SYLLABUS 2012 - 2013

CLASS - XII

ENGLISH CORE

FIRST TERM 19th MARCH – 14th SEPTEMBER 2012
SECOND TERM 1st OCTOBER TO 30th NOVEMBER 2012

Month & No. of Days	Reader (Flamingo)		Supplementry Reader (Vistas)	Writing Tasks'
	Prose	Poetry		
March 10 days	1. The Last Lesson	1. My Mother at 66	1. The Third Level	1. Note Making 2. Notices 3. Advertisements
April 19 Days	2. Lost Spring 3. Deep Water	2. An Elementary Classroom in a slum	2. The Tiger King	4. Invitations 5. Posters 6. Reports
May 12 days		3. Keeping Quiet	3. Journey to the end of the earth	7. Letters to Editor 8. Invitations 9. Articles

FIRST CYCLE TEST
(SYLLABUS – MARCH TO MAY)

July 22 days	4. The Rattrap 5. Indigo	4. A Thing of Beauty	4. Enemy	10. Factual Description 11. Speeches
August 19 days	6. Poets and Pancakes	5. A Road Side Stand	5. Evans Tries on O Level	12. Business Letters 13. Job Applicatioins
Sept. 10 days	REVISION	FOR	HALF YEARLY	EXAMS
Oct. 18 days	7. The Interview	6. Aunt Jennifer's Tigers	6. Should Wizard Hit Mommy?	14. Debates
Nov. 16 Days	8. Going Places	Revision of Poetry	7. On the face of it.	Revision of Reading & Writing Task
Dec.	SAMPLE	PAPER	REVISION	

हिंदी - ऐच्छिक 7

पुस्तकें :

1. अंतरा भाग - 2
2. अंतराल भाग - 2
3. अभिव्यक्ति और माध्यम

िक्षण दिवस

19/3/12 — 18/5/12 — 42
1/7/12 — 14/9/12 — 49
1/10/12 — 30/11/12 — 33

1. 19/3/12 — 18/5/12 ि क्षण दिवस - 42 7

i) अंतरा :

गद्य 1. `मघन की छायास्मति रामचंद्र ुक्ल
2. सुमिरिनी के मनके पंद्र चंद्रधर 'गुलेरी'
3. कच्चा चिट्ठा ब्रजमोहन व्यास

पद्य 1. क 7 कार्नोलिया का गीत जय ंकर साद
ख 7 देव सेना का गीत
2. क 7 गीत गाने दो मुझे सूर्यकांत त्रिपाठी निराला
ख 7 सरोज स्मति
3. क 7 यह दीप अकेला 'अज्ञेय'
ख 7 मैंने देखा एक बूँद

ii) अभिव्यक्ति और माध्यम

पत्र लेखन संपादक के नाम पत्र

निबंध लेखन 1) दे ा की गति का आधार साक्षरता
2) कर्म ही पूजा है।

iii) अपठित गद्यां ा एक

अपठित पद्यां ा एक

2. 9/7/12 — 14/9/12 ई ाक्षण दिवस - 497

i) अंतरा :

गद्य 1. संवदिया फणी वर नाथ रेणु

2. गाँधी, नेहरु और अराफात भीष्म साहनी

3. ोर, पहचान, साझा, चार हाथ असगर वजाहत

4. जहाँ कोई वापसी नहीं निर्मल वर्मा

5. यथास्मै रोचते वि वम् राम विलास ार्मा

पद्य 1. तुलसीदास क7 भरत राम का `म

ख7 पद

2. जायसी बारह मासा

3. विद्यापति पद

4. के ावदास क7 कवि ा

ख7 सवैया

5. घनानंद क7 कवि ा

ख7 सवैया

6. केदार नाथ सह क7 बनारस

ख7 दि ाा

अंतराल :

1. बिस्कोहर की माटी
2. अपना मालवा
3. आरोह5

अभिव्यक्ति और माध्यम

1. विभिन्न माध्यमों के लिए लेखन अध्याय 37
2. पत्रकारीय लेखन के विभिन्न रूप अध्याय 47
3. कैसे बनती है कविता अध्याय 67

नाटक अध्याय 77

कहानी अध्याय 87

रचना कार्य :

1. पत्र लेखन विभाग को पत्र
2. निबंध लेखन क7 वक्षारोपण की आव यकता

ख7 भारत में आजकल नारी की स्थिति

ग7 वर्षा ऋतु

घ7 विज्ञान व तकनीक के लाभ व हानि

3. 1/10/12 — 30/11/12 ई ाक्षण दिवस - 337

i) अंतरा :

गद्य 1. दूसरा देवदास ममता कालिया

2. कुटज हजारी साद द्विवेदी

पद्य 1. विष्णु खरे क7 सत्य

ख7 एक कम

2. रघुवीर सहाय क7 तोड़ो

ख7 वसंत आया

ii) अंतराल :

1. सूरदास की झोंपड़ी `मचंद

iii) अभिव्यक्ति और माध्यम

1. वि ोष लेखन स्वरूप अध्याय 57

2. नए और अ त्याि त विषय अध्याय 137

रचना कार्य :

1. निबंध क7 छात्र असंतोष के कारण

ख7 जल संरक्षण की आव यकता

अपठित बोध 1. गद्यां ा 2

2. पद्यां ा 2

आवि ा कार्य

MATHEMATICS

One Paper **Three Hours** **Marks : 100**

Units		**Marks**
I .	Realations and Functions	10
II.	Algebra	13
III.	Calculus	44
IV.	Vectors and Three-Dimensional Geometry	17
V.	Linear Programming	06
VI.	Probability	10
		Total 100

FIRST TERM (19th March – 14th September, 2012)

Unit -III : Calculus

PART - I (19th March – 18th May, 2012) (1st Cycle Test)

1. Continuity and Differentiability : (18 Periods)

Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit function. Concept of exponential and logarithmic functions.

Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives. Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretations.

2. Applications of Derivatives : (10 Periods)

Applications of derivatives: rate of change of bodies, increasing/ decreasing functions, tangents and normals, use of derivatives in approximation, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).

1. Linear Programming : (12 Periods)

Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, graphical method of solution for problems in two variables, feasible and infeasible regions, feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constrains).

Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof).

FIRST TERM Part-II (9th July – 14th September, 2012)

Unit-VI : PROBABILITY

1. Probability : (18 Periods)

Conditional probability,multiplication theorem on probability. Independent events, total probability, Baye's theorem, Random variable and its probability distribution, mean and variance of random variable. Repeated independent (Bernoulli) trails and Binomial distribution.

NIT - II : ALGEBRA

1. Matrices : (18 Periods)

Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric and skew symmetric matrices, Addition, multiplication and scalar multiplication of matrics, simple

properties of addition, multiplication and scalar multiplication. Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2.) Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).

2. Determinants : (20 Periods)

Determinant of a square matrix (up to 3 x 3 matrices), properties of determinants, minors, cofactors and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations in two or three variables (having unique solution) using inverse of a matrix.

2. Inverse Trigonometric Functions : (12 Periods)

Definition, range , domain, principal value branches. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions.

3. Integrals : (Calculus)

Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, only simple integrals of the type to be evaluated.

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{\sqrt{ax^2 + bx^2 + c}}, \int \frac{dx}{\sqrt{ax^2 + bx + c}}$$

$$\int \frac{(px+q)}{ax^2 + bx + c} dx \int \frac{(px+q)}{\sqrt{ax^2 + bx + c}} dx \int \sqrt{a^2 \pm x^2} dx \text{ and } \int \sqrt{x^2 - a^2} dx$$

$$\sqrt{ax^2 + bx + c} \; dx, \quad (px+q)\sqrt{ax^2 + bx + c} \; dx$$

Basic properties of definite integrals and evaluation of definite integrals.

4. Applications of the Integrals :

Applications in finding the area under simple curves, especially lines, areas of circles/parabolas/ellipses (in standard form only), area between the two above said curves (the region should be clearly identifiable).

5. Differential Equations :

Definition order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given Solution of differential equations by method of separation variables homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type.

$\frac{dy}{dx}$ + py = q where p and q are functions of x or constant.

+ px = q where p and q are functions of y or constant.

Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite intergrals.

SECOND TERM (1st October to 30th November '2012)

Unit - I Relations and Functions

1. Relations and Functions (10 Periods)

Types of relations : reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.

Unit - IV : Vectors and Three-Dimensional Geometry

1. Vectors : (12 Periods)

Vectors and scalars, magnitude and direction of a vector. Direction cosines/ratios of vectors. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Scalar (dot) product of vectors, projection of a vector on a line. Vector (cross) product of vectors.

2. Three-dimensional Geometry : $\frac{dx}{dy}$

Direction cosines and direction ratios of a line joining two points.

Cartesian and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines, (ii) two planes. (iii) a line and a plane. Distance of a point from a plane.

Recommended Textbooks

1. Mathematics Part I - Textbook for
2. Application of Derivaties

PHYSICS (THEORY)

One Paper **Time : 3 Hours** **70 Marks**

Unit I	Electrostatics	08
Unit II	Current Electricity	07
Unit III	Magnetic effect of current and Magnetism	08
Unit IV	Electromagnetic Induction and Alternating current	08
Unit V	Electromagnetic Waves	03
Unit VI	Optics	14
Unit VII	Dual Nature of Matter	04
Unit VIII	Atoms and Nuclie	06
Unit IX	Electronic Devices	07
Unit X	Communication Systems	05
	Total	**70**

FIRST TERM (19th March to 18th May 2012)

Unit I : Electrostatics

Electric Charges; Conservation of charge, Coulomb's law-force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution. Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field.

Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).

Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field.

Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarisation, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor. Van de Graaff generator.

Unit- II : Current Electricity

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity. Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance.

` Internal resistance of a cell, potential difference and emf of a cell, combination of cell, combination of cells in series and in parallel.

Kirchhoff's laws and simple applications. Wheatstone bridge, metre bridge.

Potentiometer – principle and its applications to measure potential difference and for comparing emf of two cells; measurement of internal resistance of a cell.

Unit III Magnetic Effect of Current and Magnetism

Concept of magnetic field, Oersted's experiment.

Biot - Savart law and its application to current carrying circular loop.

Ampere's law and its applications to infinitely long straight wire. Straight and toroidal solenoids. Force on a moving charge in uniform magnetic and electric fields. Cyclotron.

Force on a current-carrying conductor in a uniform magnetic field. Force between two parallel current-carrying conductors-de definition of ampere. Torque experienced by a current loop in uniform magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Current loop as a magnetic dipole and its magnetic dipole moment. Magnetic dipole moment of a revolving electron. Magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. Torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid magnetic field lines; Earth's magnetic field and magnetic elements. Para-dia-and ferro-magnetic substances, with examples. Electromagnets and factors affecting their strengths. Permanent magnets.

Unit IV Electromagnetic Induction and Alternating Currents

Electromagnetic induction; Faraday's law, induced emf and current; Lenz's Law, Eddy currents. Self and mutual inductance.

Displacement current.

Alternating currents, peak and rms value of alternating current/ voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, wattless current.

AC generator and transformer.

SECOND TERM (2nd July – 14th Sept. 2012)

Unit V Electromagnetic Waves

Need for displacement current, Electromagnetic waves and their characteristics (qualitative ideas only). Transverse nature of electromagnetic waves.

Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays gamma rays) including elementary facts about their uses.

Unit VI Optics

Reflection of light, spherical mirrors, mirror formula. refraction of light, total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lens-maker's formula. Magnification, power of a lens, combination of thin lenses in contact combination of a lens and a mirror. Refraction and dispersion of light through a prism.

Scattering of light - blue colour of sky and reddish apprearance of the sun at sunrise and sunset.

Optical instruments : Human eye, image formation and accommodation correction of eye defects (myopia, hypermetropia) using lenses. Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

Wave optics : Wave front and Huygen's principle, relection and refraction of plane wave at a plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference Young's double slit experiment and expression for fringle width, coherent sources and sustained interference of light. Differaction due to a single slit, width of central maximum. Resolving power of microscopes and astronomical telescopes. Polarisation, plane polarised light Brewster's law, uses of plane polarised light and Polaroids.

Unit VII : Dual Nature of Matter and Radiations

Dual nature of radiation. Photoelectric effect. Hertz and Lenard's observations; Einstein's photoelectric equation - particle nature of light.

Matter waves-wave nature of particles, de-Broglie relation, Davisson and Germer experiment. (experimental details should be omitted; only conclusion should be explained).

Unit VIII : Atoms & Nuclei

Alpha particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.

Composition and size of nucleus, atomic masses, isotopes isobars; isotones. Radioactivity-alpha, beta and gamma particles/ rays and their properties, radioactive decay law. Mass-energy relation, mass defect; binding energy per nucleon & its variation with mass number; nuclear fission, nuclear fission.

THIRD TERM – 1st Oct. – 30th Nov. 2012

Unit IX : Electronic Devices.

Energy bands in solids (Qualitative ideas only) conductors, insulator and semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier; I-V characteristic of LED, photodiode, solar cell, and Zener diode; Zener diode as a voltage regulator; Junction transistor, transistor action, characteristics of a transistor; transistor as an amplifier (common emitter configuration) and oscillator; Logic gates (OR, AND, NOT, NAND and NOR), Transistor as a switch.

Unit X : Communication Systems

Elements of a communication system (block diagram only); bandwidth of signals (speech, TV and digital data); bandwidth of transmission medium. Propagation of electromagnetic waves in the atmosphere, sky and space wave propagation. Need for modulation. Production and detection of an amplitude-modulated wave.

Practicals :

Every student will perform 15 experiments (7 from section A and 8 from section B) The activities mentioned here should only be for the purpose of demonstration. One Project of three marks is to be carried out by the students.

B. Evaluation Scheme for Practical Examination :

Total Periods : 60

Two experiments one from each section	8+8 Marks
Practical record (experiment and activities)	6 Marks
Project	3 Marks
Viva on experiment and project	5 Marks
Total	**30 Marks**

SECTION A

Experiments

(Any 7 experiments out of the following to be performed by the students)

1. To find resistance of a given wire using metre bridge and hence determine the specific resistance of its material.
2. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
3. To verify the laws of combination (series/parallel) of resistances using a metre bridge.
4. To compare the emf of two given primary cells using potentiometer.
5. To determine the internal resistance of given primary cell using potentiometer.
6. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
7. To convert the given galvanometer (of known resistance and figure of merit) into an ammeter and voltmeter of desired range and to verify the same.
8. To find the frequency of the a.c. mains with a sonometer.

Activities

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance, voltage (AC/DC), cuurrent (AC) and check continuity of a given circuit using multimeter.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To assemble the components of a given electrical circuit.
5. To study the variation in potential drop with length of a wire for a steady current.
6. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

SECTION B

Experiments

(Any 8 experiments out of the following to be performed by the students)

1. To find the value of v for different values of u in case of a concave mirror and to find the focal length.
2. To find the focal length of a convex mirror, using a convex lens.
3. To find the focal length of a convex lens by plotting graphs between u and v or between 1/u and 1/v.
4. To find the focal length of a concave lens, using a convex lens.
5. To determine angle of minimum deviation for a given prism by plottiong a graph between angle of incidence and angle of deviation.
6. To determine refractive index of a glass slab using a travelling microscope.
7. To find refractive index of a liquid by using (i) concave mirror, (ii) convex lens and plane mirror.

8. To draw the I-V characteristic curve of a p-n junction in forward bias and reverse bias.
9. To draw the the characteristic curve of a zener diode and to determine its reverse break down voltage.
10. To study the characteristic of a common-emitter npn or pnp transistor and to find out the values of current and voltage gains.

Activities *(For the purpose of demonstration only)*

1. To identify a diode, an LED, a transistor, and IC, a resistor and a capacitor from mixed collection of such items.
2. Use of multimeter to (i) identify base of transistor. (ii) distinguish between npn and pnp type transistors. (iii) see the unidirectional flow of current in case of adiode and an LED. (iv) check whether a given electronic component (e.g diode, transistor or I C) is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an L.D.R.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe polarization of light using two Polaroids.
6. To observe diffraction of light due to a thin slit.
7. To study the nature and size of the image formed by (i) convex lens (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
8. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

SUGGESTED INVESTIGATORY PROJECTS

1. To study various factors on which the internal resistance/emf of a cell depends.
2. To study the variations, in current flowing, in a circuit containing a LDR, because of a variation.

a) in the power of the incandescent lamp, used to 'illuminate' the LDR. (Keeping all the lamps at a fixed distance).

b) in the distance of a incandescent lamp, (of fixed power), used to illuminate' the LDR.

3. To find the refractive indices f (a) water (b) oil (transparent) using a plane mirror, a equiconvex lens, (made from a glass of known refractive index) and an adjustable object needle.

4. To design an appropriate logic gate combination for a given truth table.

5. To investigate the relation between the ratio of

   i) output and input voltage and

   ii) number of turns in the secondary coil and primary coil of a self designed transformer.

6. To investigate the dependence, of the angle of deviation, on the angle of incidence, using a hollow prism filled, one by one, with different transparent fluids.

7. To estimate the charge induced on each one of the two identical styro foam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.

8. To set up a common base transistor circuit and to study its input and output characteristic and to calculate its current gain.

9. To study the factor, on which the self inductance, of a coi, depends, by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an a.c. source of adjustable frequency.

10. To construct a switch using a transistor and to draw the graph between the input and output voltage and mark the cut-off, saturation and active regions.

11. To study the earth's magnatic field using a tangent galvanometer.

Recommended Textbooks

1. Physics, Class XI, Part - I & II, Published by NCERT.
2. Physics, Class XII, Part - I & II, Published by NCERT.

CHEMISTRY

One Paper **Time : 3 Hours** **70 Marks**

Unit No.	**Title**	**Marks**
I	Solids State	4
II	Solutions	5
III	Electrochemistry	5
IV	Chemical Kinetics	5
V	Surface Chemistry	4
VI.	General Principles and Processes of Isolation of Elements	3
VII.	*p*-Block Elements	8
VIII.	*d*-and *f*-Block Elements	5
IX.	Coordination Compounds	3
X.	Haloakanes and Haloarenes	4
XI.	Alcohols, Phenols and Ethers	4
XII.	Aldehydes, Ketones and Carboxylic Acids	6
XIII.	Organic Compounds Containing Nitrogen	4
XIV.	Biomolecules	4
XV.	Polymers	3
XVI.	Chemistry in Everyday Life	3
	Total	**70**

FIRST TERM - (19th March - 14th September '2012)

I. Solution

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, elevation of B.P., depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass.

II Electrochemistry

Redox reactions, conductance in electrolytic solutions, specific and molar conductivity variations of conductivity with concentration. Kohlrausch's Law, electrolysis and laws of electrolysis (elementary idea), dry cell – electrolytic cells and Galvanic cells; lead accumulator. EMF of a cell, standard electrode potential, Nernst equation and its appliccation to chemical cells, fuel cells; corrosion.

III. Chemical Kinetics

Rate of a reaction (average and instantaneous), factors affecting rates of reaction; concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions); concept of collision theory (elementary idea, no mathematical treatment)

IV. Haloalkanes and Haloarenes

Haloalkanes :

Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions.

Haloarenes :

Nature of C-X bond, substitution reactions (directive influence of halogen for monosubstituted compounds only)

Uses and environmental effects of -dichloromethane, trichloromethane, terachloromethane, iodoform, freons, DDT.

V. Alcohols, Phenols and Ethers

Alcohols : Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only); identification of primary, secondary and tertiary alcohols; mechanism of dehydration, uses, some important compounds-methanol and ethanol.

Phenols : Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophillic substitution reactions, uses of phenols.

Ethers : Nomenclature, methods of preparation, physical and chemical properties uses.

VI. Solid State

Classification of solids based on different binding forces : molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea), unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties.

VII. *p*-Block Elements

Group 15 elements : General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen-preparation, properties and uses; compounds of nitrogen: preparation and properties of ammonia and nitric acid, oxides of nitrogen (structure only); Phosphorous-allotropic forms; compounds of phosphorous: preparation and properties of phosphine, halides (PCl_3, PCl_5) and oxoacids (elementary idea only)

Group 16 elements : General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; dioxygen: preparation, properties and uses; simple oxides; Ozone. Sulphur - allotropic forms; compounds of sulphur: preparation, properties and uses of sulphur dioxide; sulphuric acid: industrial process of manufacture, properties and uses, oxoacids of sulphur (structures only).

Group 17 elements : General introduction, electronic configuration, and occurrence, trends in physical and chemical properties; compounds of halogens: preparation, properties and uses of chlorine and hydrochloric acid, interhalogen compounds oxoacids of halogens (structures only).

Group 18 elements : General introduction, electronic configuration. Occurrence, trends in physical and chemical properties, uses.

VIII. Chemistry in everyday life

Chemicals in medicines - analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.

Chemicals in food - preservatives, artificial sweetening agents.

Cleansing agents - soaps and dtergents, cleansing action.

Second Term – (1st Oct. – 30 Nov. 2012)

IX. Aldehydes, Ketones and Carboxylic Acids

Aldehydes and Ketones : Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties and mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; uses.

Carboxylic Acids : Nomenclature, acidic nature, methods of preparation, physical and chemical properties, uses.

X. Organic compounds containing Nitrogen

Amines : Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

Cyanides and Isocyanides : Will be mentioned at relevant places in context.

Diazonium salts : Preparation, chemical reactions and importance in synthetic organic chemistry.

XI. General Principles and Processes of Isolation of Elements

Principles and methods of extraction : concentration, oxidation, reduction electrolytic method and refining : occurrence and principles of extraction of aluminium, copper, zinc and Iron.

XII. Surface Chemistry

Adsorption : Physisorption and chemisorption; factors affecting adsorption of gases on solids; catalysis : homogenous and heterogeneous, activity and selectivity: enzyme catalysis; colloidal state: distinction between true solutions, colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation; emulsion–types of emulsions.

XIII. Biomolecules

Carbohydrates : Classification (aldoses and ketoses), monosaccharides (glucose and fructose), oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); importance.

Proteins : Elementary idea of α - amino acids, peptide bond, polypeptides proteins, primary structure, secondary structure, tertiary structure and quaternary structure (qualitative idea only), denaturation of proteins; enzymes.

Vitamins : Classification and functions.

Nucleic Acids : DNA and RNA.

XIV. d and f Block Elements

General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals – metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation. Preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$.

Lanthanoids : electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction.

Actinoids : Electronic configuration, oxidation states.

XV. Coordination Compounds

Coordination Compounds : Introduction, ligands, coordination number, colour, magnetic properties and shapes. IUPAC nomenclature of mononuclear coordination compounds, bonding; isomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems).

XVI. Polymers

Classification : natural and synthetic methods of polymerization (addition and condensation), copolymerization. Some important polymers: natural and synthetic like polythene, nylon, polyesters, bakelite, rubber.

BIOLOGY

FIRST TERM (A) (19th March – 18th May 2012)

GENETICS AND EVOLUTION

Heredity and variation : Mendelian Inheritance; Deviations from Mendelism-Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination - in humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance - Haemophila, colour blindness; Mendelian disorder in humans - Thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Molecular Basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation - Lac Operon; Genome and human ganeome project; DNA finger printing.

Evolution: Origin of life; Biological evolution and evidences for biological evolution (Paleontological, comparative anatomy, embryology and molecular evidence); Darwin's contribution, Modern Syntheric theory of Evolution; Mechanism of evolution - Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Geneflow and genetic drift; Hardy - Weinberg's principle; Adaptive Radiation; Human evolution.

Biotechnology and its Applications

Principles and process of Biotechnology: Genetic engineering (Recombinant DNA technology).

Application of Biotechnology in health and agriculture: Human insulin and vaccine production, gene threpy; Genetically modified organisms-Bt crops; Transgenic Animals; Biosafety issues-Biopiracy and patents.

FIRST TERM (B) (9-7-12 — 14-9-12)

Ecology and Environment

Organisms and environment: Habitat and niche, Population and ecological adaptation Population interaction competition, predation, parasitism, Population attributes-growth, birth rate and death rate, age distribution.

Ecosystems: Patterns, components; productivity and decomposition; Energy flow; Pyramids of number, biomass, energy; Nutrient cycling (carbon and phosphorous); Ecological succession; Ecological Services-Carbon fixation, pollination, oxygen release.

Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity; Importance of Biodiversity; Loss of Biodiversity; Biodiversity conservation; Hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, National parks and sanctuaries.

Environmental issues: Air pollution and its control; Water pollution and its control; Agrochemicals and their effects; Solid waste management; Radioactive waste management; Greenhouse effect and global warning; Ozone deplection; Deforestation; Any three case studies as success stories addressing environmental issues.

SECOND TERM (1-10-12 — 30-11-12)

REPRODUCTION

Reproduction in organisms: Reproduction, a characteristics feature of all organisms for continuation of species; Modes of reproduction-A sexual and sexual reproduction; Modes-Binary fission, sporulation, budding, gemmule, fragmentation; vegetative propagation in plants.

Sexual reproduction in flowering plant: Flower structure; Development of male and female gametophytes; Pollination-

types, agencies and examples; Outbreedings devices; Pollen-Pistill interaction; Double fertilization; Post fertilixzation events-Development of endosperm and embryo, Development of seed and formation of fruit; Special modes-apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation.

Human Reproduction: Male and Female reproductive systems: Microscopic anatomy of testis and ovary; Gametogensis-spermatogenesis & oogenesis; Menstrual cycle; Fertilisation embryo, development upto blastocyst formation, implantation; Preg a cy and placenta formation (Elementary idea); Parturiation (Elementay idea); Lactation (Elementary idea).

Biology in Human Welfare

Health and Disease: Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic concepts of immunology-vaccines; Cancer, HIV and AIDs; Adolescene, drug and alcholol abuse.

Improvement in food production : Plant breeding, tissue culture, single cell protein, Biofortification, Apiculature and Animal husbandry.

Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers.

PRACTICAL

List of Experiments

1. Study pollen germination on a slide.
2. Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
3. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms.

4. Study the presence of suspended particulate matter in air at the two widely different sites.
5. Study of plant population density by quadrate mathod.
6. Study of plant population frequency by quadrate method.
7. Prepare a temporary mount of onion root tip to study mitosis.
8. To study the effect of the different temperatures and three different pH on the activity of salivary amylase on starch.

Study/observation of the following (Spoting)

1. Flowers adapted to pollination by different agencies (wind, insect).
2. Pollen germination on stigma through a permanent slide.
3. Identification of stages of gamete development i.e. T.S. testis and T.S. orary through permanent slides (from and mannal).
4. Meiosis in onion bud cell or grass hopper testis through permanent slides.
5. T.S. of blastula through permanent slides.
6. Mendelian inheritance using seeds of different colour/sizes of any plant.
7. Prepared pedigree charts of genetic traits such as rolling of tongue, blood groups, widow's peak clou blindness.
8. Exercise on controlled pollination-Emasculation, tagging and bagging.
9. Identification of common disease causing organisms like Ascaris, Entamoeba, Plasmodium, ringworm through permanent slides or specimens. Comment on symptoms of disease that they cause.
10. Two plants and two animals found in xerophytic conditions.

Comment upon their morphological adaptations.

11. Plants and animals found in aquatic conditions. Comment upon their morphological adaptations.

ENGINEERING GRAPHICS

(Theory)

One Paper **3 Hours** **70 Marks**

Unit		**Marks**
I.	Isometric projections of solids	25
II.	Machine Drawing	
	A. Drawing of machine parts	15
	B. Sectional view assembly of machine parts :	30
	1. Bearings	
	2. Rod Joints	
	3. Tie-rod and pipe joints	
	4. Couplings	
	5. Pulleys	
	Total Marks	**70**

Cycle Test : 19th March 2012 to 18 May 2012

I. Isometric Projection of Solids

Construction of isometric scale showing main divisions of 10mm and smaller divisions of 1 mm, also showing the leading angles. Drawing helping views/s such as triangles, pentagon, hexagon etc using isometric scale.

Isometric pronections (drawn to isometric scale) of solids such as cube, regular prism and pyramids (triangular, square, pentagonal and hexagonal), cone, cylinder, sphere, hemi-sphere, frustum of right regular pyramids (tringular, square, hexagonal) and cone, when they are cut by a plane parallel to the base. The axis and the base side of the solid should be either perpendicular to H.P./V.P. or parallel to HP and VP. (Indicate the direction of viewing).

Combination of two solids (except "frustum" of Pyramids and Cone) Keeping the base side parallel or perpendicular to H.P./ V.P. and placed centrally together, axis of both the solids should not be given parallel to H.P.

Drawing of machine parts

Drawing to full size scale with instruments.

(Internal choice will be given between *any two* of the following).

Introduction of threads: Standard profiles of screw threads square, knuckle, B.S.W., Metric (extrenal and internal). Bolts (square, Hexagonal, Tee and Hook); Nuts: (square and hexagonal), Plain washer, combination of nut and bolt with or washer for assembling two parts together, Single riveted lap joint with standard dimensions.

Half Yearly : 9th July 2012 – 14th Sept. 2012

Complete Portion of Cycle Test

Free-hand sketches.

(Internal choice will be given between *any two* of the following).

Conventional representation of external and internal threads; stud (plain, square-neck and collar), screws (round-head, cheese-head, 900 flat countersunk-head, haxagonal socket-head and grub-screw). Types of rivets:- snap head, pan head-without tapered neck, flat head 600 countersunk flat head: Types of sunk-keys (rectangular taper, woodruff and double-head feather key with gib head on both ends).

Assembly drawings and Dis-Assembly drawings (Internal choice will be given between an assembly drawing and a Dis-Assembly drawing).

Note :

1. In all the assembly drawings only half sectional front view will be asked Side/End view or Top view/plan will be drawn without section.

2. In all the Dis-assembly drawings, (asterix * marked only), only two orthographic views (one of the two views may be half in section or full in section) of any two parts.

3. a) In all sectionsal views, hidden lines / edges are not to be shown.

b) In all full views, hidden / edges are to be shown.

Bearings

*(i) Open-Bearing

*(ii) Bushed-Bearing

(iii) Footstep-Bearing (only sectional front view will be asked)

(iv) Simple Plummer-Block (only sectional front view will be asked with only round brasses)

Second Term : 1st Oct. 2012 – 30th Nov. 2012

Complete portion of Cycle Test and Half Yearly

Rod-Joints

*(i) Cotter-joints for circular-rods (socket and spigot joint)

*(ii) Cotter-joints for round-rods (sleeve and cotter joint)

*(iii) Cotter-joints for square rods (Gib and cotter-joint)

(iv) Knuckle-joints (only sectional front view will be asked)

Tie-rod and Pipe-joint

*(i) Turnbuckle

*(ii) Flange Pipe Joint

Couplings

(i) Unprotected Flange Coupling (having socket and spigot arrangement)

*(ii) Protected Flange coupling.

Pulleys

(i) Solid cast Iron Pulley (upto to 200 mm diameter) having solid web.

(ii) Single groove V-belt pulley (upto to 200 mm diameter)

PRACTICALS

One Paper (Practical) 3 Hours 30 Marks

(I) To perform the following jobs from the given views of the prescribed Machine Block (One).

Value-Points

		Marks
1.	Copy the given views	1
2.	Drawing the missing view with hidden lines	2
3.	Sketching the Isometric view without hidden edges	5
4.	To make the machine block of the above in three dimensions (not to scale but approximately proportionately) drawn with any medium i.e. thermocal, soap-cake, plasticine, clay, wax, orchsis (available with flowerists) etc.	7
(II)	**"Computer aided design" CAD - Project** Project file to be submitted on the simple solids (Prism, Pyramids and frustums of equilateral triangle, square, pentagon and hexgon) or machine blocks as prescribed in part-I by using the "computer aided design" CAD software.	10
(III)	(i) Sessional work relating to machine blocks as Prescribed	3

(ii) Viva-voice based on part-I and part-II 2

Total Marks **30**

ACCOUNTANCY

FIRST TERM - (19th March– 14th Sep. 2012)

A. 19th March – 18th May 2012)

Part - A :

Accounting for Partnership Firms and Companies

Unit 1 : Accounting for Partnership firms — Fundamentals

Partnership : Features, Partnership Deed.

Provisions of Indian Partnership Act. 1932 in the absence of partnership deed.

Fixed vs Fluctuating Capital Accounts, Division of Profit among partners, Guarantee of Profits, past adjustments (relating to interest on capital, interest on drawing, salary and profit sharing ratio), preparation of P&L Appropriation Account.

Goodwill : Nature, Factors affecting and methods of valuation – Average profit, Super profit and Capitalisation.

Unit 2 : Accounting for Partnership firms

— Reconstitution and Dissolution

Changes in profit sharing Ratio among the existing partners: Sacrificing Ratio and Gaining Ratio. Accounting for Revalution of Assets and re-assessment of Liabilities and distribution of reserves and Accumulated profits.

Admission of a partner : Effect of Admission of Partner, on change in Profit Sharing Ratio, Treatment of Goodwill (as per AS-26), Treatment of Revaluation of Assets and Liabilities, Treatment of reserves and accumulated profits, Adjustment of Capital Accounts and preparation of balance sheet.

Retriment and Death of a Partner : Effect of retirement/death of a partner on Change in Profit Sharing Ratio treatment of Goodwill, treatment for revaluation of assets and re-assessment of liabilities, adjustment of accumulated profits and reserves. Calculation of deceased partner's share of profit till the date of death. Preparation of deceased partner's capital account, executor's account and preparation of balance sheet.

Dissolution of a partnership firm : Types of dissolution of firm. Settlement of accounts — preparation of realization account and other related accounts (excluding piecemeal distribution, sale to a company and insolvency of partnership firm)

Tools for Financial Statement Analysis : Comparative Statements, Common Size Statements. Cash flow analysis, ratio analysis.

1st July – 14th Sept. 2012

Unit 3 : Accounting for Share Capital (38 Periods)

Share and Share Capital : Nature and Types.

Accounting for share capital : Issue and Allotment of Equity Shares; Private placement of shares; Public subscription of shares — over subscription and under subscription of shares; issue at par, and at premium and at discount; calls in advance and arrears, issue of shares for consideration other than cash.

Accounting treatment of forfeiture and re-issue of shares.

Disclosure of Share Capital in company's Balance Sheet only.

Unit 4 : Accounting for Debentures (14 Periods)

Debentures : Issue of debentures at par; at premium and at discount; Issue of debentures for consideration other than cash; Debentures as collateral security; Interest on debentures.

Redemption of debentures : Lump sum, draw of lots and conversion.

Unit 5 : Analysis of Financial Statements (24 Periods)

a) **Financial Statements of a Company :** Balance Sheet of a Company in the prescribed form with major headings and sub headings (as per Schedule VI to the Companies Act. 1956).

b) **Financial Statement Analysis :** Objectives and Lamitation.

c) **Accounting Ratios :** Objectives and Classification

Liquidity Ratios : Current Ratio and Quick Ratio

Solvency Ratios : Debt Ratio, Proprietary Ratio, Interest Coverage Ratio.

Activity Ratios : Stock Turnover Ratio, Debtors Turnover Ratio, Creditors Turnover Ratio, Working Capital Turnover Ratio.

Profitability Ratios : Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, Net Profit Ratio and Return on Investment.

Second Term - 1st Oct. – 30th Nov. 2012

Unit 6 : Cash Flow Statement : (20 Periods)

Meaning and Objectives, Preparation (as per AS 3 revised) (Indirect Method)

Unit 7 : Project Work (42 Periods)

Refer to the Guidelines Published by the CBSE

Unit-1. Project File

Unit-2. Written

Unit-3 Viva Voce

BUSINESS STUDIES

One Paper 3 Hours 100 Marks

Units	**Periods**	**Marks**
Part - A :		
Principles and Functions of Management		
1. Introduction to Management	12	5
2. Principles of Management	12	6
3. Business Environment	10	5
4. Planning	12	6
5. Organizing	16	8
6. Staffing	14	6
7. Directing	16	8
8. Controlling	14	6
	104	**50**
Part B : Buisness Finance and Marketing		
9. Financial Management	22	12
10. Financial Markets	20	8
11. Marketing Management	30	14
12. Consumer Protection	16	6
Part C : Project	16	10
	104	**50**

FIRST TERM - (19th March – 14th September 2012)

A. 19th March – 18th May 2012)

Part - A : Principles and Functions of Management

Unit 1 : Nature and Significance of Management

Management - Concept, Objectives and importance.

Management as Science, Art, Profession.

Levels of management

Management function - planning, organising, staffing, directing and controlling.

Coordination - concept, characteristics and importance.

Unit 2 : Principles of Management

Principles of management - concept, nature and significance.

Fayol's principles of management.

Taylor's Scientific Management - principles and techniques.

Unit 3 : Management and Business Environment

Business environment - importance.

Dimensions of Business Environment-Economic, Social Technological, Political and Legal.

Impact of Government policy changes on business with special reference to liberalization, privatization and globalisation in India.

Unit 4 : Planning

Concept, features, importance, limitations.

Planning process

Single use and Standing Plans - Objective, Strategy, Policy, Procedure, Method, Rule, Budget, Programme.

B. 9th March – 14th Sept. 2012)

Unit 5 : Organising

Concept and importance.

Organizing Process.

Structure of organisation - functional and divisional

Formal and informal organisation

Delegation concept, elements and importance

Decentralisation meaning and importance

Unit 6 : Staffing

Concept and importance of staffing

Staffing as a part of Human Resource Management.

Staffing process

– Recruitment - sources

– Selection - process

Training and development - concept and importance. Methods of training-on the job and off the job-Induction training, vestibule training, apprenticeship training and intership training.

Unit 7 : Directing

Concept and importance

Elements of Directing

– Supervision - concept functions of a supervisor.

– Motivation - concept, Maslow's hierarchy of needs; Financial and non-financial incentives.

– Leadership-concept, styles - authoritative, democratic and laissen faire

– Communication - concept, formal and Informal communication; barriers to effective communication, how to overcome the barries.

Unit 8 : Controlling

Concept nature and Importance

Relationship between planning and controlling

Steps in the process of control

Business Finance and Marketing

Unit 12 : Consumer Protection

Concept and importance of consumer protection

Consumer Protection Act 1986

- Meaning of consumer and consumer protection.
- Rights and responsibilities of consumers.
- Who can file a complaint and against whom?
- Redressal machinery.
- Remedies available.

Consumer awareness - Role of consumer organization and NGO's.

Role of consumer organisations and NGOs.

Unit 13: Project Work

SECOND TERM (1st Oct. – 30th November 2012)

Part B : Business Finance and Marketing

Unit 9 : Financial Managment

Concept objectives of financial management.

Financial decisions : investment, financing and dividend and factors affecting

Financial planning- concept and importance.

Capital Structure : concept and factors affacting.

Fixed and working capital : concept and factors affecting their requirements.

Unit 10 : Financial Markets

Financial Market : concept and types.

Money market and its instruments.

Capital market and its types (primary and secondary).

Stock Exchange - functions, Trading Procedure. Depository Services and D'mat Account.

Securities and Exchange Board of India (SEBI) - Objectives and Functions.

Unit 11 : Marketing Management

Marketing - concept and functions.

Marketing management philosophies.

Marketing mix - elements

– Product - concept, branding, branding, labeling and packaging.

– Price : Factors determining price.

– Physical distribution : concept, Channels of distribution: types, choice of channels.

– Promotion - concept and elements; advertising - concept, role, objections against advertising, personal selling - concept and qualities of a good salesman, salesman, sales promotion-concept and techniques, public relations-concept and role.

ECONOMICS

One Paper **3 Hours** **100 Marks**

Units		**Marks**
Part - A : Introductory Microeconomics		
1.	Introduction	4
2.	Consumer Equilibrium and Demand	18
3.	Producer Behaviour and Supply	18
4.	Forms of Market and Price Determination	10
5.	Simple applications of tools of demand and supply	-
		50
Part - B : Introductory Microeconomics		
6.	National Income & Related Aggregates	15
7.	Money and Banking	8
8.	Determination of Income and Employment.	12
9.	Government Budget and the Economy	8
10.	Balance of Payments.	7
		50

FIRST TERM - (19th March – 14th September 2012)

Unit 6 : National Income and Related Aggregates

Some basic concepts: consumption goods, capital goods, final goods, intermediate goods; stocks and flows; gross investment and depreciation.

Circular flow of income; Methods of calculating National Income-Value Added or Product method, Expenditure method, Income method.

Aggregates related to National Income :

Gross National Product (GNP), Net National Product (NNP), Gross and Net Domestic Product (GDP and NDP) - at market price, at factor cost; National Disposable Income (gross and net), Private Income, Personal Income and Personal Disposable Income; Real and Nominal GDP.

GDP and Welfare.

Unit 2 : Consumer Equilibrium and Demand

Demand, market demand, determinants of demand, demand schedule, demand curve, movement along and shifts in the demand curve, price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand (a) - percentage-change method and (b) geometric method (linear demand curve); relationship between price elasticity of demand and total expenditure.

Above portion is syllabus for 1st Cycle Test

Unit 1 : Introduction

Meaning of Microeconomics & Macroeconomics

What is an Economy? Central problems of an economy : what, how and for whom to produce; concepts of production possibility frontier and opportunity cost.

Unit 2 : Consumer Equilibrium and Demand (continued)

Consumer's Equilibrium - meaning of utility, marginal utility, law of diminishing marginal utility, conditions of consumer's equilibrium using marginal utility analysis.

Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium.

Unit 3 : Producer Behaviour and Supply

Production function : Total product, Average Product and Marginal Product.

Returns to a Factor.

Cost and Revenue : Short run costs - total cost, total fixed cost, total variable cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationship.

Revenue - total, average and marginal revenue.

Producer's equilibrium-meaning and its conditions-under marginal revenue-marginal cost approach.

Supply, market supply, determinants of supply, supply schedule, supply curve, movement along and shifts in supply curve, price elasticity of supply, measurement of price elasticity of supply-(a) percentage-change method and (b) geometric methods.

Unit 4 : Forms of Market and Price Determination

Perfect competition- Features, determination of market equilibrim and effects of shifts in demand and supply.

Other Market- forms monopoly,monopolistic competition, oligopoly-their meanings and features.

Unit : 5 : Simple applications of Tools of Demand and Supply

(not to be examined)

SECOND TERM (1st Oct. – 30th November 2012)

Unit 7 : Money and Banking

Money - its meaning and functions.

Supply of money - Currency held by the public and net demand deposits held by commercial banks.

Money creation by the commercial banking system.

Central bank and its functions (example of the Reserve Bank of India).

Unit 8 : Determination of Income and Employment

Aggregate demand and its components.

Propensity to consume and propensity to save (average and marginal).

Short-run equilibrium output; investment multiplier and the multiplier mechanism.

Meaning of full employment and involuntary unemployment.

Problems of excess demand and deficient demand. Measures to correct them - change in Government spending, availability of credit.

Unit 9 : Government Budget and the Economy

Government budget - meaning, objectives and components.

Classification of receipts - revenue receipts and capital receipts; classification of expenditure - revenue expenditure and capital, expenditure.

Measures of government deficit - revenue deficit, fiscal deficit, primary deficit : their meaning.

Fiscal policy and its role (non-evaluative topic).

Unit 10 : Balance of Payment

Balance of payments account - meaning and components; balance of payments deficit-meaning. Foreign exchange rate-meaning of fixed and flexible rates and managed floating.

Determination of exchange rate in a free market.

HISTORY

CYCLE TEST

BOOK - I

Chapter - 1	Bricks, Beads and Bones
	The Harappan Civilization
Chapter - 2	Kings, Farmers and towns
	Early states and Economies
	600 BC – 600 CE
Chapter - 3	Kinship, Caste and Class Early Societies
	600 BC – 600 AD
Chapter - 4	Thinkers, Beliefs and Buildings
	Cultural Developments 600 BC – 600 AD

HALF YEARLY

BOOK - II

Chapter - 5	Through the Eyes of Travellers. (10th – 17th)
Chapter - 6	The Mughal Court – Resonstructing Histories
	through chronicles
Chapter - 7	New Architecture Hampi
Chapter - 8	The Bhakti and Sufi Traditions
Chapter - 9	Medieval Society through Traveller's accounts

PRE-BOARD – DECEMBER

Modern India

Chapter - 10	Colonialism and Rural Society Evidence from
	official Reports.
Chapter - 11	Representations of 1857

Chapter - 12 Colonialism and Indian Towns

Chapter - 13 Mahatma Gandhi through Contemporary Eyes

Chapter - 15 The Making of the Constitution

Chapter - 16 Map Work 1 - 16 units

COMPUTER SCIENCE

FIRST TERM - (19th March – 14th September 2012)

CYCLE : 19th March – 18th May 2012

9 July – 14 Sept. 2012

Unit 1 : Object Oriented Programming in C++

Review : C++ covered In Class-XI,

Object Oriented Programming:

Concept of Object Oriented Programming-Data hiding, Data encapsulation, Class and Object, Abstract class and Concrete class, Polymorphism (Implementation of polymorphism using Function overloading as an example in C++), Inheritance, Advantages of Object Oriented Programming over earlier programming methodologies.

Implementation of Object Oriented Programming concepts in C++:

Definition of a class, Members of a class-Data Members and Member Functions (methods), Using Private and Public visibility modes, default visibility mode (private); Member function definition: inside class definition and outside class definition using scope resolution operator (::); Declaration of objects as instances of a class; accessing members from object(s), Objects as function arguments-pass by value and pass by reference;

Constructor and Destructor:

Constructor: Special Characteristics, Declaration and Definition of a constructor, Default Constructor, Overloaded Constructors, Copy Constructor, Constructor with default arguments;

Destructor :

Special Characteristics, Declaration and Definition of destructor;

Inheritance (Extending Classes):

Concept of Inheritance, Base Class, Derived Class, Defining derived classes, protected visibility mode; Single level inheritance, Multilevel inheritance and Multiple inheritance, Privately derived, Publicly derived and Protectedly derived class, accessibility of members from objects and within derived class(es);

Pointers:

Introduction to Pointers, Declaration and Initialization of Pointers; Dynamic memory allocation/deallocation operators: **new, delete;** Pointers and Arrays; Array of pointers, Pointer to an array (I dimensional array), Function returning a pointer, Reference variables and use of alias; Function call by reference. Pointer to structures; Deference operator; *, ->; self referencial structures;

Unit 2 : Boolean Algebra

Role of Logical operations in Computing.

Binary-valued Quantities, Logical Variable, Logical Constant and Logical Operators; AND, OR, NOT; Truth Tables; Closure Property, Commutative Law, Associative Law, Identity law, Inverse law, Principle of Duality, Idem potent Law, Distributive Law, Absorption Law, Involution law, DeMorgan's Law and their applications;

Obtaining Sum of Product (SOP) and Product of Sum (POS) form the Truth Table, Reducing Boolean Expressio (SOP and POS) to its minimal form, Use of Karnaugh Map for minimizatio of Boolean expressions (up to 4 variables);

Application of Computing Logic:

Building up logic circuits using basic Logic Gates (NOT, AND, OR, NAND, NOT)

Use of Boolean operators (NOT, AND, OR) in SQL SELECT statements

Use of Boolean operators (AND, OR) in search engine queries.

SECOND TERM (10th Oct. – 30th November 2012)

Data File Handling:

Need for a data file, Types of data files - Text file and Binary file;

Text File : Basic file operations on text file : Creating/ Writing text into file, Reading and Manipulation of text from an already existing text File (accessing sequentially);

Binary File: Creation of file, Writing data into file, Searching for required data from file, Appending data to a file, Insertion of data in sorted file, Deletion of data from file, Modification of data in a file;

Implementation of above mentioned data file handling in C++;

Components of C++ to be used with file handling:

Header file: fstream.h; ifstream, ofstream, fstream classes;

Opening a text file in in, out, and app modes;

Using cascading operators (>> <<) for writing text to the file and reading text from the file; open (), get(), put(), getline() and close() functions, Detecting end-of-file (with or without using eof() function);

Opening a binary file using **in, out,** and **app** modes;

open(), read(), write() and close() functions; Detecting end-of-file (with or without using **eof()** function); **tellg(), tellp(), seekg(), seek()** functions.

Unit 3: Data Structures

Introduction to data structure, primitive and non-primitive data structure linar and non-linear structure, static and dynamic data structure.

Arrays:

One and two Dimensional arrays: Sequential allocation and address calculation;

One dimensional array: Traversal, Searching (Linear, Binary Search), Insertion of an element in an array, deletion of an element from ana array, Sorting (Insertion, Selection,

Two-dimensional arrays: Traversal, Finding sum/difference of two NxM arrays containing numeric values, Interchanging Row and Column elements in a two dimensional array;

Stack (Array and Linked implementation of Stack):

Operations of Stack (PUSH and POP) and its Implementation in C++, Converting expressions from INFIX to POSTFIX notation and evaluation of Postfix expression;

Queue: (Circular Array and Linked Implementation):

Introduction to Queue (FIFO-First in First out operations)

Operations in Queue (Insert and Delete) and its Implementation in C++.

Unit 4 Databases and SQL

Database Concepts: Introduction to data base concepts and its need.

Relational data model: Concept of domain, tuple, relation, key, primary key, alternate key, candidate key;

Relational Query Languages:

General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language;

Data types: NUMBER/DECIMAL, CHARACTER/VERCHAR/ VARCHAR2, DATE;

SQL commands:

CREATE TABLE, DROP TABLE, ALTER TABLE. UPDATE... SET..., INSERT, DELETE;

SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, GROUP BY, HAVING, ORDER BY;

SQL functions: SUM, AVG, COUNT, MAX and MIN;

Obtaining results (SELECT query) from 2 tables using equi-join, Cartesian Product and Union

Note: Implementation of the above mentioned commands could be done on any SQL supported software on one or two tables.

Unti 5: Communication and Open Source Concepts

Communication Technologies

Evolution of Networking: ARPANET, Internet, Interspace

Different ways of sending data across the network with reference to switching techniques (Circuit, Message and Packet switching)

Data Communication terminologies: Concept of Channel, Baud, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, kbps, Mbps, Gbps, Tbps)

Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link.

Network devices: Modem, RJ45 connector, Ethernet Card, Hub, Switch, Gateway

Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN

Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, Remote Login (Telnet), Internet Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, WLL, IG, 2G, and 3G

Electronic mail protocols such as SMTP, POP3

Protocols for Chat and Video Conferencing

VoIP protocols such as Wi-Fi and WiMax

Network Security Concepts:

Threats and prevention from Viruses, Worms, Trojan horse, spams

Use of Cookies, Protection using Firewall;

India IT Act, Cyber Law, Cyber Crimes, IPR issues, Hacking.

WebServices:

WWW, Hyper Text Markup Language (HTML), eXtensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Protocol Address; Website, Webbrowser, Web Servers; Web Hosting, Web Scripting-Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking)

Open Standards

Introduction to open standards and its advantage in development of inter-operable environment.

Open Source Concepts

Proprietory and Open Source Software, Freeware, Shareware, FLOSS/FOSS, GNU,FSF, OSI W3C.

PAINTING (FINE ARTS)

FIRST TERM - (19th March – 14th September 2012)

Theory : History of Indian Art :

1. The Rajasthan Schools of minature painting (16th Century A.D. to 19th Century A.D.)
2. Name of Branches (Schools) : Western India, Pala, Rajasthani, Mugal, Central Indian, Deccan and Pahari.
3. The Rajasthani Schools.
   - Origin and development.
   - Schools-Mewar, Bundi, Jodhpur Bikaner Kishangarh and Jaipur
4. Main Features of the Rajasthani Schools.
5. Study of Rajasthani paintings.

   The Mugal Schools of miniature painting

   (16th century A.D. to 19th Century A.D.)
   - Origin and development of the Bengal School.
   - Main Features of the Bengal Schools.
   - Study of the following paintings

Cycle Test - 19-3-12 — 18-5-12

Half Yearly 9-7-12 — 14-9-12

SECOND TERM - 1-10-12 — 30-11-12

6. The Bengal school and the Modern trends in Indian Art (19th century and onwards)

7. Introduction to the Bengal school of painting.
   - Origin and devlopment of the Bengal school.
   - Main features of the Bengal School
   - Study of the following paintings.
8. The modern Trends in Indian Art.
   - Triumph of Labour - D. P. Roy Chowdhury
   - Santhal Family - M. F. Hussain
   - Birth of Poetry - K. K. Hebber
   - Gossip - N.S. Bendre
9. Graphic Prints :
   - Whirl Pool - Krishna Reddy
   - Children - Somnath Hore
   - Devietching - Jyoti Bhatt
10. Sculpters :
   - Cries unheard - Amarnath Sehgal
   - Standing Woman - Dhanraj Bhagat
   - The Rider - P. V. Jankiraman

One Practical Paper **Time : 6 Hours (3+)** **60 Marks**

Unitwise Weightage

Units	**Marks**
1. Nature, and Object Study - (First Term)	20
2. Painting Composition - (Second Term)	20
3. Portfolio Assessment	20

Unit 1 : Nature and Object Study

Studies on the basis of exercise done in class XI with two or three obejcts and drapery for background. Exercises in Pencil with light and shade and in full colour from a fixed point of view.

Unit 2 : Painting Composition

Imaginative painting based on subjects from Life and or Nature in water and poster colours with colour values.

Unit 3: Portfolio Assessment

a) Record of the entire years' performance from sketch to finished product.

b) Five selected Nature and object Study exercises in any media done during the session, including minimum of two still life exercise.

c) Two selected works of paintings done by the candidate during the year.

PSYCHOLOGY

FIRST TERM - (19th March – 14th September 2012)

One Theory Paper

Unitwise Weightage **Marks 70**

Units	**Marks**
Cycle Test	
Psychology, Self and Society	
I. Intelligence and Aptitude	09
II. Self and Personality	10
III. Human Stengths and meeting the Life Challenges	07
IV. Psychological Disorders	10
V. Therapeutic Approaches and counselling	07
VI. Attitude and Social Cognition	08
VII. Social Influence and Groups Processes	07
VIII. Environmental and Social concerns	06

IX. Applied Psychology 06

Practical (Psychological testing, Case Profile etc. 30

Psychology, Self and Society

Unit - I : Intelligence and Aptitude (20 Periods)

The unit aims at studying how people differ with respect to intelligence and aptitude.

Individual differences in intelligence: Theories of Intelligence; Culture and Intelligence; Emotional intelligence, Aptitude: Nature and types: Assessment of psychological attributes: dynamic assesment.

Unit - II : Self and Personality (24 Periods)

Aspects of self: self concept: Self-esteem and Self-regulation; Culture and self; Personality: Concept; Approaches to personality: Type and Trait, Psychodynamic, Humanistic, Behavioural and Cultural; Assessment of Personality: Self-report Measures, Behavioural Analysis, and Projective Measures.

Unit - III : Human Strengths and Meeting Life Challenges

This unit deals with the nature of stress and how responses to stress depend on an individual's appraisal of stressors. Strategies to cope with stress will also be dealt with.

Life challenges and adjustment; Concept of adaptation; Human strengths and virtues: Nature, types and effects on psychological functioning; Coping with stress; Concepts of health and well-being through life style changes.

Unit IV : Psychological Disorders (24 Periods)

This unit discusses the concepts of normality and the major psychological disorders.

Concepts of abhormality and psychological disorder, Causal factors associated with abnormal behaviour, Classification of disorders, Major psychological disorders: Anxiety, Somato-form, Dissociative, Mood, Schizophrenic, Developmental and Behavioural, Substance Related.

Unit V : Therapeutic Approaches and counselling (24 Periods)

This unit discusses the goals, techniques and effectiveness of different approaches to treat psychological disorders.

Nature and process of therapy; Nature of therapetic relationship; Types of therapies: Psychodynamic, Humanistic, Cognitive, Behaviour, Alternative therapies: Yoga, Meditation; Zen; Rehabilitation of mentally ill people, Counselling Prevention of mental disorders.

SECOND TERM - 1st Oct. 2012 — 30th Nov. 2012

Unit VI : Attitude and Social Cognition (20 Periods)

This unit focuses on the formation and change of attitudes, cultural influences on attributional tendencies and conditions influencing pro-social behaviour.

Explaining behaviour through attributions; Social cognition; Schemas and stereotypes; Impression formation; Nature and components of attitudes; Attitude formation and change; Behaviour in the presence of others; Pro-social Behaviour, Prejudice and discrimination; Strategies for handling prejudice.

Unit VII : Social Influence and Group Processes (22 Periods)

The unit deals with the concept of group, its functions and the dynamics of social influence process like conformity, obedience and compliance. Different conflict resolution strategies will also be discussed. Illustrations from Indian society context will be used.

Influence Processess: nature of Conformity, Obedience, and Complience; Cooperation and Competition; Groups: nature, formation and types; Influences of group on individual behaviour, Social identity; Inter-Group Conglict; Conflict Resolution Strategies.

Unit VII : Environmental and Social Concerns (18 Periods)

This unit focuses on the application of psychological understanding to some important social issues.

Human-environment relationship; Environmental effects on humanbehaviour. Noise, pollution, crowding, natural disasters, social issue: Aggression and Violence; Social Inequality and Poverty; Media and human values; Promoting pro-environmental behaviour, Human rights and citizenship; Peace.

Unit - IX : Applied Psychology (18 Periods)

This unit introduces some of the important areas of application of psychology.

Application of psychology to following areas:

1. Sports
2. Education
3. Communication
4. Organisation

Psychological testing Practicals
(60 Periods)

The students shall be required to prepare one case profile and conduct 2 practicals related to the topics covered in the course. The case profile will include developmental history of the subject, using both qualitative (observation, interview) and quantitative (Psychological testing) approaches. Practicals would involve using standardised psychological assessment devices in different domains 9e.g. intelligence, personality, aptitude, adjustment, attitude, self-concept, and anxiety.

Distribution of Marks

i)	Practical File	05 Marks
ii)	Case Profile	05 Marks
iii)	Viva Voice (Case profile and practical)	05 Marks
iv)	Two practicals (5 for accurate conduct and 10 for reporting)	15 Marks

Recommended text books :

1. Psychology, Class XI, Published by NCERT
2. Psychology, Class XII, Published by NCERT
3. Supplementary Reading Material Psychology for Classes XII and X (available on the CBSE website www.cbse.nic.in).

Note : The above text books and reading material are also available in Hindi medium.

PHYSICAL EDUCATION

PART - A Marks : 70

First Term

Unit- 1. PHYSICAL FITNESS AND WELLNESS

1.1. Meaning and Importance of Physical Fitness and Wellness

1.2. Components of Physical Fitness and Wellness

1.3. Factors Affecting Physical Fitness and Wellness

1.4. Principles of Physical Fitness Development

1.5. Means of Fitness Development - Aerobic & Anaerobic, Games & Sports. Yoga and Recrestional Activities.

UNIT- 2. PLANNING IN SPORTS

2.1. Fixtures – knock out, league, seeding and bye.

2.2. Intramurals and Extramurals.

2.3. Formation of committees for Organizing Sports Events.

2.4. Specific sports programmes-Health Runs, run for Fun, Rain for unity, Run for Awarness, Run for specific causes.

UNIT- 3. SPORTS AND ENVIRONMENT

3.1. Meaning and Need for Sport Environment.

3.2. Essential Elements of Positive Sports Environment.

3.3. Role of Individual in improvement of sports environment for prevention of sports Related Accidents.

3.4. Role of spectators and Media for creating positive sports environment.

UNIT- 4. POSTURES

4.1. Meaning and concept of correct postures standing and silting.

3.2. Advantage of correct posture.

4.3. Common postural Deformities Knock Knee. Flat Foot, Round Shoulders Lordosis, Kyphosis, Bow Legs and Scolioses.

4.4. Physical Activities as Corrective Messures.

Second Term

UNIT- 5. YOGA

5.1. Meaning and importances of Yoga.

5.2. Yoga as an Indian Heritage.

5.3. Elements of Yoga.

5.4. Role of Yoga in Sports Asanas, Pranayam and Meditation.

UNIT- 6. SPORTS AND NUTRITION

6.1. Balance Diet.

6.2. Elements of Diet

6.3. Components of Diet

6.4. Role of Diet on Performance

UNIT - 7. TRANING METHODS

7.1 Meaning, concept and Principles of Training.

7.2. Metthods of flexibility Developement.

7.3. Metthods of strength Development Isometric and Isotonic.

7.4. Methods of Endurance developement continuous method,

Interval training method and Fartlek method.

7.5. Methods of speed development.

7.6. Circuit Training.

Uinit - 8. PSYCHOLOGICAL ASPECTS OF PHYSICAL EDUCATION

8.1. Definition and Importance of sports psychology.

8.2. Types and Techniques of Motivation.

8.3. Development charactiristics at different stages of growth.

8.4. Adolesent problems and its Management.

8.5. Ethics in sports.

8.6. Anxiety and its management.

PART - B

First Term & Second Term

Following sub topics related to any one Game/Sport of choice of student out of :

Basketball, Cricket, Football, Handball, Hockey, Kabaddi, Kho Kho and Volleyball.

Unit - 1.

1.1 History of the Game / Sport

1.2 Latest General Rules of the game / sport

1.3 Specifications of play fields and releted sports equipments.

1.4 Important tournaments and venues

1.5 Sports Personalities

1.6 Proper Sports Gears and their Importance.

Unit - 2.

2.1 Fundamental Skills of the Games/Sport.

2.2 Specific Exercises of Warm-up and Conditioning

2.3 Related Sports Terminologies

2.4 Sports Awards

2.5 Common Sports Injuries & their Prevention

2.6 SGFI & its Organisational Set-up

PART - C

(For Class XI & XII

The Practical Syllabus has been divided into five parts & the marks alloted for each part are as follows :

i)	Physical Fitness Test (Compulsory)	:	10 Marks
ii)	Skill of Chosen Sport/Game	:	05 Marks
iii)	Any Five Asanas	:	05 Marks
iv)	Viva	:	05 Marks
v)	Record Book (File)*	:	05 Marks

*Record Book (File) must include other than the details of

Games/Sport of your choice as the following :

i) BMI calculation of minimum twn students

ii) AAPHER Test Score of minimum ten students

POLITICAL SCIENCE

First Term : 19th March to 14th September 2012

a) Cycle Test Syllabus

PART - A : Contemporary World Politics

Units -

1. Cold War Era
2. The End of Bipolarity

PART - B : Politics in India Since Independence

1. Challenges of Nation Building
2. Era of one-Party Dominance
3. Politics of Planned Development

b) Half Yearly

PART - A : Contemporary World Poltics

1. US Hegemony in World Politics
2. Alternative Centres of Power
3. Contemporary South Asia
4. International Organisation
5. Security in Contemporary World

PART - B : Politics in India Since Independence

1. India's External Relation
2. Challenges to the Congress System
3. Crisis of the Democratic order

Note : Cycle test syllabus will also be covered in Half Yearly

Second Term : 1st Oct. to 30th Nov.

PART - A : Contemporary World Poltics

1. Environment and Natural Resources
2. Globalisation

PART - B : Politics in India Since Independence

1. Rise of Popular Movements
2. Regional aspirations
3. Recent Developments in Indian Politics.