

पाठ्यक्रम विभाजन 2017-2018

विषय : हिंदी (केन्द्रिक)

कक्षा-12

क्रम संख्या	माह	अनुमानित कार्य दिवस	अध्याय संख्या	विस्तृत-पाठ्यक्रम	कालांश	कंप्यूटर शिक्षण कालांश
1	अप्रैल	22	5	1. आत्म परिचय, एक गीत-हरिवंश राय बच्चन 2. भक्तिन-महादेवी वर्मा 3. विभिन्न संचार माध्यमों का परिचय 4. सिल्वर वैडिंग-मनोहर श्याम जोशी 5. निबंध-लेखन (सामाजिक विषयों पर)	21	एक
2.	मई-जून	16	5	1. पतंग-आलोक धन्वा 2. कविता के बहाने, बाल सीधी थी पर-कुंवर नारायण 3. बाजार दर्शन – जैनेन्द्र कुमार 4. संचार माध्यम परिचय – प्रिंट मीडिया 5. निबंध लेखन – साहित्यिक निबंध (हिंदी साहित्य का इतिहास, राष्ट्रभाषा हिंदी)	16	एक
3.	जुलाई	25	6	1. कैमरे में बंद अपाहिज – रघुवीर सहाय 2. काले मेघा पानी दे – धर्मवीर भारती 3. जूझ – आनंद यादव 4. समाचार पत्र लेखन – (औपचारिक पत्र) 5. निबंध – समसामायिक विषयों पर (नारी सशक्तिकरण, 21वीं सदी का भारत) 6. संपादकीय परिचय	27	एक

4.	अगस्त	22	6	<ol style="list-style-type: none"> 1. सहर्ष स्वीकारा है – गजानन माधव मुक्तिबोध 2. पहलवान की ढोलक – फणीश्वरनाथ रेणु 3. अतीत में दबे पाँव – ओम थानवी 4. कार्यालयी पत्र (प्राचार्य, संपादक, स्वास्थ्य अधिकारी के नाम पत्र) 5. निबंध-विविध विषयों पर (विज्ञान : वरदान या अभिशाप, इंटरनेट) 6. संपादकीय – प्रारूप 	22	एक
5.	सितंबर	23	8	<ol style="list-style-type: none"> 1. उषा – शमशेर बहादुर सिंह 2. बादल राग-सूर्यकांत त्रिपाठी 'निराला' 3. चार्लीचैप्लिन यानी हम सब-विष्णु खरे 4. नमक-रजिया सज्जाद जहीर 5. डायरी के पन्ने-ऐन फ्रैंक 6. रिपोर्ट एवं आलेख 7. रोजगार संबंधी पत्र 8. स्ववृत्त लेखन 	23	एक
6.	अक्टूबर	17	7	<ol style="list-style-type: none"> 1. कवितावली, लक्ष्मण-मूर्च्छा और राम का विलाप-तुलसीदास 3. रुबाइयाँ, गजल-फिराक गोरखपुरी 4. शिरीष के फूल-हजारी प्रसाद द्विवेदी 5. फीचर लेखन 6. अपठित-गद्यांश, पद्यांश 7. निबंध-सांस्कृतिक विषयों पर (विभिन्नता में एकता) 8. छोटा मेरा खेत-उमाशंकर जोशी बगुलों के पंख – उमाशंकर जोशी 9. श्रम-विभाजन और जाति-प्रथा – बाबा साहेब भीमराव आंबेडकर मेरी कल्पना का आदर्श समाज – बाबा साहेब भीमराव आंबेडकर 	17	एक
7.	नवम्बर	18	4	<ol style="list-style-type: none"> 3. विभिन्न समस्याओं पर विभागीय अधिकारियों को लिखे जाने वाले पत्र 4. पुनरावृत्ति प्रश्न-पत्र-अभ्यास कार्य 	19	एक
8.	दिसम्बर-फरवरी			पुनरावृत्ति		

ENGLISH CORE (301) CLASS-XII

MONTH	FLAMINGO	VISTAS/Novel (The Invisible Man)	Reading & Writing Skills
APRIL	1. The Last Lesson	1. The Tiger King Introduction to the novel & novelist	Reading comprehension and recapitulation of Notice Writing
MAY	P- My Mother At sixty Six	Chapter 1 & 2 Discussion (novel)	Advertisement
JUNE	2. Lost Spring	Chapter 3 & 4 Discussion (novel)	Article writing
JULY	3. Deep Water P- An Elementary School- Classroom in a Slums	2. The Enemy Chapter 5,6,7 & 8 Discussion (novel)	Note Making & Summarizing
AUGUST	4. The Rattrap P- Keeping Quiet	3. Should Wizard Hit Mummy ? Chapter 1 & 2 Discussion (novel) 9,10,11 &12	Revision of letter of enquiry, speech & poster making
SEPTEMBER	5. Indigo P- A Thing of Beauty	4. On The Face of It, Chapter 13,14,15, &16 Discussion (novel)	Recapitulation of Report writing & factual description
OCTOBER	6. Going Places, Poem- Aunt Jennifer's Tiger	5. Evans Tries An O-Level, Chapter 17, 18,19 & 20 Discussion (novel)	Recapitulation of invitation –writing & replies of complaint
NOVEMBER	Revision 1 st Preboard	6. Memories of Childhood, Discussion rest of the novel chapter with theme, plot and characters of the novel.	Recapitulation of placing order & factual description Letter of job application
DECEMBER	Revision	Revision	Revision
JANUARY	Revision 2 nd Pre Board	Revision	Revision
FEBRUARY	Revision	Revision	Revision

SUBJECT : MATHEMATICS
CLASS-XII

Month	Distribution of Syllabus
April/may	<p>3. Matrices: Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric. Addition, multiplication and scalar multiplication of matrices, 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.</p> <p>4. Determinants:- Determinants of a square matrix (up to 3 x 3 matrices), properties of determinants in finding the area of the triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations by examples, solving system of linear equations in two or three variables (having unique solutions) using inverse of a matrix.</p> <p>1. RELATIONS AND FUNCTIONS: Types of Relations: Reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.</p> <p>2. INVERSE TRIGONOMETRIC FUNCTIONS:- Definition, range, domain, principle value branches. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions.</p>
June/July	<p>5. Continuity and differentiability:- Continuity and differentiability, derivatives of inverse trigonometric function, derivative of implicit function. Concept of exponential and logarithmic function and their derivatives. Logarithmic differentiation. Derivatives. Roll's and Lagrange's mean value Theorems (without proof) and their geometric interpretations.</p>

June/July	<p>6. Applications of derivatives:-Applications of derivatives, Rate of change, increasing/decreasing function, tangents and normal's, 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).</p> <p>12. LINEAR PROGRAMMING: 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(bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).</p>
August	<p>7. Integrals:-</p> <p>Integration as inverse process of differentiation .Integration of a variety of functions by substitution, by partial fraction and by parts, only simple integrals of the type to be evaluated.</p> <p>Definite integrals as the limit of sum. Fundamental theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.</p> $\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{a^2 - x^2}, \int \frac{dx}{ax^2 + bx + c}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{ax^2 + bx + c}}$ $\int \sqrt{ax^2 + bx + c} dx \int (px + q) \sqrt{ax^2 + bx + c} dx.$ <p>8. Applications of integrals: -</p> <p>Applications in finding the area under simple curves, especially lines, arc of circles / parabolas / ellipses (in standard form only), area between two above said curves (the region should be clearly identifiable).</p>

September	<p>9. Differential Equations: -</p> <p>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 of variables solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type: $dy/dx+py=q$, where p and q are functions of x or constants.</p> <p style="text-align: center;">where p and q are functions of y or constants</p> <p>10. Vectors: -</p> <p>Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. 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. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors, scalar triple product of vectors.</p>
October	<p>11. Three Dimensional Geometry: -</p> <p>Direction cosines and direction ratios of a line joining two points. Cartesian equation 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.</p> <p>13. PROBABILITY:-</p> <p>Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its probability distribution, mean and variance of random variable. Repeated independent (Bernoulli) trials and Binomial distribution</p>

November	Any left out of October, Revision and Discussion of CBSE Sample papers and Study materials, Remedial Classes and preparation for pre-board.
December	Revision and Discussion of CBSE Sample papers and Study materials, Remedial Classes and preparation for pre-board.
January	Revision For 2nd pre-board exam.
February	Revision for Board Examinations 2018.
March	Revision for Board Examinations 2018.

S.No.	Topic	Total
1.	(a) Relations & Functions (b) Inverse Trigonometric Functions	10
2.	(a) Matrices (b) Determinants	13
3.	(a) Continuity and Differentiability (b) Applications of Derivatives (c) Integration (d) Applications of Integrals (e) Differential Equations	44
4.	Vectors	17
	Three Dimensional Geometry	
5	Linear Programming	6
6	Probability	10
Total	Total	100

QUESTION WISE BREAK UP

Type of Question	Mark per Question	Total No. of Questions	Total Marks
VSA	1	4	4
SA	2	8	16
LA-I	4	11	44
LA-II	6	6	36
Total		29	100

1. No chapter wise weightage. Care to be taken to cover all the chapters.
2. Suitable internal variations may be made for generating various templates keeping the overall weightage to different form of questions and typology of questions same.

Choice (s): There will be no overall choice in the question paper. However, 30% internal choices will be given in 4 marks and 6 marks questions.

SUBJECT : CHEMISTRY**CLASS : XII**

S.No.	Month	Chapters	
1.	April- May	Solid State, Solutions, Electrochemistry	Unit I : Solid State Classification of solid 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, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties. Band theory of metals, conductors, semiconductors and insulators and n and p type semiconductors. Unit II : Solutions Type 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, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor. Unit III : Electrochemistry Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, EMF of

			<p>a cell, standard, electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and emf of a cell, fuel cell, corrosion.</p> <p>Unit IV : Chemical Kinetics</p> <p>Rate of a reaction (Average and instantaneous), factors affecting rate 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). Activation energy, Arrhenius equation.</p>
2.	June-July	Surface Chemistry, Isolation of Elements, p-Block Elements	<p>Unit V : Surface Chemistry</p> <p>Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis, homogenous and heterogenous activity and selectivity; enzyme catalysis colloidal state distinction between true solutions, colloids and suspension; lyophilic , lyophobic multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.</p> <p>Unit VI: General Principles and Processes of Isolation of Elements</p> <p>Principles and methods of extraction-concentration, oxidation, reduction-electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.</p>

	June- July		<p>Unit VII : p- Block Elements</p> <p>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); Phosphorus-allotropic forms, compounds of Phosphorus Preparation and Properties of Phosphine, Halides PC13, PC15 and Oxacids (elementary idea only).</p> <p>Group 16 Elements : General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen; Preparation, Properties and uses, classification of Oxides, Ozone, Sulphure allotropic forms; compounds of Sulphure Preparation Properties and uses of Sulphur-dioxide, Sulphuric Acid : industrial process of manufacture, properties and uses; Oxoacids of Sulphur (Structures only).</p> <p>Groups 17 Elements; General introduction, electronic configuration, oxidation states, 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).</p> <p>Group 18 Elements; General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.</p>
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3.	August	d-and f-Block Elements, Coordination Compounds, Haloalkanes and Haloarenes, Alcohols, Phenols and Ethers	<p>Unit VIII : d and f Block Elements</p> <p>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 $KMnO_4$.</p> <p>Lanthanoids-Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.</p> <p>Actinoids-Electronic configuration, oxidation states and comparison with lanthanoids.</p> <p>Unit IX : Coordination Compounds</p> <p>Coordination compounds—Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).</p> <p>Unit X : Haloalkanes and Haloarenes</p> <p>Haloalkanes : Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation.</p>
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	August		<p>Haloarenes : Nature of C-X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.</p> <p>Unit XI : Alcohols, Phenols and Ethers</p> <p>Alcohols : Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol.</p> <p>Phenols : Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.</p> <p>Ethers : Nomenclature, methods of preparation, physical and chemical properties, uses.</p>
4.	September	Aldehydes, Ketones and Carboxylic Acids, Organic Compounds Containing Nitrogen	<p>Unit XII : Aldehydes, Ketones and Carboxylic Acids</p> <p>Aldehydes and Ketones : Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; uses.</p> <p>Carboxylic Acids : Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.</p> <p>Unit : XIII : Organic Compounds containing Nitrogen</p> <p>Amines : Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.</p>

			<p>Cyanides and Isocyanides will be mentioned at relevant places in context.</p> <p>Diazonium salts : Preparation, chemical reactions and importance in synthetic organic chemistry.</p>
5.	October	<p>Biomolecules, Polymers, Chemistry in Everyday Life</p>	<p>Unit XIV : Biomolecules</p> <p>Carbohydrates-Classification (aldoses and ketoses), monosaccharide's (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance.</p> <p>Proteins - Elementary idea of α- amino acids, peptide bond, polypeptides, proteins, structure of proteins primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones-Elementary idea excluding structure.</p> <p>Vitamins-Classification and functions.</p> <p>Nucleic Acids : DNA and RNA.</p> <p>Unit XV : Polymers</p> <p>Classification natural and synthetic, methods of polymerization (addition and condensation), copolymerization, some important polymers; natural and synthetic like polythene, nylon polyesters, bakelite, rubber. Biodegradable and non-biodegradable polymers.</p> <p>Unit XVI : Chemistry in Everyday life</p> <p>Chemicals in medicines-analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.</p> <p>Chemicals in food-preservatives, artificial sweetening agents, elementary idea of antioxidants. Cleansing agents-soaps and detergents, cleansing action.</p>

PRACTICALS SYLLABUS 60 Periods

A. Surface Chemistry

- (a) Preparation of one lyophilic and one lyophobic sol

Lyophilic sol - starch, egg albumin and gum

Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide.

- (b) Dialysis of sol-prepared in (a) above.
- (c) Study of the role of emulsifying agents in stabilizing the emulsion of different oils.

B. Chemical Kinetics

- (a) Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.
- (b) Study of reaction rates of any one of the following:
- (i) Reaction of Iodide ion with Hydrogen Peroxide at room temperature using different concentration of Iodide ions.
- (ii) Reaction between Potassium Iodate, (KIO_3) and Sodium Sulphite: (Na_2SO_3) using starch solution as indicator (clock reaction).

C. Thermochemistry

Any one of the following experiments

- (i) Enthalpy of dissolution of Copper Sulphate or Potassium Nitrate.
- (ii) Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH).
- (iii) Determination of enthalpy change during interaction (Hydrogen bond formation) between Acetone and Chloroform.

D. Electrochemistry

Variation of cell potential in $\text{Zn}/\text{Zn}_{2+} \parallel \text{Cu}_{2+}/\text{Cu}$ with change in concentration of electrolytes (CuSO_4 or ZnSO_4) at room temperature.

E. Chromatography

- (i) Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of Rf values.
- (ii) Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in Rf values to be provided).

F. Preparation of Inorganic Compounds

- (i) Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum.
- (ii) Preparation of Potassium Ferric Oxalate.

G. Preparation of Organic Compounds

Preparation of any one of the following compounds

- (i) Acetanilide
- (ii) Di-benzal Acetone
- (iii) p-Nitroacetanilide
- (iv) Aniline yellow or 2 - Naphthol Aniline dye.

H. Tests for the functional groups present in organic compounds:

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

I. Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given food stuffs.

J. Determination of concentration/ molarity of KMnO_4 solution by titrating it against a standard solution of:

(i) Oxalic acid,

(ii) Ferrous Ammonium Sulphate

(Students will be required to prepare standard solutions by weighing themselves).

K. Qualitative analysis

Determination of one cation and one anion in a given salt.

(**Note:** Insoluble salts excluded)

INVESTIGATORY PROJECT BASED ON CHEMISTRY PRINCIPLES

Scientific investigations involving laboratory testing and collecting information from other sources.

SUBJECT-PHYSICS
CLASS XII (2017-18)

S.No.	Unit	No. of Periods	Marks
1.	Electrostatics	22	15
2.	Current Electricity	20	
3.	Magnetic effect of current and Magnetism	22	16
4.	Electromagnetic induction and alternating current	20	
5.	Electromagnetic waves	04	17
6.	Optics	25	
7.	Dual nature of matter	08	10
8.	Atoms and Nuclei	14	
9.	Electronics Devices	15	12
10.	Communication Systems	10	
	Total	160	70

	UNIT	DISTRIBUTION OF SYLLABUS	Marks	Periods	Practicals
April	01	<p>ELECTROSTATICS:</p> <p>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.</p>	15	22	2 Expts 1 Activities
May & June		<p>CURRENT ELECTRICITY :</p> <p>Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current;</p>			

May & June	02	<p>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.</p> <p>Internal resistance of a cell, potential difference and emf of a 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.</p>		20	1 Expts
July	03	<p>MAGNETIC EFFECTS OF CURRENT AND MAGNETISM</p> <p>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-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.</p> <p>Current loop as a magnetic dipole and its magnetic dipole moment. Magnetic dipole moment of a revolving electron.</p>	16	22	3 Expts 1 Activity

July		<p>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.</p> <p>Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths. Permanent magnets.</p>			
August	04	<p>Electromagnetic Induction and Alternating Currents : Electromagnetic induction; Faraday's laws, induced emf and current; Lenz's Law, Eddy currents. Self and mutual induction. 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.</p>		20	3 Expts 1 Activity
	05	<p>Electromagnetic waves : Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse nature (qualitative ideas only). Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.</p>	17	04	
September		<p>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, lensmaker's formula. Magnification, power of a lens, combination</p>			

September	06	<p>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 appearance of the sun at sunrise and sunset.</p> <p>Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers. Wave front and Huygen's principle, reflection and refraction of 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 fringe width, coherent sources and sustained interference of light. Diffraction 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.</p>		25	3 Expts 2 Activities
October	07	<p>Dual Nature of Matter and Radiation : 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-Germer experiment (experimental details should be omitted; only conclusion should be explained).</p>		08	
	08	<p>Atoms and Nuclei : Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum. Composition and size of nucleus, atomic masses,</p>	22	39	3 Expts

October	<p>isotopes, isobars; isotones. Radioactivity alpha, beta and gamma particles/rays and their properties; radioactive decay law.</p> <p>Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.</p> <p>ELECTRONIC DEVICES : Energy bands in conductors, semiconductors and insulators (qualitative ideas only)</p> <p>Semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier; Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics, zener diode as a voltage regulator. Junction transistor, transistor action, characteristics of a transistor and transistor as an amplifier (common emitter configuration), basic idea of analog and digital signals, Logic gates (OR, AND, NOT, NAND and NOR).</p> <p>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, satellite communication. Need for modulation, amplitude modulation .</p>			
November	If any left of October syllabus cover in November. Revision for FIRST PRE BOARD EXAM			
December	FIRST PRE BOARD EXAM AND REVISION			
January	SECOND PRE BOARD EXAM AND REVISION			
February	PRACTICAL EXAM AND REMEDIAL CLASSES			

SYLLABUS FOR PRACTICALS (60 periods)

The record, to be submitted by the students, at the time of their annual examination, has to include : Record of at least 15 Experiments [with a minimum of 7 from section A and 8 from section B], to be performed by the students. Record of at least 5 Activities [with a minimum of 2 each from section A and section B], to be demonstrated by the teachers. The Report of the project, to be carried out by the students.

Evaluation Scheme

Total 30 marks

Two experiments one from each section 8+8 Marks

Practical record [experiments and activities] 6 Marks

Investigatory Project 3 Marks

Viva on experiments, activities and project 5 Marks

SECTION–A Experiments

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

Activities *(For the purpose of demonstration only)*

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance, voltage (AC/DC), current (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

1. To find the value of v for different values of u in case of a concave mirror and to find the focal length. 72
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 plotting 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 convex lens and plane mirror.
8. To draw the I-V characteristic curve for a p-n junction in forward bias and reverse bias.
9. To draw the characteristic curve of a zener diode and to determine its reverse break down voltage.
10. To study the characteristic of a common-emitter *nnp* 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, an IC, a resistor and a capacitor from a 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 a diode and an LED, (iv) check whether a given electronic component (e.g., diode, transistor or IC) is in working order.

3. To study effect of intensity of light (by varying distance of the source) on an LDR.
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 a (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.

Prescribed Books:

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

SUBJECT-BIOLOGY
CLASS-XII

UNIT	Title	No. of Periods	Marks
VI	REPRODUCTION	30	14
VII	GENETICS AND EVOLUTION	40	18
VIII	BIOLOGY IN HUMAN WELFARE	30	14
IX	BIOTECHNOLOGY	30	10
X	ECOLOGY	30	14
	TOTAL	160	70

QUESTION WISE BREAKUP

Type of question	Marks per question	Total no. of questions	Total marks
VSA	1	5	05
SA-I	2	5	10
SA-II	3	12	36
VBQ	4	1	04
LA	5	3	15
TOTAL		26	70

SUB : BIOLOGY**CLASS-XII**

Month	Unit	Chapter No. and Name	Sub Topics	Periods
April/ May 2017	Reproduction	1. Reproduction in Organisms 2. Sexual Reproduction in Flowering plants 3. Human Reproduction 4. Reproductive Health	Modes of reproduction- asexual and sexual reproduction, binary fission, sporulation, budding, gemmule formation, vegetative propagation, sexual reproduction- pre-fertilisation events, gamete transfer, fertilisation, post fertilisation events. flower structure, development of male and female gametophyte, pollination-types, pollen-pistil interaction, double fertilisation, development of endosperm and embryo, seed, formation of fruit, male and female reproductive systems, gametogenesis menstrual cycle, fertilization and implantation, pregnancy, embryo development, parturition and lactation Reproductive health-problems and strategies, birth control, contraception and medical termination of pregnancy, sexually transmitted diseases, infertility, assisted reproductive technologies.	31
June/July 2017	Genetics and Evolution	5. Principles of Inheritance and Variation	Mendelian inheritance, incomplete dominance, codominance, multiple allelism, inheritance of two genes, chromosomal theory of inheritance, linkage and recombination, sex determination, mutation, genetic disorders- chromosomal disorders, haemophilia, colour blindness; Mendelian disorders in humans - thalassemia;	34

		<p>6. Molecular Basis of Inheritance</p> <p>7. Evolution</p>	<p>chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes</p> <p>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 and rice genome projects; DNA fingerprinting.</p> <p>Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy-Weinberg's principle; adaptive radiation; human evolution</p>	34
August 2017	Biology and Human Welfare	8. Health and Disease	<p>Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology vaccines; cancer, HIV and AIDS; Adolescence-drug and alcohol abuse.</p> <p>Improvement in food production; Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry</p>	25

		9. Strategies for Enhancement in Food Production 10. Microbes in Human Welfare	In household food processing, industrial production, sewage treatment, energy generation and microbes as biocontrol agents and biofertilizers, Antibiotics; production and judicious use.	
September 2017	Biotechnology	11. Biotechnology -Principles and Processes 12. Biotechnolgy and its applications	Genetic Engineering (Recombinant DNA Technology). Application of biotechnology in health and agriculture; Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms Bt crops; transgenic animals; biosafety issues, bio piracy and patent.	19
	Ecology	13. Organisms and Population	Organisms and environment : Habitat and niche, population and ecological adaptations; population interactions-mutualism, competition, predation, parasitism; population attributes growth, birth rate and death rate, age distribution	19
October 2017		14. Ecosystem	Ecosystems; Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological services carbon fixation, pollination, seed dispersal, oxygen release (in brief).	

<p>October 2017</p>		<p>15. Biodiversity and Conservation</p> <p>16. Environmental Issues</p>	<p>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, sanctuaries and Ramasar sites.</p> <p>Air pollution and its control; water pollution and its control; agrochemicals and their effects; solid waste management; radioactive waste management; greenhouse effect and climate change; ozone layer depletion; deforestation; any one case study as success story addressing environmental issues.</p>	<p>25</p>
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SUBJECT : HISTORY**CLASS-XII**

S.No.	Month	Name of the Chapter	No. of Periods Required	Remarks
1	APRIL & MAY	1. Bricks, Beads and Bones: The Harappan Civilisation	13	
		2. Kings, Farmers and Towns: Early States and Economies	14	
		3. Kinship, Caste and Class: Early Societies	14	
2	JUNE	4. Thinkers, Beliefs and Buildings: Cultural Developments	14	
3	JULY	5. Through the Eyes of Travellers: Perceptions of Society	13	
		6. Bhakti-Sufi Traditions: Changes in Religious Beliefs and Devotional Texts	13	
		7. An Imperial Capital: Vijaynagara	13	
4	AUGUST	8. Peasants, Zamindars and the State: Agrarian Society and the Mughal Empire	13	
		9. Kings and Chronicles: The Mughal Courts	13	
		10. Colonialism and The Countryside: Exploring Official Archives	13	

5	SEPTEMBER	11. Rebels and The Raj:1857 Revolt and its representations 12. Colonial Cities:Urbanisation,Planning and Architecture	13 13	
6	OCTOBER	13. Mahatma Gandhi and The Nationalist Movement :Civil Disobedience and Beyond 14. Understanding Partition :Politics,Memories ,Experiences 15. Framing the Constitution:The beginning of a New Era	13 14	
7	NOVEMBER	REVISION	14	
8	DEC TO FEB	Project Work Submission 1stPreboard -2017-18(Nov-Dec) 2nd Preboard-2017-18(Jan 2018)		

SUBJECT : GEOGRAPHY

CLASS-XII

Sl. No.	Month	Name of Chapter	No. of Periods Required	Remarks
1.	April-May	<p>Book-1: Fundamentals Of Human Geography</p> <p>1. Human Geography:Nature and Scope</p> <p>2. The world Population:Distribution,density and Growth</p> <p>3. Population composition</p> <p>BOOK-II: INDIA, PEOPLE AND ECONOMY</p> <p>1. Population:Distribution,Density,Growth and composition</p> <p>2. Migration:Types,Causes and Consequences</p> <p>PRACTICALS</p> <p>1. Data:Its Sources and Compilation</p> <p>2. Data Processing</p>	<p>06</p> <p>07</p> <p>07</p> <p>07</p> <p>06</p> <p>07</p> <p>08</p>	
2.	June-July	<p>BOOK-1: FUNDAMENTALS OF HUMAN GEOGRAPHY</p> <p>4. Human Development</p> <p>5. Primary Activities</p> <p>6. Secondary Activities</p> <p>7. Tertiary, Quaternary and Quinary Activities</p> <p>BOOK-II: INDIA,PEOPLE AND ECONOMY</p> <p>3. Human Development</p> <p>4. Human Settlements</p>	<p>04</p> <p>08</p> <p>08</p> <p>08</p> <p>05</p> <p>07</p>	

		5. Land Resources and Agriculture PRACTICALS	07	
		3. Graphical Representation of Data	08	
3.	August	BOOK-1: FUNDAMENTALS OF HUMAN GEOGRAPHY 8. Transport and Communication 9. International Trade BOOK-II: INDIA, PEOPLE AND ECONOMY 6. Water Resources 7. Mineral and Energy Resources PRACTICALS 4. Use of computers in Data Processing and Mapping	08 08 07 07 07	
5.	September	BOOK-1: FUNDAMENTALS OF HUMAN GEOGRAPHY 10. Human Settlements BOOK-II: INDIA, PEOPLE AND ECONOMY 8. Manufacturing Industries 9. Planning and sustainable Development in Indian context PRACTICALS 5. Field Survey	08 07 10 06	
6.	October	BOOK-1: FUNDAMENTALS OF HUMAN GEOGRAPHY REVISION BOOK-II: INDIA, PEOPLE AND ECONOMY		

		10. Transport and Communication 11. International Trade 12. Geographical Perspective on selected Issues and Problems PRACTICALS 6. Spatial Information Technology	10 10 10 09	
7.	November	BOOK-1: FUNDAMENTALS OF HUMAN GEOGRAPHY REVISION BOOK-II: INDIA, PEOPLE AND ECONOMY REVISION	18 18	
8.	December	REVISION AND PB-1		
9.	January	REVISION AND PB-2		
10.	February	REVISION AND PRACTICALS		

Subject : Economics**CLASS : XII**

S. No.	Month	Expected No. of Working Days	Branch of Subject	Chapter No. and Chapter	Detailed Split-up	Periods for class room Teaching	Computer Aided Teaching Periods	Total No. of Periods
1	April	22	Economics	Introduction, Consumer's Equilibrium and Demand	Meaning of micro economics and macro economics; Positive and normative economics What is an economy? Central problems of an economy: what, how and for whom to produce; concepts of production possibility frontier and opportunity cost. Consumer's Equilibrium and Demand 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	38	2	40

					budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium, Demand, market demand, determinants of demand, demand schedule, demand curve and its slope, movement along and shifts in the demand curve. Price elasticity of demand factors affecting price elasticity of demand, measurement of price elasticity of demand, Percentage change method.			
2.	May/June	16		Producer Behaviour and Supply	<p>Producer Behaviour and Supply, Meaning of Production function-Short Run and Long-Run Total Product, Average Product and Marginal Product. Returns to a Factor</p> <p>Cost : Short run costs-total cost, total fixed cost, total variable cost; Average cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationships.</p> <p>Revenue-total, average and marginal revenue meaning and their relationships.</p> <p>Producer's equilibrium meaning and its conditions in terms of marginal revenue-marginal cost.</p>	18	2	20

3.	July	25		<p>Producer Behaviour and Supply Forms of Market and Price Determination under Perfect Competition with simple applications</p>	<p>Supply, market supply, determinants of supply, supply schedule, supply curve and its slope, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply (a) percentage-change method, Forms of Market and Price Determination under Perfect Competition with simple applications.</p> <p>Perfect competition : Features; Determination of market equilibrium and effects of shifts in demand and supply.</p> <p>Other Market Forms : monopoly, monopolistic competition, oligopoly-their meaning and features.</p> <p>Simple Applications of Demand and Supply; Price ceiling, price floor.</p>	36	4	40
4.	August	22			<p>National Income and Related Aggregates</p> <p>Some basic concepts; consumption goods, capital goods, final goods, intermediate goods; stocks and flows, gross investment and depreciation.</p> <p>Circular flow of income; Methods of calculating National Income- Value Added or Product method, Expenditure method, Income method.</p>	32	2	34

	August			National Income and Related Aggregates, Money and Banking	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; Real and Nominal GDP. GDP and Welfare. Money its meaning and			
5.	September	23		Money and Banking, Determination of Income and Employment	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); Bank of issue, Govt. Bank, Banker's Bank, Controller of Credit through Bank Rate, CRR, SLR, Repo Rate and Reverse Repo Rate, Open Market Operations, Margin requirement. Determination of Income & employment. Aggregate demand and its components. Propensity to consume and propensity to save (average and marginal). Short-run equilibrium output; investment multiplier and its mechanism. Meaning of full employment and involuntary unemployment. Problems of excess demand and deficient demand; measures to correct them-changes in government spending, taxes and money supply.	34	2	36

6.	October	16		Government Budget and the economy, Balance of Payments	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. 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.	28	2	30
7.	November	18		Revision				
8.	December	20		Revision and First Pre-Board				
9.	January	15		Revision and Second Pre-Board				
10.	February	22		Revision				

SUBJECT : BUSINESS STUDIES
CLASS-XII

S. No.	Month	Chapter's Name	No. of Period Req.	Remarks
PART A:- PRINCIPLES AND FUNCTIONS OF MANAGEMENT				
1.	April	Nature and Significance of Management, Principles of Management	14 14	
2.	May	Business Environment	12	
3.	June	Planning	10	
4.	July	Organising Staffing	18 16	
5.	August	Directing Controlling	16 08	
PART B:- BUSINESS FINANCE AND MARKETING				
6.	August	Financial Management contd..	08	
7.	September	Financial Management Financial markets. Marketing Management contd..	08 12 08	
8.	October	Marketing Management Consumer Protection, Project Work	14 08	
9.	Onwards	Revision		

SPLIT-UP SYLLABUS (2017-2018)
SUBJECT : PHYSICAL EDUCATION
CLASS-XII

S. No.	Month	Name of the Chapter	No. of Periods Required	Remarks
1.	APRIL & MAY	Unit I : Planning in Sports Unit II : Adventure Sports & Leadership Training	15 15	(Total No of 180 Periods spread over the year)
2.	JUNE	Unit III : Sports and Nutrition	15	
3.	JULY	Unit IV : Postures Unit V : Children and Sports	15 15	
4.	AUGUST	Unit VI : Women and Sports Unit VII : Test & Measurement in Sports	15 15	
5.	SEPTEMBER	Unit VIII : Physiology & Sports Unit IX : Sports Medicine	15 15	
6.	OCTOBER	Unit X : Biomechanics & Sports Unit XI : Psychology & Sports Unit XII : Training in Sports	15 15 15	
7.	NOVEMBER	Revision		
8.	DECEMBER TO FEBRUARY	Practical 1st Preboard -2017-18 (Nov-Dec) 2nd Preboard-2017-18 (Jan 2018)		

SUBJECT : ACCOUNTANCY

CLASS-XII

S. No.	Month	Name of the Chapter	No. of Period Req.	Remarks
PART A:- ACCOUNTING FOR PARTNERSHIP FIRMS AND COMPANIES				
1	April	Accounting For Partnership Firms-Fundamentals, Treatment of Goodwill, Reconstitution of Partnership Firms-Change in Profit Sharing Ratio among Existing Partner's	28	
2	May	Admission of a Partner contd..	14	
3	June	Admission of a Partner	10	
4	July	Retirement/Death of a Partner Dissolution of Partnership Firm Accounting for Share Capital contd...	18 10 04	
5	August	Accounting for Share Capital Accounting for Debentures contd..	20 12	
PART B-FINANCIAL STATEMENT ANALYSIS				
6	September	Accounting for Debentures Financial Statements of a Company Financial Statement Analysis, Accounting Ratios contd..	06 20	
7	October	Accounting Ratios Cash Flow Statement Project Work	08 14	
8	Onwards	Revision		

SUBJECT : SOCIOLOGY
CLASS-XII

S.No.	Month	Name of the chapter	No. of Periods Required	Remarks
1.	APRIL	(Indian Society) Ch.1- Introducing Indian Society Ch.2- The Demographic Structure of Indian Society Ch.3- Social Institutions:Continuity and Change	6 10 12	
2.	MAY & JUNE	Ch.4- The Market as a Social Institution Ch.5- Patterns of Social inequality and Exclusions	10 20	
3	JULY	Ch.6- The Challenges of Cultural Diversity Ch.7- Suggestions for Project Work	20 16	
4	AUGUST	(Social Change and Development in India) Ch.8- Structural Change Ch.9- Cultural Change Ch.10- The Story of Indian Democracy	10 12 16	
5	SEPTEMBER	Ch.11- Change and Development in Rural Society Ch.12- Change and Development in Industrial Society	10 14	
6	OCTOBER	Ch.13- Globalisation and Social Change Ch.14- Mass Media and Communications Ch.15- Social Movements	10 14 20	
7	NOVEMBER	REVISION		
8	DECEMBER To FEBRUARY	Project Work Submission 1st Preboard -2017-18 (Nov-Dec) 2nd Preboard- 2017-18 (Jan 2018)		

SUBJECT : COMPUTER SCIENCE (083) THEORY
CLASS-XII

Unit wise Weightage of Marks

Duration:3 Hours

Total Marks:70

Unit No.	Unit Name	Marks
1.	Object Oriented Programming in C++	30
2.	Data Structure	14
3.	Data Base Management System and SQL	8
4.	Boolean Algebra	8
5.	Communication Technologies	10
	Total	70

SUBJECT : COMPUTER SCIENCE (083)

CLASS-XII

Month	Contents	No. of Period Required	
		Theory	Prac./Com. Aid. Teaching
April	<p>UNIT 1: OBJECT ORIENTED PROGRAMMING IN C++</p> <p>REVIEW: C++ covered In Class –XI</p> <p>Object Oriented Programming:</p> <p>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.</p> <p>Implementation of Object Oriented Programming concepts in C++:</p> <p>Definition of a class, Member 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 (::); accessing members from object (s), Objects as function arguments–pass by value and pass by reference.</p>	20	18
May & June	<p>Constructor and Destructor:</p> <p>Constructor:</p> <p>special characteristics, declaration and definition of a constructor, default constructor, overloaded constructors, copy constructor, constructor with default arguments;</p>	10	6

	<p>Destructor: Special Characteristics, declaration and definition of destructor;</p> <p>Inheritance (Extending Classes) :</p> <p>Concept of Inheritances, Base Class, Derived classes, protected visibility mode; Single level inheritance, Multilevel inheritance and Multiple inheritance, Privately derived, publicly derived and Protected derived class, accessibility of members from objects and within derived class .</p>		
July	<p>Data File Handling :</p> <p>Need for a data file, Types of data files – Text file and Binary.</p> <p>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).</p> <p>Binary File:</p> <p>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:</p> <p>Header file: fstream.h; ifstream, ofstream, 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 (), read (), put (), write(), getline() and close() functions; Detecting end-of-file (with or without using eof() function), tellg(), tellp(), seekg(), seekp().</p> <p>Pointers:</p> <p>Introduction to Pointer, Declaration and Initialization of Pointer; Dynamic memory allocation/deallocation operators: new, delete; Pointers and Arrays: Array of Pointers, Pointer to an array (1 dimensional array), Function returning a pointer, Reference variables and use of alias; Function call by reference. Pointer to structure: De-reference/Deference operator: *, ->;self referential structure.</p>	26	14

August	<p>UNIT 2 : DATA STRUCTURES</p> <p>Introduction to data structure- array, stack queues primitive and non-primitive data structure, linear and non-linear structure, static and dynamic data structure.</p> <p>Arrays :</p> <p>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 an array, Sorting (Insertion, Selection, Bubble) Two-dimensional arrays: Traversal Finding sum/difference of two NxM arrays containing numeric values, Interchanging Row and Column elements in a two dimensional array.</p> <p>Stack (Array and Linked implementation of Stack):</p> <p>Introduction to stack (LIFO: Last in First out Operations) Operations on stack (PUSH and POP) and its Implementation in C++, Converting expressions from INFIX to POSTFIX notation and evaluation of Postfix expression</p> <p>Queue: (Circular Array and Linked Implementation):</p> <p>Introduction to Queue (FIFO: First in First out operations) Operations on Queue (Insert and Delete and its Implementation in C++, circular queue using array.</p>	20	16
September	<p>UNIT 3: DATABASES AND SQL</p> <p>Database Concepts:</p> <p>Relational data model: Concept of domain, tuple, relation, key, primary key, alternate key, Candidate key; Relational algebra: Selection, Projection, Union and Cartesian product;</p> <p>Structured Query Language:</p> <p>Data base 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 algebra : Selection, Projection, Union and Cartesian product;</p>	20	16

<p>September</p>	<p>Structured Query Language: General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language;</p> <p>Data Types: NUMBER/DECIMAL, CHARACTER/VARCHAR/VARCHAR2, DATE;</p> <p>SQL COMMANDS: CREATE TABLE, DROP TABLE, ALTER TABLE, UPDATESET....., 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</p> <p>Note: Implementation of the above mentioned commands could be done on any SQL supported software on one or two tables.</p> <p>UNIT 4: BOOLEAN ALGEBRA</p> <p>Role of Logical Operations in Computing. Binary-valued Quantities, Boolean Variable, Boolean Constant and Boolean Operators: AND, OR, NOT; Truth Tables; Closure Property, Commutative Law, Associative Law, Identity law, Inverse Law, Principle of Duality, Idempotent Law, Distributive Law, Absorption Law, Involution Law, DeMorgan's Law and their applications;</p>		
<p>October</p>	<p>Obtaining Sum of Product (SOP) and Product of Sum (POS) form the Truth Table, Reducing Boolean Expression (SOP and POS) to its minimal form, Use of Karnaugh Map for minimization of Boolean expressions (up to 4 variables); Application of Boolean Logic: Digital electronic circuit design using basic Logic Gates (NOT, AND, OR, NAND, NOR)</p> <p>Use of Boolean operators (NOT, AND, OR) in SQL SELECT statements</p> <p>Use of Boolean operators (AND, OR) in search engine queries.</p> <p>UNIT 5: COMMUNICATION TECHNOLOGIES</p> <p>evolution of Networking: ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching). Data</p>	<p>17</p>	<p>09</p>

	<p>Communication terminologies: Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, Kbps, Mbps, Gbps, Tbps).</p> <p>Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link. Network devices: Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, wifi card.</p> <p>Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN. Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, SMTP, POP3 Remote Login (Talent), and Internet Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, and WLL.</p> <p>Mobile Telecommunication Technologies : 1G, 2G, 3G and 4G; Mobile processors; Electronic mail protocols such as SMTP, POP3 Protocols for Chat and Video Conferencing VOIP Wireless technologies such as Wi-Fi and Wi-Max</p> <p>Network Security Concepts: Threats and prevention from Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https; India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking.</p> <p>Introduction To Web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Website, Web browser, 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)</p> <p>E-commerce payment transactions using online banking, mobile banking and payment apps and services.</p>		
November	Revision, Project Work Preparation & I Pre Board		
December	Revision, II Pre Board		
January	Revision		
February	Revision		
March	Board Exam		

SUBJECT : INFORMATICS PRACTICES (065)**CLASS-XII**

Unit		Periods			Marks
		Theory	Practical	Total	
1.	Networking and Open Standards	20	04	24	10
2.	Programming	46	44	90	25
3.	Relational Database Management System	50	40	90	30
4.	IT Applications	10	26	36	5
	Total	126	114	240	70

S.No.	Month	Sub Topic	No. of Periods	Remarks
1.	April	<p>Unit 1: Networking and Open Standards</p> <ul style="list-style-type: none"> ❖ Computer Networking: Networking: a brief overview, ❖ Communication Media: Wired Technologies - Co-Axial, Ethernet Cable, Optical Fiber; Wireless Technologies - Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link; ❖ Network Devices: MODEM, Hub, Switch, Repeater, Gateway - and their functions ❖ Types of network: LAN, MAN, WAN, PAN; ❖ Network Topologies: Star, Bus, Tree ❖ Network Protocols: HTTP, TCP/IP, PPP, Remote access software such as Team Viewer; ❖ Identifying computers and users over a network: Basic concept of domain name, MAC (Media Access Control), and IP Address, domain name resolution ❖ Network Security Concepts: Cyber Law, Firewall, Cookies, Hackers and Crackers ❖ Network security threats: denial of service, intrusion problems, snooping, eavesdropping ❖ Internet Applications: SMS, Voice Mail, Electronic Mail, Chat, Video Conferencing ❖ Wireless/ Mobile Communication: GSM, CDMA, WLL, 3G, 4G <p>Open Source Concepts:</p> <ul style="list-style-type: none"> ❖ Open Source Software (OSS), common FOSS/FLOSS examples (GNU/Linux, Firefox, Open Office, Java, Netbeans, MySQL), common open standards (HTML, XML, ODF, TCP/IP) 	28	

		❖ Indian Language Computing: character encoding, UNICODE, different types of fonts (open type vs true type, static vs dynamic), entering Indian Language Text - phonetic and key map based, Inscript.	
2.	May	Unit 2: Programming 25 Marks (46 Theory+44 Practical) Periods Review of Class XI; Programming Fundamentals Swing Control Methods &. Properties, sample guidelines of GUI Programming)	12
3.	June	Basic concept of Access specifiers for class members (data members and methods).	9
4.	July	Basic concept of class, object, inheritance and polymorphism Commonly used libraries. String class and methods: toString(), concat(), length(), toLowerCase(), toUpperCase(), trim(), substring() Math class methods: pow(), round() Accessing MySQL database using JDBC to connect with database	36
5.	August	Web application development: URL, Web server, Communicating with the web server, concept of Client and Server Side. HTMLbased web pages covering basic tags - HTML, TITLE, BODY, H1••H6, B, I, U, CENTER, COMMENT, IMG, ANCHOR(A), Paragraph (P), Line Break (BR), Section Separator (HR), FONT, TABLE, LIST (UL, OL), Form Creating and accessing static pages using HTML and introduction to XML.	28
6.	September	Unit 3: Relational Database Management System Review of RDBMS from Class XI Database Fundamentals Concept of Database transaction, Committing and revoking a transaction using COMMIT, ROLLBACK and Savepoint Grouping Records: GROUP BY, Group functions - MAX(), MIN(), AVG(), SUM(), COUNT(); using	30

		COUNT(*), DISTINCT clause with COUNT; Group Functions and Null Values Creating a Table with PRIMARY KEY, FOREIGN KEY and NOT NULL constraints, Viewing Constraints, Viewing the Columns Associated with Constraints using DESC command		
7.	October	<p>Displaying Data From Multiple Tables: Cartesian product, Union, Intersection and Equi-join ALTER TABLE Form deleting column(s), modifying data type(s) of column(s) adding a constraint, enabling constraints, dropping constraints DROP Table for deleting a table.</p> <p>Unit 4: IT Applications Front-end Interface: Introduction; content and features; identifying and using appropriate component (Text Box, Radio Button, CheckBox, List etc. as learnt in Unit 2 (Programming)) for data entry, validation and disp Back-end Database: Introduction and its purpose, exploring the requirement of tables and its essential attributes, Front-End and Database Connectivity: Introduction, requirement and Benefits. Demonstration and development of appropriate Front-end interface and Back-end Database for e-Governance, e-Business and e-Learning applications. Impact of ICT on society: Social, environmental and Economic benefits. In each of the above domains, identify at least two real-life problems, list the expected outputs and the input(s) required for the output, and describe the problem solving approach and develop relevant front-end interface and back-end database.</p>	18	
8.	November	Revision and Project work	28	
9.	December	Revision	24	
10.	January	Revision	24	
11.	February	CBSE Practical Exam		
12.	March	CBSE Exam		