem and Stokes theorem

Module 2

Electrostatics: Potential and field of an arbitrary charge distribution, concept of multi-poles, potential and field due to a dipole and quadrupole, electrostatic energy of a uniformly charged sphere, classical radius of an electron. Conductors in an electric field, boundary condition for potential, boundary conditions for electrostatics field at electric surface, uniqueness theorem, methods of images and its application for system of point charge near a grounded conducting plane. Poisson's and Laplace equation in cartesian, cylindrical and spherical polar co-ordinates.

Module 3

Electric field in matter: Atomic and molecular dipoles, polarizability permanent dipole moment, dielectrics, polarization vector, capacity of parallel plate condenser with partially of completely filled dielectrics, electric displacement and Gauss Law in general form, electrostatics energy of a charge distribution in dielectrics, Lorentz local field and Clausius-Mossotti equation, Debye equation

Module 4

Magnetics: Biot-Savart law, Ampere circuital law in integral and differential forms, divergence of B field, force on a current carrying wire and torque on a current carrying loop in magnetic field.

Magnetic field in matter: magnetization vector, uniform magnetization and surface current, non-uniform magnetization, B, M, H, vectors and their inter-relations, Bohr magneton, orbital magnetic moment and angular momentum electron spin and magnetic moment, magnetic susceptibility.

Module 5:

E M Induction: Faraday‘s laws of E M induction, its integral and differential form; Lenz‘s law; Self and mutual inductance, measurement of self inductance by Rayleigh method; energy stored in magnetic field

Module 6

Transient Response: Charge and discharge of condenser through resistance, determination of high resistance by leakage, growth and decay of current in LR circuit: A C circuits, use of j operator in alternating current circuits, LCR ciruit in series and in parallel (A.C), phase diagram, resonance and Q factor, sharpness of resonance.

Module 7

Electromagnetic Waves: Maxwell‘s equation and its physical significance, plane waves in dielectric, the electro magnetic wave equation in a dielectric, Poynting vector, energy density and intensity of an electromagnetic wave, radiation pressure, wave equation in a conducting medium.

PHYSICS LAB- II

Experiments on Mechanics

1. To determine the Young's Modulus.

2. To determine the Modulus of Rigidity of a Wire by Maxwell’s needle.

3**.** To determine the Elastic Constants of a Wire by Searle’s method.

4. To measure coefficient of Static Friction.

5. To Verify Lami’s Theorem.

6. To determine moment of inertia of a flywheel about its own axis of rotation.

7. To verify the Bernoullis Theorem.

Experiments on Electricity and Magnetism

8. To use a Multimeter for measuring (a) Resistances, (b) A/C and DC Voltages, (c) AC and DC

   Currents, (d) Capacitances, and (e) Frequencies.

9. To convert a **Galvanometer into an Ammeter** of given range and calibrate it.

10. To convert a **Galvanometer into a Voltmeter** of given range and calibrate it.

11. To determine **specific Resistance** of a wire by **Carrey-Foster’s Bridge**.

12. To determine radius of a current carrying coil using **Tangent Galvanometer**.

13. To study **LCR circuit** characteristics.

14. To determine characteristics of **Solar Cell**. (Complete Kit)