# NEW ERA PUBLIC SCHOOL, DWARKA

## SYLLABUS 2018-19

## CLASS: XI

## SUBJECT: ENGLISH

| MONTH & WORKING DAYS | UNIT/ CHAPTER/ SUB TOPICS | WRITING SKILLS | ACTIVITIES |
|---|---|---|---|
| APRIL (20) | The Portrait of a Lady<br>A Photograph | Notice<br>Article Writing | Group Discussion |
| MAY (17) | The Summer of the Beautiful White Horse<br>The Address<br>Childhood | Formal Letters | Debate |
| JUNE (2) | | Note Making/ Integrated Grammar Practice | Newspaper Clippings |
| JULY (21) | We're Not Afraid to Die<br>Ranga's Marriage<br><br>The Laburnum Top | Job Application<br>Poster | Project |
| AUGUST (21) | Discovering Tut<br>Albert Einstein at School<br>The Voice of the Rain | Advertisement | PPT Presentation |
| SEPTEMBER (9) | Revision | | |
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **WRITING SKILLS** | **ACTIVITIES** |
| OCTOBER (19) | Mother's Day<br>Father to Son | Report Writing | Enactment |
| NOVEMBER (15) | The Tale of Melon City<br>Landscape of the Soul | Invitation and Reply | Debate |
| DECEMBER (18) | The Ailing Planet<br>Silk Road | Speech | Presentation |
| JANUARY (18) | The Adventure<br>Birth | Debate | Project |
| FEBRUARY (20) | Revision | | |

# SUBJECT: PHYSICS

| MONTH / DAYS | UNIT/ PERIODS | SCOPE/SUB TOPICS |
|---|---|---|
| APRIL-MAY | Unit I: Physical World and Measurement (Periods 10) | Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures.<br>Dimensions of physical quantities, dimensional analysis and its applications. |
| | Unit II : Kinematics (Periods 35)<br>Introduction | Frame of reference, Motion in a straight line: Position-time graph, speed and velocity.<br><br>PRACTICAL<br><br>1) To measure diameter of a small spherical/cylindrical body using Vernier callipers.<br><br>2) To measure internal diameter and depth of a given beaker/calorimeter using Vernier callipers and hence find its volume. |
| JUNE-JULY<br><br>(4+20=24) | Unit II : Kinematics (Periods 35) | Elementary concepts of differentiation and integration for describing motion.Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity time and position-time graphs.<br>Relations for uniformly accelerated motion (graphical treatment).<br>Scalar and vector quantities; Position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors. Relative velocity. Unit vector; Resolution of a vector in a plane - rectangular components. Scalar and Vector product of vectors.<br>Motion in a plane, cases of uniform velocity and uniform acceleration-projectile motion. Uniform circular motion. |
| | Unit III : Laws of Motion (Periods 25) | Intuitive concept of force. Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion.<br>Law of conservation of linear momentum and its applications.<br>PRACTICAL<br><br>3) To measure diameter of a given wire using screw gauge.<br><br>4) To determine radius of curvature of a given spherical surface by a spherometer. |

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| AUGUST (21) | Unit III : Laws of Motion (Periods 25)<br><br>Unit IV : Work, Energy and Power (Periods 18) | Equilibrium of concurrent forces. Static and kinetic friction, laws of friction, rolling friction, lubrication.<br>Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on banked road).<br><br>Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power.<br>PRACTICAL<br><br>5) To study the relationship between force of limiting friction and normal reaction and to find thcoefficient of friction between a block and a horizontal surface.<br>6) To find the downward force, along an inclined plane, acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination (θ) by plotting graph between force and sin θ. |
| SEPTEMBER (21) | Unit IV: Work, Energy and Power (Periods 18) | Notion of potential energy, potential energy of a spring, conservative forces: conservation of mechanical energy (kinetic and potential energies); non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.<br><br>PRACTICAL<br><br>7. To find the weight of a given body using parallelogram law of vectors.<br><br>8. Using a simple pendulum, plot L-T and L-T2 graphs. Hence find the effective length of a second's pendulum using appropriate graph. |
| OCTOBER (17) | Unit V: Motion of System Of Particles and Rigid Body (Periods 18) | Centre of mass of a two-particle system, momentum conservation and centre of mass motion.<br>Centre of mass of a rigid body; centre of mass of a uniform rod.<br>Moment of a force, torque, angular momentum, laws of conservation of angular momentum and its applications.<br>Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions.<br>Moment of inertia, radius of gyration.Values of moments of inertia, for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their applications.<br>PRACTICAL<br>9) To find the force constant of a helical spring by plotting a graph between load and extension. |
| NOVEMBER (16) | Unit VI : Gravitation (Periods 18) | Keplar's laws of planetary motion.The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential. Escape velocity. Orbital velocity of a satellite. Geo-stationary satellites. |
| DECEMBER (17) | Unit VII : Properties of Bulk | Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity, Poisson's ratio; elastic |

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| | Matter (Periods 28) | energy. Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes). Effect of gravity on fluid pressure. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity.Bernoulli's theorem and its applications.<br>Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise. Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity.<br>Heat transfer-conduction, convection and radiation, thermal conductivity, Qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law, Green house effect.<br><br>PRACTICAL<br><br>10) To study the relationship between the temperature of a hot body and time by plotting a cooling curve. |
| JANUARY (16) | Unit X : Oscillations and Waves (Periods 20) | Periodic motion - time period, frequency, displacement as a function of time. Periodic functions.<br>Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a spring-restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period.<br>Free, forced and damped oscillations (qualitative ideas Wave motion. Transverse and longitudinal waves, speed of wave motion. Displacement relation for a progressive wave. Principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect. only), resonance<br>PRACTICAL<br><br>11) To study the relation between frequency and length of a given wire under constant tension using sonometer.<br><br>12) To study the relation between the length of a given wire and tension for constant frequency using sonometer. |
| FEBRUARY (5) | Unit VIII : Thermodynamics (Periods 12) | Thermal equilibrium and definition of temperature (zeroth law of thermodynamics).Heat, work and internal energy. First law of thermodynamics. Isothermal and adiabatic processes.<br>Second law of thermodynamics: reversible and irreversible processes. Heat engine and refrigerator. |

# SUBJECT: CHEMISTRY

| MONTHS & DAYS | CHAPTER / PERIODS | SCOPE / PERIODS | PRACTICALS |
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| April – 8 days<br>May – 17 days | • Some basic concepts of chemistry (15) | General Introduction: Importance and scope of chemistry (3)<br>Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules (2)<br>Atomic and molecular masses, mole concept and molar mass (2)<br>Percentage composition, empirical and molecular formula (2)<br>Chemical reactions, stoichiometry and calculations based on stoichiometry (3)<br>**ICT-** 1. Classification of matter<br>2. Various laws of chemical combination<br>**Core Learning:-**<br>**(*i*) Mole concept.**<br>**(*ii*) Stoichiometry.**<br>**(*iii*) Concentration.** | • Basic laboratory techniques:<br>➢ Cutting glass tube<br>➢ Bending of a glass tube<br>➢ Boring of cork<br><br>• Preparation of standard solution of Oxalic acid |
| | • Structure of Atom (20) | Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars (3)<br>Thomson's model and its limitations. Rutherford's model and its limitations (2)<br>Bohr's model and its limitations, concept of shells and subshells (3) | • Preparation of standard solution of $Na_2CO_3$<br><br>• Titration techniques |
| June – 4 days<br>July – 21 days | | Dual nature of matter and light, de-Broglie's equation, Heisenberg Uncertainty Principle, quantum numbers, shapes of s- ,p- and d- orbitals.(3)<br>Rules for filling electrons in orbitals- Aufbau principle, Pauli's Exclusion Principle and Hund's rule, Electronic configuration of atoms, stability of half and fully filled orbitals. (4)<br>**ICT-** 1. Hydrogen Spectrum<br>2. Rutherford's experiment<br>**Core Learning:-**<br>**(i) Atoms and molecules**<br>**(ii) Electrons, protons and neutrons**<br>**(iii) Hierarchy of various atomic models**<br>**(iv) Electronic configuration** | • Determine the strength of the given NaOH solution when provided with oxalic acid solution of known conc.<br><br>• Determine the strength of the given $Na_2CO_3$ solution when provided with HCl solution of known conc. |
| | • Classification of | Significance of classification, brief history of the | • Qualitative |

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| | • Elements and Periodicity in Properties (8)<br><br>• Chemical Bonding and Molecular Structure (15) | development of periodic table, modern periodic law and the present form of periodic table (3)<br>Periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii Ionization enthalpy, electron gain enthalpy, electronegativity, valency (4)<br>Nomenclature of elements with atomic number greater than 100 (1)<br>**ICT-** 1. Animation on periodic properties<br>2. Quiz on periodic properties<br>**Core Learning:-**<br>**(*i*) Trends in periodic properties**<br>**(*ii*) Ionisation enthalpy, electron affinity and electronegativity.**<br><br>Valence electrons, ionic bond, covalent bond(1)<br>Bond parameters (1)<br>Lewis structure (1)<br>Polar character of covalent bond (1)<br>Covalent character of ionic bond (1)<br>Valence bond theory, resonance (2)<br>Geometry of covalent molecules, VSEPR theory (2)<br>Concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules (3)<br>Molecular orbital theory of homonuclear diatomic molecules (qualitative idea only) (2)<br>Hydrogen bond (1)<br>**ICT-** 1. Lewis dot structures<br>2. Types of bonding<br>**Core Learning:-**<br>**(*i*) Various types of bonding.**<br>**(*ii*) Molecular shapes.** | analysis of salt for acidic radicals:<br>✓ Dilute $H_2SO_4$ group $CO_3^{2-}$, $SO_3^{2-}$, $S^{2-}$ . |
| August – 22 days | • States of Matter: Gases and Liquids (12) | Three states of matter, intermolecular interactions(1)<br>Types of bonding, melting and boiling points (1)<br>Role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behavior, empirical derivation of gas equation, Avogadro's number, ideal gas equation (3)<br>Deviation from ideal behavior (2)<br>Liquefaction of gases, critical temperature (2)<br>Kinetic energy and molecular speeds (elementary idea) (1) | • Qualitative analysis of salt for acidic radicals:<br>✓ Conc. $H_2SO_4$ group $Cl^-$, $Br^-$, $I^-$, $NO_3^-$, $CH_3COO^-$, $C_2O_4^{2-}$<br><br>✓ Independent acid |

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| | | Liquid State- vapor pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations) (2)<br>**ICT-** 1. Various types of intermolecular forces<br><br>2. Gas laws<br>**Core Learning:-**<br>**(*i*) Gas laws and their applications.**<br>**(*ii*) Ideal gas equation.**<br>**(*iii*) Vapor pressure and its applications.**<br>**(*iv*) Viscosity and surface tension.** | radicals $SO_4^{2-}$, $PO_4^{3-}$ |
| | • Thermodynamics (15) | Concepts of System and types of systems, surroundings (1)<br>work, heat, energy, extensive and intensive properties, state functions (2)<br>First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat, measurement of $\Delta U$ and $\Delta H$ (3)<br>Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution (3)<br>Second law of Thermodynamics (brief introduction).<br>Introduction of entropy as a state function, Gibb's energy change for spontaneous and non-spontaneous processes, criteria for equilibrium. (2)<br>Third law of thermodynamics (brief introduction) (1)<br>**ICT-** 1. Types of system<br>2. Hess's law of constant heat summation<br>3. First law of thermodynamics<br>**Core Learning:-**<br>**(*i*) Four laws of thermodynamics.**<br>**(*ii*) Free energy and its applications.** | |
| | • Redox Reactions | Concept of oxidation and reduction, redox reactions (1)<br>Oxidation number (1)<br>Balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number (3)<br>Applications of redox reactions (1)<br>**Core Learning:-**<br>**(*i*) Oxidation number.**<br>**(*ii*) Oxidant and reductant.**<br>**(*iii*) Balancing equations.** | First Term Practical Exam. |

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| September | Revision | | First Term Examinations. |
| October – 18 days | • Solid State (11) | Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids (2)<br>Amorphous and crystalline solids (elementary idea only) (1)<br>Unit cell in two and three dimensional lattices (2)<br>Calculation of density of unit cell (1), packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell (2)<br>Point defects (2), electrical and magnetic properties. (1)<br>**ICT-** 1. Various types of crystals and crystal lattices<br>2. Difference between amorphous and crystalline solids.<br>3. Close packing arrangement.<br>**Core Learning:-**<br>**1. Elementary idea of amorphous and crystalline solids.**<br>**2. Types of solids.** | • Qualitative analysis of salt for cations:<br>✓ Zero Group :- $NH_4^+$<br>✓ First Group :- $Pb^{2+}$<br>✓ Second Group:- $Cu^{2+}$, $As^{3+}$<br>✓ Third Group:- $Al^{3+}$, $Fe^{3+}$ |
| | • Equilibrium (16) | Equilibrium in physical and chemical processes, dynamic nature of equilibrium(1)<br>Law of mass action, equilibrium constant (3)<br>Factors affecting equilibrium - Le Chatelier's principle (2)<br>Ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength (4)<br>Concept of pH (1) | |
| November – 15 days | • Equilibrium (continued) | Henderson Equation, hydrolysis of salts (elementary idea), buffer solution (2)<br>Solubility product, common ion effect (with illustrative examples) (3)<br>**ICT-** 1. Types of equilibrium<br>2. Dynamic nature of equilibrium<br>3. pH scale<br>**Core Learning:-**<br>**(*i*) Industrial use of Le-Chatelier's Principle.**<br>**(*ii*) Various concepts of acid and base.**<br>**(*iii*) Common-ion effect, hydrolysis, pH, solubility product and their applications.** | • Qualitative analysis of salt for cations<br>✓ Fourth Group:- $Zn^{2+}$, $Mn^{2+}$, $Ni^{2+}$, $Co^{2+}$<br>✓ Fifth Group $Ba^{2+}$, $Sr^{2+}$, $Ca^{2+}$<br>✓ Sixth Group :- $Mg^{2+}$ |

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| | • Basic Concepts of Organic Chemistry (13) | General introduction, methods of purification (2)<br>Qualitative and quantitative analysis (3)<br>Classification and IUPAC nomenclature of organic compounds (2)<br>Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation (3)<br>Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic<br><br>reactions (2)<br>**ICT-** 1. Functional groups in organic compounds<br>2. Isomerism in various organic compounds (1)<br>**Core Learning:-**<br>**(*i*) Common and IUPAC name of commonly used organic compounds.**<br>**(*ii*) Electronic displacements in a covalent bond.**<br>**(*iii*) Stability of carbocations, carbanions and free radicals.**<br>**(*iv*) Purification of organic compounds.** | • Analysis of unknown salts |
| | • Hydrocarbons (12) | Classification of Hydrocarbons, Aliphatic Hydrocarbons:<br>Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis (3)<br>Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition (4)<br>Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of hydrogen, halogens, hydrogen halides and water (2) | |
| December – 18 days | ● Hydrocarbons (continued) | Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic | • Determination of melting point of given solid substance. |

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| | ● Hydrogen (6)<br><br>• The s-Block Elements (8) | substitution - Nitration, sulphonation, halogenation, Fridel Craft's alkylation and acylation, directive influence of functional group in mono substituted benzene, Carcinogenicity and toxicity (3)<br>**ICT-** 1. Classification of hydrocarbons<br>**Core Learning:-**<br>**Types of organic reactions – addition, elimination, substitution and rearrangement**.<br><br>Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen (2)<br>Hydrides-ionic covalent and interstitial (1)<br>Physical and chemical properties of water, heavy<br><br>water. (1)<br>Hydrogen peroxide - preparation, reactions and structure and use; hydrogen as a fuel (2)<br>**ICT-** 1. Combustion of hydrogen<br>2. Laboratory preparation of hydrogen<br>3. Hard and soft water<br>**Core Learning:-**<br>**(*i*) Uses of hydrogen.**<br>**(*ii*) Hard and soft water.**<br>**(*iii*) Methods to remove hardness.**<br>**(*iv*) Applications of $H_2O_2$ in day-to-day life.**<br><br>Group I and group II elements, general introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship (3)<br>Trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses. (3)<br>Preparation and Properties of Some Important Compounds:<br>Sodium Carbonate, Sodium Chloride, Sodium Hydroxide and Sodium Hydrogen carbonate, biological importance of Sodium and Potassium (1)<br>Calcium Oxide and Calcium Carbonate and their industrial uses, biological importance of Magnesium and Calcium (1)<br>**ICT-** 1. Solvay's process<br>**Core Learning:-**<br>**(*i*) Solubility of various compounds.**<br>**(*ii*) Formula and uses of some common** | • Determination of boiling point of a given liquid.<br><br>• Detection of Nitrogen, Sulphur and Halogens (Extra elements) in an organic compound by Lassaigne's Fusion extract. |

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| | | **compounds.** | |
| | • Environmental Chemistry (3) | Environmental pollution - air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming- pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environmental pollution.<br>**ICT-** 1. Pollution and its types<br>2. Acid rain, its causes and consequences<br>**Core Learning:-**<br>**(*i*) Global warming and greenhouse effect.**<br>**(*ii*) Ozone depletion.**<br>**(*iii*) Acid rain.**<br><br>**(*iv*) Smog and its types.**<br>***v*) Green chemistry.** | |
| January – 15 days | • p-Block Elements (16) | General Introduction to p -Block Elements<br>Group 13 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of<br><br>the group (3)<br>Boron - physical and chemical properties, some important compounds, Borax, Boric acid, Boron Hydrides (2)<br>Aluminum: Reactions with acids and alkalis, uses (1)<br>Group 14 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behavior of first elements.<br>Carbon - catenation, allotropic forms, physical and chemical properties; uses of some important carbon compounds: oxides (3)<br>Important compounds of Silicon and a few uses: Silicon Dioxide, Silicones, Silicates and Zeolites, their uses (2)<br>Group 15 Elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties | |

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| | | (1)<br>Nitrogen – preparation, properties and uses, compounds of nitrogen, preparation and properties of ammonia and nitric acid, oxides of nitrogen (2)<br>Phosphorous- allotropic forms, compounds of phosphorus; Preparation and properties of phosphine, Halides and Oxoacids (elementary idea only) (2)<br>**ICT-** 1. p-block elements<br>2. Allotropes of carbon<br>**Core Learning:-**<br>**(*i*) Uses and properties of compounds of group 13, 14 and 15 elements.**<br>**(*ii*) Allotropy, catenation and inert-pair effect.** | Annual Practical Examinations |
| February – 6 days | • Revision | | Annual Examinations |

## SUBJECT: BIOLOGY

| MONTH & WORKING DAYS | UNIT/ CHAPTER/ SUB TOPICS | PRACTICALS | CORE LEARNING |
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| APRIL (20) | 1) Cell-Unit of Life<br>Cell Theory, cell wall, cell membrane, endomembrane system, cell organelles.<br><br>2) Cell Cycle & cell division<br>Phases of cell cycle, mitosis, it's significance, meiosis, it's significance, PPT on mitosis and meiosis | 1) To study the distribution of stomata on upper & lower surface of leaf.<br><br>2) To study stages of mitosis from permanent slides | Functions of cell organelle<br><br>Changes during cell cycle |
| May(17) | 3)Biomolecules<br>Primary & Secondary Metabolites, biomolecules, metabolism, enzymes - types, properties, action, classification, nomenclature<br><br>4) The Living World (5)<br>Characteristics, diversity, classification, taxonomical aids. | | Basic knowledge |

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| June (2)<br>+<br>July (21) | 5) Biological Classification (5)<br>Five kingdom classification—kingdom monera, protista, fungi, plantae and animalia.<br><br>6) Plant Kingdom (7)<br>Algae, bryophytes, pteridophytes, gymnosperms, angiosperms and plant life cycles.<br><br>7) Animal Kingdom (7)<br>Levels of organization, symmetry, coelom, segmentation, notochord, classification of animals | 3) To study plasmolysis in epidermal peels of leaf.<br><br>4) Identification & classification of plants & animals | Features of five kingdom<br><br>Features of plant kingdom<br><br>Features of animal kingdom |
| AUGUST<br>(21) | 9) Morphology of Flowering Plants(7)<br>Root modifications, stem modifications, leaf modifications, inflorescence, flower, fruit, seed, important families.<br>PPT on root, stem & leaf classification<br><br>10) Anatomy of Flowering Plants(7)<br>Plant tissues, meristematic & permanent tissues, anatomy of monocots & dicots, secondary growth.<br>PPT on plant tissues and anatomy of monocots & dicots.<br><br>11)Structural Organization in Animals(7)<br>Animal tissues, epithelial, connective, muscle & neural tissue.<br>Animal morphology, anatomy and functions of different systems of a cockroach. | 5) Study of plants pigments by paper chromatography<br><br>6) To study anatomy of stems & roots. | Anatomy of stem , roots<br><br>Features of tissues<br><br>Features of animal tissue |
| SEPTEMBER<br>(9) | Revision | | |
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **PRACTICALS** | **CORE LEARNING** |
| OCTOBER<br>(19) | Respiration in Plants(7)<br>Glycolysis, fermentation, aerobic respiration, TCA cycle, ETS, respiratory quotient.<br>PPT on plant respiration.<br><br>Transportation in Plants(7)<br>Plant water relations, transport of water, | 7) To study plant & animal tissues from Permanent slides.<br><br>8) To study osmosis by potato osmometer. | Cycles<br><br>Transpiration |

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| | Transpiration, uptake & transport of minerals, phloem transport.<br>PPT on transport of water. | 9) Study and identification of Different types of inflorescences. | and factors affecting it. |
| NOVEMBER (15) | Mineral Nutrition (4)<br>Essential mineral elements, mechanism of absorption of minerals, translocation of Solutes, metabolism of nitrogen<br><br>Plant Growth & Development(5)<br>Growth, differentiation, dedifferentiation, redifferentiation, plant growth regulators, photoperiodism, vernalisation, hormone actions.<br>PPT on growth and differentiation in plants.<br><br>Digestion & Absorption(7)<br>Digestive system, digestion of food, absorption of digested products, disorders of digestive system. PPT on digestive system.<br><br>Breathing & Exchange of Gases(5)<br>Respiratory organs, mechanism of breathing, exchange of gases, transport of gases, regulation of respiration, disorders of respiratory system. | 10) To test for glucose, sucrose, starch, fat and protein.<br><br>11) Study of imbibition of water in seeds/raisins.<br><br>12) To study rate of respiration in germinating seeds.<br><br>13) To study rate of transpiration. | Plant growth regulator<br><br>Digestive system and disorders<br><br>Mechanism of breathing |
| DECEMBER (18) | Body Fluids & Circulation (7)<br>Blood, lymph, circulatory pathways, double circulation, regulation of cardiac activity, disorders of circulatory system.<br>PPT/video on structure of heart.<br><br>Excretory Products & Their Elimination(7)<br>Human Excretory System, urine formation, function of tubules, regulation of kidney function, micturition, disorders of the excretory system.<br>PPT on structure & function of kidneys.<br><br>Locomotion & Movement(6)<br>Types of movement, muscle, skeletal | 14) To test urine for urea, albumin and glucose.<br><br>15) Study of human skeletal system & different types of joints.<br><br>16) To study external morphology of earthworm and cockroach. | Functioning of human heart<br><br>Structure and function of human kidney<br><br>Movement in |

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| | system, joints, disorders of skeletal & muscular system. | | muscles |
| JANUARY (18) | Nervous Control & Coordination (8)<br>Human neural system, neuron as basic unit of neural system, central neural system, reflex action & reflex arc, sensory reception and processing.<br>PPT on structure of brain.<br><br>Chemical Coordination & Integration (7)<br>Endocrine glands & hormones (human endocrine system) hormone action, mechanism of hormone action. | 17) To study & describe the flowers of three common flowering plants | Examples of reflex action<br><br>Functions of glands and hormones |
| FEBRUARY (20) | Revision | | |

## SUBJECT: COMPUTER SCIENCE

| TERM I | |
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| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** |
| APRIL (20) | **UNIT – 1: COMPUTER FUNDAMENTALS**<br><br>Classification of Computers, Software Concepts, System Software, Operating System, Utility Software, Open Source Concepts, Application Software, Memory Concepts, Primary Memory, Secondary Memory, Input/ Output Ports |
| MAY + JUNE (17) (2) | **UNIT – 1: COMPUTER FUNDAMENTALS**<br><br>Number System, Internal Storage encoding of characters, Microprocessor<br><br>**UNIT 2: PROGRAMMING METHODOLOGY**<br><br>General Concepts, Problem-solving methodologies, Introduction to Algorithms and Flowcharts<br><br>**UNIT 3: INTRODUCTION TO C++**<br><br>Getting started with C++ |

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| JULY<br>(21) | **UNIT 3: INTRODUCTION TO C++**<br><br>Data Types, Variables and Constants, Operators and Expressions |
| AUGUST<br>(21) | **UNIT 3: INTRODUCTION TO C++**<br><br>Automatic type Conversion in Expressions, Type Casting<br><br>**UNIT 4: PROGRAMMING IN C++**<br><br>Flow of Control, Conditional Statements (if,if---else,if---else if,Nested if----else) |
| SEPTEMBER<br>(19) | **UNIT 4: PROGRAMMING IN C++**<br><br>Conditional Statements (switch-case, break and continue statements)<br>**REVISION FOR HALF-YEARLY EXAMINATION** |
| **TERM II** | |
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** |
| OCTOBER<br>(19) | **UNIT 4: PROGRAMMING IN C++**.<br>Conditional Statements (for loop, while loop, do-while loop) |
| NOVEMBER<br>(15) | **UNIT 4: PROGRAMMING IN C++**<br>In-built functions, User-defined Function and its requirement |
| DECEMBER<br>(18) | **UNIT 4: PROGRAMMING IN C++**<br>Structured Data Types – Arrays, One-dimensional Array, Two-dimensional array, User-defined Data Type |
| JANUARY<br>(18) | **UNIT 4: PROGRAMMING IN C++**<br>Structures – Definition, declaring structure variables, accessing structure elements, Passing structure to functions as value and reference, Array of structures |
| FEBRUARY<br>(20) | **REVISION FOR ANNUAL EXAMINATION** |

# SUBJECT: ACCOUNTANCY

| TERM I | | |
|---|---|---|
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER** | **SUBTOPICS** |
| APRIL (20) | **Introduction to Accounting** | Accounting- concept, objectives, advantages and limitations, types of accounting information; users of accounting information and their needs. Qualitative Characteristics of Accounting Information. Role of Accounting in Business.  Basic Accounting Terms- Business Transaction, Capital, Drawings. Liabilities (Non Current and Current). Assets (Non Current, Current); Fixed assets (Tangible and Intangible), Expenditure (Capital and Revenue), Expense, Income, Profit, Gain, Loss, Purchase, Sales, Goods, Stock, Debtor, Creditor, Voucher, Discount (Trade discount and Cash Discount) |
| MAY (17) | **Theory Base of Accounting** | Fundamental accounting assumptions: GAAP: Concept Business Entity, Money Measurement, Going Concern, Accounting Period, Cost Concept, Dual Aspect, Revenue Recognition, Matching, Full Disclosure, Consistency, Conservatism, Materiality and Objectivity System of Accounting. Basis of Accounting: cash basis and accrual basis<br>Accounting Standards: Need, benefits, limitations, applicability; IFRS- Need<br>Goods and Services Tax (GST): Characteristics and Objective. |
| | **Recording of Business Transactions** | Voucher and Transactions: Source documents and Vouchers, Preparation of Vouchers, Accounting Equation Approach: Meaning and Analysis, Rules of Debit and Credit. |
| JUNE (2) | **Recording of Business Transactions** | Recording of Transactions: Books of Original Entry |
| JULY (21) | **Recording of Business Transactions** | Journal<br>Special Purpose books:<br>Cash Book: Simple, cash book with bank column and petty cashbook<br>Purchases book, Sales book, Purchases return book, Sales return book<br>***Note: Including simple GST calculations***<br>Ledger: Format, Posting from journal and subsidiarybooks, Balancing of accounts |
| AUGUST (21) | **Bank Reconciliation Statement** | Need and preparation, Bank Reconciliation Statement with Adjusted Cash Book |
| | **Depreciation** | Depreciation: Concept, Features, Causes, factors<br>Other similar terms: Depletion and Amortisation<br>Methods of Depreciation: |

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| | | i. Straight Line Method (SLM)<br>ii. Written Down Value Method (WDV)<br>Difference between SLM and WDV; Advantages of SLM and WDV<br>Accounting treatment of depreciation<br>i. Charging to asset account<br>ii. Creating provision for depreciation/accumulated depreciation account<br>iii. Treatment for disposal of asset |
| SEPTEMBER (9) | **Provisions and Reserves** | Provisions and Reserves: Difference<br>Types of Reserves:<br>i. Revenue reserve<br>ii. Capital reserve<br>iii. General reserve<br>iv. Specific reserve<br>v. Secret Reserve<br>Difference between capital and revenue reserve |
| **TERM II** | | |
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER** | **SUB TOPICS** |
| OCTOBER (19) | **Accounting for Bills of Exchange** | Bill of exchange and Promissory Note: Definition, Specimen, Features, Parties.<br>Difference between Bill of Exchange and Promissory Note<br>Terms in Bill of Exchange:<br>i. Term of Bill<br>ii. Accommodation bill (concept)<br>iii. Days of Grace<br>iv. Date of maturity<br>v. Discounting of bill<br>vi. Endorsement of bill<br>vii. Bill after due date<br>viii. Negotiation<br>ix. Bill sent for collection<br>x. Dishonour of bill<br>xi. Retirement of bill<br>xii. Renewal of bill |
| NOVEMBER (15) | **Trial balance and Rectification of Errors** | Trial balance: objectives and preparation<br>Errors: types-errors of omission, commission, principles, and compensating; their effect on Trial Balance.<br>Detection and rectification of errors; preparation of suspense account |
| DECEMBER (18) | **Financial Statements of Sole Proprietorship: From Complete** | Receipts and Expenditure: Revenue receipts and capital receipts. Capital expenditure, Revenue expenditure and deferred expenditure Objective and Importance.<br>Trading and Profit and Loss Account: Gross Profit, Operating profit and net profit. Preparation. |

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| | **Records** | Balance Sheet: need, grouping and marshalling of assets and liabilities. Preparation.<br>Adjustments in preparation of financial statements with respect to closing stock, outstanding expenses, prepaid expenses, accrued income, income received in advance, depreciation, bad debts, provision for doubtful debts, provision for discount on debtors, Abnormal loss, Goods taken for personal use/staff welfare, interest on capital and managers commission.<br>Preparation of Trading and Profit and Loss account and Balance Sheet of a sole proprietorship with adjustments. |
| JANUARY (18) | **Incomplete Records** | Features, Reasons and Limitations.<br>Ascertainment of profit/loss by statement of affairs method.<br>Difference between Accounts from incomplete records and Statement of Affairs. Preparation of Trading , Profit and Loss account and Balance Sheet. |
| | | Introduction to computer and accounting information system {AIS}: Introduction to computers (elements, capabilities, limitations of<br>computer system)<br>□ Introduction to operating software, utility software and application software. Introduction to accounting information system (AIS) as a part of Management Information System.<br>□ Automation of accounting process: meaning<br>Stages in automation: (a) Accounting process in a computerised environment; comparison between manual accounting process and computerised accounting process, (b) Sourcing of accounting software; kinds of software: readymade software; customised software and tailor-made software; generic considerations before sourcing accounting software (c) creation of account groups and hierarchy (d) generation of reports - trial balance, profit and loss account and balance sheet. |
| FEBRUARY (8) | | Revision |

# SUBJECT: BUSINESS STUDIES

| **TERM I** | | |
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| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER** | **SUB TOPICS** |
| APRIL (20) | **Nature and Purpose of Business** | • Business -Concept<br>( Concept includes meaning and features)<br>• Business, profession and employment-Concept<br>• Objectives of business<br>• Classification of business activities - Industry and Commerce |

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| | | • Industry-types: primary, secondary, tertiary- Meaning and subgroups<br>• Commerce-trade: (types-internal, external; wholesale and retail) and auxiliaries to trade; (banking, insurance, transportation, warehousing, communication, and advertising)<br>• Business risk-Concept, nature, causes |
| | | • History of Commerce in India:<br>• Indigenous Banking System, Rise of Intermediaries, Transport, Trading Communities: Merchant Corporations, Major Trade Centres, Major Imports and Exports, Position of Indian Sub-Continent in the World Economy. |
| MAY (17) | **Forms of Business organization** | • Sole Proprietorship-Concept, merits and limitations.<br>• Partnership-Concept, types, merits and limitation of partnership, registration of a partnership firm, partnership deed. Types of partners<br>• Hindu Undivided Family Business: Concept<br>• Cooperative Societies-Concept, types, merits, and limitations.<br>• Company-Concept, merits and limitations; Types: Private and Public-Concept ; One Person Company<br>• Formation of company-stages, important document (Memorandum of Association, Articles of Association, Certificate of incorporation and Certificate of commencement)<br>• Choice of form of business organization |
| JUNE (2) | **Public, Private and Global Enterprises** | • Public sector and private sector enterprises – concept |
| JULY (21) | | • Forms of public sector enterprises: Departmental Undertakings, Statutory Corporations and Government Company.<br>• Changing role of public sector enterprises<br>Global enterprises, Joint ventures, Public private partnership – concept |
| | **Business Services** | • Banking: Types of bank accounts- savings, current, recurring, fixed deposit and multiple option deposit account.<br>• Banking services with particular reference to issue of bank draft, banker's cheque (pay order), Real Time Gross Settlement (RTGS), National electronic Funds Transfer (NEFT), bank overdraft, cash credit and e-banking<br>• Insurance-: Principles, Types –life, health, fire and marine insurance –concept<br>• Postal services: Mail, Under Postal Certificate (UPC), Registered Post, Parcel, Speed Post and Courier- Meaning<br>• Telecom Services: Fixed line services, Cable services, VSAT, DTH, Cellular mobile services, Radio Paging |

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| | | services-Meaning |
| AUGUST (21) | **Emerging Modes of Business** | • E-business-scope and benefits, resources required for successful e-business implementation,<br>• online transaction, payment mechanism (smart card, digital cash)<br>• security and safety of business transactions<br>Outsourcing-Concept: need and scope<br>• Business process Outsourcing (BPO) and Knowledge Process Outsourcing (KPO)- Concept |
| | **Social Responsibility of Business and Business Ethics** | • Concept of social responsibility<br>• Case for social responsibility<br>• Responsibility towards owners, investors, consumers, employees, government and community.<br>• Environment protection and business-Meaning and role<br>• Business Ethics-Concept and Elements |
| SEPTEMBER (9) | | Revision |
| **TERM II** | | |
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER** | **SUB TOPICS** |
| OCTOBER (19) | **Sources of business finance** | • Concept of business finance<br>• Owner's funds- equity shares, preferences, share, Retained earnings<br>• Global Depository receipt (GDR), American Depository Receipt (ADR), International Depository Receipt (IDR)<br>• Borrowed funds: debentures and bonds, loan from financial institution, loans from commercial banks, public deposits, trade credit,<br>• Inter Corporate Deposits (ICD). |
| NOVEMBER (15) | **Entrepreneurship Development (ED)** | Entrepreneurship Development (ED): Concept, Characteristics and Need<br>□ Process Entrepreneurship Development: Start-up India Scheme, ways to fund start-up<br>□ Intellectual Property Rights and Entrepreneurship |
| | **Small Business** | • Small scale enterprise as defined by MSMED Act 2006 (Micro, Small and Medium Enterprise Development Act)<br>• Role of small business in India with special reference to rural areas<br>• Government schemes and agencies for small scale industries (National Small Industries Corporation) and District Industrial Centre (DIC) with special reference to rural, backward and hilly areas |
| DECEMBER | **Internal Trade** | • Services rendered by a wholesaler and a retailer |

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| (18) | **and GST (Goods and Services Tax): Concept and key-features** | • Types of retail-trade-Itinerant and small scale fixed shops<br>• Large scale retailers-Departmental stores(features), chain stores, mail order business<br>• Understand the concept of GST<br>• Concept of automatic vending machine<br>• Chambers of Commerce and Industry: Basic<br>• functions<br>• Main documents used in internal trade: Performa invoice, invoice, debit note, credit note. Lorry receipt (LR) and Railways Receipt (RR).<br>• Terms of Trade: Cash on Delivery (COD), Free on Board (FOB), Cost, Insurance and Freight (CIF), Errors and Omissions Excepted (E&OE). |
| JANUARY (18) | **International Trade** | • Meaning, difference between internal trade and external trade: Meaning and characteristics of international trade<br>• International trade: Advantages and disadvantages (problems) of international trade<br>• Export trade- Meaning and procedure of Export Trade<br>• Import Trade- Meaning and procedure; Meaning and functions of import trade; purpose and procedure.<br>• Documents involved in International Trade; documents involved in export trade, indent, letter of credit, shipping order, shipping bills, mate's receipt(DA/DP), specimen,<br>• Importance World Trade Organization (WTO) meaning and objectives |
| FEBRUARY (8) | | Revision |

# SUBJECT: ECONOMICS

| TERM I | | |
|---|---|---|
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **PRACTICAL/ PROJECT/ACTIVITIES** |
| APRIL(20) | **Part A : Introductory Microeconomics**<br>**Unit 1: Introduction** | |
| MAY(17) | **Part A : Introductory Microeconomics**<br>**Unit 2: Consumer Equilibrium and Demand**<br>PART B: STATISTICS<br>INTRODUCTION TO STATISTICS<br>COLLECTION OF DATA | PROJECT ON QUESTIONNAIRE |
| JULY (21) | PART B:<br>ORGANISATION OF DATA<br>PRESENTATION OF DATA<br>**Part A : Introductory Microeconomics**<br>**Unit 2: Consumer Equilibrium and Demand** | |
| AUGUST(21) | PART B:<br>MEASURES OF CENTRAL TENDENCY - POSITIONAL AVERAGE<br>**Part A : Introductory Microeconomics**<br>**Unit 3: Producer Behaviour and Supply** | |

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| SEPTEMBER (9) | **<u>Part A : Introductory Microeconomics</u>**<br>**Unit 3: Producer Behaviour and Supply** | |
| **TERM II** | | |
| **MONTH & WORKING DAYS** | | |
| OCTOBER (19) | **<u>Part A : Introductory Microeconomics</u>**<br>**Unit 3: Producer Behaviour and Supply**<br>PART B:<br>MEASURES OF DISPERSION | |
| NOVEMBER(15) | PART B:<br>MEASURES OF DISPERSION<br>**<u>Part A : Introductory Microeconomics</u>**<br>**Unit 4: Forms of Market and Price Determination** | **PROJECT BASED ON TOPIC CHOSEN FROM PART C*** |
| DECEMBER (18) | PART B:<br>MEASURES OF CORRELATION<br>**<u>Part A : Introductory Microeconomics</u>**<br>**Unit 4: Forms of Market and Price Determination** | |
| JANUARY (18) | PART B:<br>INDEX NUMBER | |
| FEBRUARY (20) | REVISION | |
| MARCH (19) | ANNUAL EXAMINATION | |

## PART C: DEVELOPING PROJECTS IN ECONOMICS (20 PERIODS)

The students may be encouraged to develop project, as per the suggested project guidelines. Case studies of a few organisations/outlets may also be encouraged. Under this the students will do only ONE comprehensive project using concepts from both part A and part B. Some of the examples of the projects are as follows (they are not mandatory but suggestive):

(i) A report on demographic structure of your neighborhood.

(ii) Changing consumer awareness amongst households.

(iii) Dissemination of price information for growers and its impact on consumers.

(iv) Study of a cooperative institution: milk cooperatives, marketing cooperatives etc.

(v) Case studies on public private partnership, outsourcing and outward Foreign Direct Investment.

(vi) Global warming.

(vii) Designing eco-friendly projects applicable in school such as paper and water recycle.

The idea behind introducing this unit is to enable the students to develop the ways and means by which a project can be developed using the skills learned in the course. This includes all the steps involved in designing a project starting from choosing a title, exploring the information relating to the title, collection of primary and secondary data, analysing the data, presentation of the project and using various statistical tools and their interpretation and conclusion.

# SUBJECT: HISTORY

| TERM I | | |
|---|---|---|
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **CORE LEARNING** |
| APRIL (20) | Theme-1 From the Beginning of Time<br>Theme-2 Writing and City Life | Views on origin of early human beings<br>Focus: Iraq 3rd millennium B.C<br>Growth of towns in early Mesopotamian civilisation. |

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| MAY<br>(14) | Theme-3 An empire across three continents | Focus: Roman Empire, 27 BCE to 600 CE.<br>(a) Political evolution<br>(b) Economic expansion<br>(c) Religio-cultural foundation<br>(d) Late Antiquity.<br>(e) Historians' views on the institution of slavery. |
| JULY<br>(21) | Theme-4 The Central Islamic Lands<br>Theme-5 The Nomadic Empire | Focus: 7th to 12th centuries<br>(a) Polity<br>(b) Economy<br>(c) Culture.<br>(d) Historians' viewpoints on the nature of the crusades.<br><br>Focus: The Mongol, 13th to 14th century<br>(a) The nature of nomadism.<br>(b) Formation of empires |
| AUGUST<br>(21) | Theme-6 The Three Orders<br>Theme-7 Changing Cultural Traditions | Focus on Europe, 14th to 17th century.<br>(a) New ideas and new trends in literature and arts.<br>(b) Relationship with earlier ideas<br>(c) The contribution of West Asia.<br>(d) Historians' viewpoints on the validity of the notion 'European Renaissance'. |
| SEPTEMBER<br>(9) | Revision for Term –I exams | |

**Term -II**

| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **CORE LEARNING** |
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| OCTOBER (19) | Theme-8 Confrontation of Cultures | Focus on America, 15th to 18th century.<br>(a) European voyages of exploration.<br>(b) Search for gold; enslavement, raids, extermination.<br>(c) Indigenous people and cultures – the Arawaks, the |

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| | | Aztecs, the Incas.<br>(d) The history of displacements.<br>(e) Historians' viewpoints on the slave trade |
| NOVEMBER (15) | Theme-9 The Industrial Revolution | Focus on England, 18th and 19th century.<br>(a) Innovations and technological change<br>(b) Patterns of growth.<br>(c) Emergence of a working class.<br>(d) Historians' viewpoints, Debate on 'Was there an Industrial Revolution?' |
| DECEMBER (18) | Theme-10 Displacing Indigenous People<br>Map Practise<br>Theme-11 Paths to Modernization | Focus on North America and Australia, I8th-20th century.<br>(a) European colonists in North America and Australia.<br>(b)Formation of white settler societies.<br>Focus on East Asia, late 19th and 20th century.<br>(a) Militarization and economic growth in Japan.<br>(b) China and the Communist alternative.<br>(c) Historians' Debate on the meaning of modernization |
| JANUARY (18) | Revision for Final Exams | |
| FEBRUARY (20) | Revision for Final Exams | |

## SUBJECT: POLITICAL SCIENCE

| MONTH & WORKING DAYS | UNIT/ CHAPTER/ SUB TOPICS | CORE LEARNING |
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| APRIL<br>(20) | **Part-A Indian Constitution at Work**<br>Ch-1 Constitution: why? How? And Philosophy of the Constitution<br>Ch-2 Rights in the Indian Constitution | The making of the Constitution and Philosophy of the Constitution.<br>The importance of fundamental rights and directive principles of state policy. |
| MAY<br>(14) | Ch-3 Election and Representation<br>Ch-5 Legislature | Election system in India, Electoral Reforms.<br>Legislative functions, control over executive, Parliamentary committees. |
| JULY<br>(21) | Ch-5 Legislature (continued)<br>Ch-4 Executive<br>Ch-6 Judiciary<br>Ch-7 Federalism | Political and permanent executive, Functions of PM and his/her council, bureaucracy and its role.<br>Structure of judiciary, judicial review and judicial activism. |
| AUGUST<br>(21) | Ch-7 Federalism(continued)<br>Ch-8 Local Government(73$^{rd}$ Amendment) | Features, conflicts, special provisions in the Indian federalism. 73$^{rd}$ and 74$^{th}$ amendment : its provisions and implementation. |
| SEPTEMBER<br>(9) | Revision for SA- II | |
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **CORE LEARNING** |
| OCTOBER (19) | **Part-B Political Theory**<br>Ch-2 Freedom<br>Ch-3 Equality<br>Ch-4 Social Justice<br>Ch-5 Rights | Harm principle, negative and positive liberty, dimensions of equality, how can we promote equality? Rawls theory of justice. Origin and kinds of rights. |
| NOVEMBER<br>(15) | Ch-6 Citizenship<br>Ch-7 Nationalism | Ways to acquire citizenship, global citizenship. |
| DECEMBER<br>(18) | Ch-7 Nationalism(continued)<br>Ch-8 Secularism | Comparative study of Indian and western model of secularism |
| JANUARY (18) | Ch-9 Peace<br>Ch-10 Development | Approaches to the pursuit of peace and challenges to world peace. |
| FEBRUARY<br>(20) | REVISION | |

# SUBJECT: INFORMATICS PRACTICES

| TERM I | |
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| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** |
| APRIL<br><br>(20) | UNIT – 1: INTRODUCTION TO COMPUTER SYSTEMS<br><br>Hardware Concepts:<br><br>*Computer organization* (basic concepts): CPU, Memory (RAM and ROM), I/O devices, communication bus, ports (serial, parallel), device specific ports;<br><br>*Input devices*: Keyboard, Mouse, Light pen, Touch Screen, Graphics Tablet, Joystick, Microphone, OCR, Scanner, Smart Card reader, Barcode reader, QRCode reader, Biometric sensor, web camera;<br><br>*Output Devices*: Monitor/Visual Display Unit (VDU), LCD screen, Television, Printer (Dot Matrix printer, Desk jet/ Inkjet/ Bubble jet printer, Laser printer), Plotter, Speaker;<br><br>*Secondary Storage Devices*: Floppy Disk, Hard Disk, Compact Disk, Magnetic Tape, Digital Versatile Disk (DVD),Flash Drive, Memory cards.Comparative properties of storage media;<br><br>*Memory Units*: bit, Byte (Kilobyte, Megabyte, Gigabyte, Terabyte, Petabyte)<br>Encoding scheme :ASCII,ISCII & UNICODE<br><br>E-waste disposal.<br><br>Security of computer system: Sources of attack and possible damages, malware – virus, worms, spyware and cookies as security threat, malware detection using a tool. Computer security, digital certificate, digital signature, firewall, password, file access |

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| | permissions |
| MAY + JUNE<br><br>(17) (2) | UNIT – 1: INTRODUCTION TO COMPUTER SYSTEMS<br><br>Types of Software:<br><br>(a) System Software:<br><br>(i) Operating systems: Need for operating system, major functions of Operating System; Examples of OS for mainframe, PC/Server and mobile devices.<br><br>(ii) Language Processors: Assembler, Interpreter, and Compiler<br><br>(b) Utility Software: Compression tools, disk defragmenter, anti-virus<br><br>(c) Application Software:<br><br>(i) General Purpose Application Software: Word Processor, Presentation Tool, Spreadsheet Package, Database Management System, Integrated Development Environment (IDE)<br><br>(ii) Specific Purpose Application Software: Inventory Management System, Purchasing System, Human Resource Management System, Payroll System, Financial Accounting, Hotel Management and Reservation System etc.<br><br>UNIT 2: INTRODUCTION TO PROGRAMMING<br><br>Getting started with Programming using IDE |

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| | Introduction, Rapid Application Development using IDE (Integrated Development Environment) such as Netbeans; Familiarization of IDE using basic Interface components- Label, Text Field, Text Area, Button, Checkbox, Radio Button. |
| JULY<br><br>(21) | UNIT 2: INTRODUCTION TO PROGRAMMING<br><br>Developing General Application - Getting Familiar with Java Swing User Interface components-Frame, Dialog, OptionPane, Panel, ScrollPane, Label, TextField, PasswordField, TextArea, Button, CheckBox, RadioButton, ComboBox, List<br><br>Basic component handling methods and properties: setText(), getText(), isSelected(), setSelected() |
| AUGUST<br><br>(21) | UNIT 2: INTRODUCTION TO PROGRAMMING<br><br>Programming Fundamentals<br><br>Data Types: Concept of data types; Built-in data types - byte, short, int, long, float, double, char, string, boolean<br><br>Variables: Need to use variable, declaring variables, variable naming convention, assigning value to variables;<br><br>Integer object method: parseInt<br><br>Double object method: parseDouble, parseFloat<br><br>Control Structures: Decision Structure – if, if-else, switch<br><br>Looping Structure- while, do . . while, for;<br><br>Programming Guidelines:<br><br>General Concepts; Modular approach;<br><br>Stylistic Guidelines: Clarity and simplicity of expressions and names; Comments, Indentation; Running and debugging programs, Syntax Errors, Run-Time Errors, |

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| | Logical Errors;<br><br>Problem Solving Methodology: Understanding of the problem, Identifying minimum number of inputs required for output, breaking down problem into simple logical steps. |
| SEPTEMBER (19) | <u>UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM</u><br><br>Database Management System<br><br>*Introduction to database concepts*: Database, Relational database, Relation/Table, Attribute/Field, Tuple / Row;<br><br>*Data Types*: Text (CHAR, VARCHAR), Number (DECIMAL, INT/INTEGER), Date and Time<br><br>*Keys*: Candidate key, Primary key, Alternate key, Foreign key;<br><br>*Examples of common Database Management System*: MySQL, Ingres, Postgres, Oracle, DB2, MS SQL, Sybase etc.; Common Database management tools for mobile devices (eg: SQL Lite, Postgres SQL).<br><br>REVISION FOR HALF-YEARLY EXAMINATION |
| **TERM II** | |
| MONTH & WORKING DAYS | UNIT/ CHAPTER/ SUB TOPICS |
| OCTOBER (19) | <u>UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM</u><br><br>Introduction to MySQL<br><br>(ANSI SQL 99 standard commands) |

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| | *Classification of SQL Commands*:<br><br>DML - SELECT, INSERT, UPDATE, DELETE DDL - CREATE, DROP, ALTER<br><br>*Creating and using a database*: CREATE DATABASE command to create a database, USE command to select a database.<br><br>*Creating a table*: CREATE TABLE command to create a table, DESC command to display a table structure, INSERT command for inserting new rows, inserting new rows with NULL values and values of all the studied data types.<br><br>Selection and Projection of a table.<br><br>*Displaying table data*: SELECT command for selecting all the columns, selecting specific column(s), use of arithmetic operators. |
| NOVEMBER (15) | <u>UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM</u><br><br>Defining and using column alias<br><br>Eliminating duplicate values from display using DISTINCT keyword Limiting rows during selection (using WHERE clause)<br><br>Using Comparison operators - =, <, >, <=, >=, <>, BETWEEN, IN, LIKE(%,_);<br><br>Logical Operators –AND, OR, NOT and corresponding operator precedence; Working with NULL values.<br><br>ORDER BY clause: Sorting in Ascending/Descending order, sorting by column alias name, sorting on multiple columns; |
| DECEMBER (18) | <u>UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM</u><br><br>*Manipulating Data of a Table/Relation*: UPDATE command to change existing data of |

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| | a table, DELETE command for removing row(s) from a table.<br><br>*Restructuring a table*: ALTER TABLE for adding new column(s) and deleting column (s) and modifying column Structure. DROP command to delete a database or a table.<br><br>Functions in MySQL:<br><br>*String Functions*: ASCII(), CHAR(), CONCAT(), INSTR(), LCASE(), UCASE(), LEFT(), LOWER(), LENGTH(), LTRIM(), MID(), RIGHT(), RTRIM(), SUBSTR(), TRIM(), UPPER().<br><br>*Mathematical Functions*: - POWER(), ROUND(), TRUNCATE().<br><br>*Date and Time Functions*: CURDATE(), DATE(), MONTH(), YEAR(), DAYNAME(), DAYOFMONTH(), DAYOFWEEK(), DAYOFYEAR(), NOW(), SYSDATE(). |
| JANUARY (18) | <u>UNIT 4: IT APPLICATIONS</u><br><br>*e-Governance*: Definition, benefits to citizens, e-Governance websites and their salient features and societal impacts; e-Governance challenges.<br><br>*e-Business*: Definition, benefits to customers and business, e-Business websites and their salient features and societal impacts; netbanking, mobile banking, e-Business challenges.<br><br>*e-Learning*: – Definition, benefits to students (learners), teachers (trainers) and school (Institution) management; MOOCs (Massive Open Online Courses) ; e-Learning websites and their salient features and societal impacts; e-Learning Challenges. |

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| | In each of the above domains, identify at least two real-life problems, list the input(s) required for the expected output(s), and describe the problem solving approach. Conceptualise the design of an ICT based national mission.<br><br>Impact of ICT on society – social environmental and economic benefits, Infomania. |
| FEBRUARY (20) | REVISION FOR ANNUAL EXAMINATION |

## SUBJECT: PHYSICAL EDUCATION

| TERM I | | |
|---|---|---|
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **PRACTICALS** |
| APRIL (20) | **CH 1 – CHANGING TRENDS AND CAREER IN PHYSICAL EDUCATION**<br>Meaning and definition of Physical education<br>Aims and Objectives of Physical education<br>Changing trend in physical education<br>Various Physical education Courses available in india<br>Career Option in Physical education<br>Soft skill required for different careers. | Athletics and its types<br>Labelled diagram of a standered track and field with computation |
| MAY (17) and JUNE (2) | **CH 2 – OLYMPIC MOVEMENT**<br>Ancient and Modern Olympic(Summer and Winter)<br>Olympic Symbols, Ideals, Objectives and Values<br>International Committee<br>Indian Olympic Association<br>Dronacharya Award, Arjun Award, Rajiv Gandhi Khel Ratana<br>Organisational set up of CBSE Sports and Chacha Nehru Sports Award.<br>**CH3-PHYSICAL FITNESS, WELLNESS AND LIFESTYLE**<br>Meaning and importance of physical fitness, Wellness and lifestyle.<br>Components of Physical Fitness<br>Components of Health Related fitness | Explaination and list of current National Awards(Dronacharya Award, Arjun Award, and Rajiv Gandhi Khel Ratna Award) |

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| | Components of Wellness<br>Preventing Health Threats Through Lifestyle Change<br>Concept of Positive Lifestyle | |
| JULY<br>(21) | **CH 4- PHYSICAL EDUCATION AND SPORTS FOR CWSN(CHILDREN WITH SPECIAL NEEDS-DIVYANG)**<br>Aims and Objectives of Adaptive Physical Education<br>Organising promoting Adaptive Sports (Special Olympic Bharat; Paralympics; Deaflympics)<br>Concept and need of Integrated Physical Education<br>Concept of Inclusion, its need and implementation<br>Role of various professionals for children with special needs. | Calculation of BMI from Family and Neighbourhood and graphical representation of the data. |
| AUGUST<br>(21) | **CH 5 –YOGA**<br>Meaning and importance of yoga<br>Elements of Yoga<br>Introduction – Asanas, Pranayam, Meditation and Yogic Kriyas<br>Yoga for Concentration and related Asana (Sukhasana; Tadasana; Padmasana and Shashankasana)<br>Relaxation Techniques for improving concentration – Yoga-nidra.<br>**CH 6 – PHYSICAL ACTIVITY AND LEADERSHIP TRAINING**<br>Concept of physical activity and inactivity<br>Leadership quality and Role of a leader<br>Behaviour change stage for physical activity( Pre-contemplation; Planning; Active; Maintenance)<br>Creating Leaders through Physical Education<br>Meaning, Objectives and types of Adventure Sorts (Rock Climbing, Tracking, River Rafting, Mountaineering, Surfing and Para Gliding)<br>Safety measures during physical activity and adventure sports | Pictorial presentation of any five asana for improving concentration.<br><br>Any One Game of choice .Labelled diagram of field and equipments.<br>Rules Terminology and Skills. |
| SEPTEMBER<br>(9) | **CH 7-TEST MEASUREMENT AND EVALUATION**<br>Define Test ,Measurement and evaluation<br>Importance of test, measurement and Evaluation in Sports<br>Calculation of BMI and Waist-Hip Ratio<br>Somato Types (Endomorphy, Mesomorphy and Ectomorphy)<br>Procedures of Anthropomatric Measurement –Height ,Weight,Arms and Leg Length | |
| **TERM II** | | |
| **MONTH & WORKING DAYS** | **UNIT/ CHAPTER/ SUB TOPICS** | **PRACTICALS** |
| OCTOBER<br>(19) | **CH 8- FUNDAMENTALS OF ANATOMY AND PHYSIOLOGY**<br>Define Anatomy ,Physiology and its importance<br>Function of Skeleton System, Classification of Bones and Types of joints | |

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| | Properties of Muscles<br>Function and Structure of Muscles<br>Function and Structure of Respiratory System, Mechanism of Respiration<br>Structure of Heart and Introduction to Circulatory System<br>Oxygen debt, Second-wind | |
| NOVEMBER (15) | **CH9- KINESIOLOGY, BIOMECHANICS AND SPORTS**<br>Meaning and importance of kinesiology and Biomechanics in physical education and Sports<br>Concept of Musculoskeletal System<br>Joints- Articulation of Bones (Neck, Shoulder, Elbow, Hip and Knees )<br>Major Muscles Around the joints(Neck, Shoulder, Elbow, Hip and Knees )<br>Lever and its types and its application in sports<br>Equilibrium- Dynamic and Static And Centre of Gravity and its application in sports | |
| DECEMBER (18) | **CH 10- PSYCHOLOGY AND SPORTS**<br>Definition and importance of Psychology in physical education and Sports<br>Define and Difference between Growth and Development<br>Development characteristics at different stage of development<br>Adolescent problem and their management<br>Define Learning ,Law of Learning (Law of Readiness; Law of Effect and Law of Exercise )and Transfer of Learning<br>Emotion : Concept, Types and Controlling of emotion | |
| JANUARY (18) | **CH-11 TRAINING IN SPORTS**<br>Meaning and Concept of sports training<br>Principal of Sports training<br>Warming up and Limber down<br>Load , Symptoms of Over –load , Adaptation and Recovery<br>Skill, Technique and Style<br>Role of Free-Play in the development of motor component<br><br>**CH 12- DOPING**<br>Concept and Classification of Doping<br>Prohibited substances and Methods<br>Athletes Responsibilities<br>Side effect of Prohibited substances<br>Ergogenic aids and doping in sports<br>Doping Control procedure | |
| FEBRUARY (20) | REVISION | |