CAMBRIDGE SCHOOL
Greater Noida

# Annual Planner 2024-25 (Month wise and Subject wise)

## Class: XII

## Subject: English

| Month | Unit | Chapter | Topics |
|---|---|---|---|
| April | NA | **Flamingo**-The Last Lesson,<br>My Mother at Sixty -Six<br>**Vistas**- The Third Level | The Last Lesson(Prose)<br>My Mother at Sixty Six(Poem)<br>The Third Level(Prose)<br>**Writing Skills**: Notice Writing |
| May | NA | **Flamingo**- Lost Spring, Going Places<br>**Vistas**- The Tiger King | The Lost Spring(Prose)<br>Going Places(Prose)<br>The Tiger King (Prose) |
| July | NA | **Vistas**-The Enemy<br>**Flamingo**-Keeping Quiet, The Interview<br>**Writing Skills:** Letter to the Editor | The Enemy(Prose)<br>Keeping Quiet(Poem), The Interview(Prose)<br>**Writing Skills:** Letter to the Editor |
| August | NA | **Flamingo**-Deep Water , The Rattrap, Indigo, Poets and Pancakes<br>**Writing Skills**: Invitation | Deep Water (Prose)<br>The Rattrap(Prose)<br>Indigo(Prose)<br>Poets and Pancakes(Prose)<br>**Writing Skills**: Invitation |
| September | NA | Revision for Term 1 | |

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| October | NA | **Vistas**- Journey to the end of the Earth<br>**Flamingo**- A Thing of Beauty, A Roadside Stand<br>**Writing Skills**: Report Writing | Journey to the end of the Earth(Prose)<br>A Thing of Beauty (Poem)<br>A Roadside Stand(Poem)<br>**Writing Skills**: Report Writing |
| November | NA | **Vistas**-On the Face of It . Memories of Childhood<br>**Flamingo**-A Roadside Stand ,Aunt Jennifer's Tiger<br>**Writing skills**: Article Writing, Application for a job | On the face of It(Prose)<br>Memories of Childhood(Prose)<br>A Roadside Stand(Poetry)<br>Aunt Jennifer's Tigers(Poetry)<br>**Writing skills**: Article Writing, Application for a job |
| December | | Pre-Board (REVISION ) | |
| January | | REVISION | |
| February | | REVISION | |

# Subject: Mathematics

| Month | Unit | Chapter | Topics |
|---|---|---|---|
| March | Matrices | Matrices | **Matrices**: Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew symmetric matrices.<br>Operation on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication and scalar multiplication. On-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). |
| April | Determinants | Determinants | **Determinants:** Determinant of a square matrix (up to 3 x 3 matrices), Properties of determinants, minors, co-factors, and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency, and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix. |
| May | 1. Relations and Functions<br>2. Inverse Trigonometric Functions<br>3. Linear Programming | 1. Relations and Functions<br>2. Inverse Trigonometric Functions<br>3. Linear Programming | **Relations and Functions**: -Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, inverse of a function.<br>**Inverse Trigonometric Function**s: Definition, range, domain, principal value branch, Elementary properties of inverse trigonometric functions<br>**Linear Programming**: Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, |

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| | | | 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). |
| July | Continuity and Differentiability | Continuity and Differentiability | **Continuity and Differentiability**: Continuity and differentiability, derivative of composite functions, chain rule, derivative of inverse trigonometric functions, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives. |
| August | 1. Application of Derivatives<br>2. Integrals | 1. Application of Derivatives<br>2. Integrals | **Applications of Derivatives**: Applications of derivatives: rate of change of bodies, increasing/decreasing functions, 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)<br>**Integrals**: Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, Evaluation of simple integrals of the following types and problems based on them. Definite integrals, Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals. |
| September | 1. Application of the Integrals<br>2. Differential Equations | 1. Application of the Integrals<br>2. Differential Equations | **Applications of the Integrals:** Applications in finding the area under simple curves, especially lines, circles/ parabolas/ellipses (in standard form only), Area between any of the two above said curves (the region should be clearly identifiable)<br>**Differential Equations**: Definition, order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given. Solution of differential equations by method of separation of variables, solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the different types. |
| October | 1. Vectors<br>2. Three Dimensional Geometry<br>3. Probability | 1. Vectors<br>2. Three Dimensional Geometry<br>3. Probability | **Vectors**: 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<br>**Three - dimensional Geometry**: 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.<br>**Probability:** Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its |

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| | | | probability distribution, mean and variance of random variable. Binomial probability distribution. |
| November | Revision | Revision | Activity File Submission and practice of Sample Papers and PYQs |

## SUBJECT: PHYSICS(042)

| MONTH | UNIT | Chapter | TOPICS |
|---|---|---|---|
| **MARCH-APRIL** | **Unit I: Electrostatics** | **1. Electric field & Gauss Law** | Electric Charges; Conservation of charge, Coulomb's law-force between two-point charges, forces between multiple charges; superposition principle and continuous charge distribution.<br>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.<br>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). |
| | | **2. Electric potential & capacitance** | 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.<br>Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and polarization 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<br>(no derivation). |
| **MAY** | **Unit II: Current Electricity** | **3. Current Electricity** | Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity; temperature dependence of resistance.<br>Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's laws<br>Wheatstone bridge, metre bridge. |

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| **MAY** | **Unit III: Magnetic Effects of Current and Magnetism** | **4. Moving charges & Magnetism** | Concept of magnetic field, Oersted's experiment.<br>Biot – Savart's law and its application to current carrying circular loop.<br>Ampere's law and its applications to infinitely long straight wire. Straight solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields.<br>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. |
| | | **5. Magnetism & Matter** | Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines.<br>Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties. |
| **JULY** | **Unit IV: Electromagnetic Induction and Alternating Currents** | **6. Electromagnetic induction** | Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Self and mutual induction. |
| | | **7. Alternating current** | Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit (phasors only), resonance, power in AC circuits, power factor, wattless current. AC generator, Transformer |
| **AUGUST** | **Unit V: Electromagnetic waves** | **8. Electromagnetic waves** | Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse nature (qualitative idea only). Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses. |
| | **Unit VII: Dual Nature of Radiation and Matter** | **11. Dual nature of matter and Matter** | Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Experimental study of photoelectric effect |
| | **UNIT VIII:** | **12. Atoms** | Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in nth orbit, hydrogen line spectra (qualitative treatment only). |

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| | | **13. Nuclei** | Composition and size of nucleus, nuclear force Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion. |
| **SEPTEMBER** | **TERM I EXAMINATION** | | |

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| **EXPERIMENTS:**<br>1. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.<br>2. To find resistance of a given wire using metre bridge and hence determine the resistively (specific resistance) of its material.<br>3. To verify the series law of combination of resistances using a metre bridge.<br>4. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.<br>5. To find the focal length of a convex lens by plotting graphs between u and v or between 1/u and 1/v. | **ACTIVITIES:**<br>1. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.<br>2. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.<br>3. 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. |
| **SYLLABUS:**<br><br>**UNIT TEST:**<br>**1. Electric field & Gauss Law**<br>**2. Electric potential & capacitance**<br>**3. Current Electricity** | **SYLLABUS:**<br><br>**TERM 1 EXAMINATION:**<br>**1. Electric field & Gauss Law** **2. Electric potential & capacitance**<br>**3. Current Electricity** **4. Moving charges & Magnetism**<br>**5. Magnetism and Matter** **6. Electromagnetic Induction**<br>**7. Alternating Current** **8. Electromagnetic Waves**<br>**11. Dual nature of Matter and Radiation**<br>**12. Atoms** **13. Nuclei** |

## TERM II

**(OCTOBER to MARCH)**

| MONTH | UNIT | CHAPTERS | TOPIC |
|---|---|---|---|
| **OCTOBER** | **Unit VI: Optics** | **9. Ray Optics:** | Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism. Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers. |

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| | | **10. Wave optics** | 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 (No derivation final expression only), coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only). |
| **NOVEMBER** | **Unit IX: Electronic Devices** | **14: Semiconductor Electronics: Materials, Devices and Simple Circuits** | Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p-n junction Semiconductor diode - I-V characteristics in forward and reverse bias, application of junction diode -diode as a rectifier. |
| **DECEMBER & JANUARY** | **REVISION & PRE-BOARD EXAMINATION** | | |
| **FEBRUARY & MARCH** | **CBSE BOARD EXAMINATION** | | |

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| **EXPERIMENTS:**<br>1. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.<br>2. To determine refractive index of a glass slab using a travelling microscope.<br>3. To draw the I-V characteristic curve for a p-n junction diode in forward and reverse bias. | **ACTIVITIES:**<br>1. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.<br>2. Use of multimeter to see the unidirectional flow of current in case of a diode and an LED and check whether a given electronic component (e.g., diode) is in working order.<br>3. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.<br>4. To observe diffraction of light due to a thin slit. |

# Subject: Chemistry

| Month | Unit | Chapter | Topics |
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| April | **Unit X** | **Haloalkanes and haloarenes** | **Haloalkanes**<br>Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation.<br>**Haloarenes:** Nature of C -X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only. |

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| | **Unit XI** | **Alcohols, Phenols and Ethers** | Uses and environmental effects of dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.<br>**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.<br>**Phenols:** Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.<br>**Ethers:** Nomenclature, methods of preparation, physical and chemical properties, uses. |
| May | **Unit XII**<br><br>**Unit II** | **Aldehydes, Ketones and Carboxylic Acids**<br><br>**Solutions** | **Aldehydes and Ketones:** Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of Nucleophilic addition, the reactivity of alpha hydrogen in Aldehydes: uses.<br>**Carboxylic Acids:** Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.<br>Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties – relative lowering of vapour pressure, Raoult's law , elevation 8 of B.P., depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Vant Hoff factor. |
| July | **Unit III**<br><br>**Unit XIII:** | **Electrochemistry**<br><br>**Organic compounds containing Nitrogen** | Redox reactions; conductance in electrolytic solutions, specific and molar conductivity variations of conductivity with concentration, Kohlrausch's Law, electrolysis and laws of electrolysis (elementary idea), dry cell – electrolytic cells and Galvanic cells; lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells. Relation between Gibbs energy change and EMF of a cell, fuel cells; corrosion.<br>**Amines:** Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines. |

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| | | | **Diazonium salts**: Preparation, chemical reactions, and importance in synthetic organic chemistry. |
| **Unit Test I** | | Syllabus<br>1. Haloalkanes and Haloarenes<br>**2. Alcohols, Phenols and Ethers**<br>**3.Aldehydes, Ketones and Carboxylic Acids** | |
| August | | **REVISION FOR TERM I EXAMINATION** | |
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| September | **TERM I EXAM** | **SYLLABUS**<br>1. Haloalkanes and Haloarenes<br>**2. Alcohols, Phenols and Ethers**<br>**3.Aldehydes, Ketones and Carboxylic Acids**<br>4. Solutions<br>5. Electrochemistry<br>6. **Organic compounds containing Nitrogen** | |
| October | **Unit VIII**<br><br>Unit IX | **d and f Block Elements**<br><br>Coordination Compounds | 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 $K_2 Cr_2 O_7$ and $KMnO_4$ .<br>**Lanthanoids** – electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.<br>**Actinoids** – Electronic configuration, oxidation states and comparison with lanthenoids .<br>Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, bonding, Werner's theory VBT,CFT; isomerism (structural |

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| | | | and stereo)importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems). |
| November | **Unit IV: Chemical Kinetics**<br><br>**Unit XIV:** | **Chemical Kinetics**<br><br>**Biomolecules** | Rate of a reaction (average and instantaneous), factors affecting rates of reaction: concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions); concept of collision theory (elementary idea, no mathematical treatment).Activation energy, Arrhenious equation.<br><br>**Carbohydrates –** Classification (aldoses and ketoses), monosaccharide (glucose and fructose), D-L configuration, oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen): importance.<br><br>**Proteins -** Elementary idea of a - amino acids, peptide bond, polypeptides, proteins, primary structure, secondary structure, tertiary structure and quaternary structure (qualitative idea only), denaturation of proteins; enzymes. Hormones –Elementary idea (excluding structure).<br><br>**Vitamins** – Classification and functions. Nucleic Acids: DNA and RNA |
| December | | Pre-Board (REVISION ) | |
| January | | REVISION | |
| February | | REVISION | |

## SUBJECT: PHYSICAL EDUCATION (048)

| | | TERM I (APRIL to SEPTEMBER) | |
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| **MONTH** | **UNIT** | **Chapter** | **TOPICS** |

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| **MARCH-APRIL** | **Unit I: Management of Sporting Events** | **Management of Sporting Events** | 1. Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling)<br>2. Various Committees & their Responsibilities (pre; during & post)<br>3. Fixtures and their Procedures – Knock-Out (Bye & Seeding) & League (Staircase, Cyclic, Tabular method) and Combination tournaments.<br>4. Intramural & Extramural tournaments – Meaning, Objectives & Its Significance<br>5. Community sports program (Sports Day, Health Run, Run for Fun, Run for Specific Cause & Run for Unity) |
| **MAY** | **Unit II: Children & Women in Sports** | **Children & Women in Sports** | 1. Exercise guidelines of WHO for different age groups.<br>2. Common postural deformities-knock knees, flat foot, round shoulders, Lordosis, Kyphosis, Scoliosis, and bow legs and their respective corrective measures.<br>3. Women's participation in Sports – Physical, Psychological, and social benefits.<br>4. Special consideration (menarche and menstrual dysfunction)<br>5. Female athlete triad (osteoporosis, amenorrhea, eating disorders. |
| **JULY** | **Unit III: Yoga as Preventive Measure for Lifestyle Disease** | **Yoga as Preventive Measure for Lifestyle Disease** | 1. Obesity: Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsayasana, Halasana, Pachimottansana, Ardha – Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama.<br>2. Diabetes: Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana,Bhujang asana, Shalabhasana, Dhanurasana, Suptavajarasana, Paschimottanasan -a, Ardha -Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.<br>3. Asthma: Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottansana, UttanMandukasan -a, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana Matsyaasana, Anuloma - Viloma.<br>. Hypertension: Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halasana, Sarala Matyasana, Gomukhasana, UttanMandukasan-a, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadishodhanapranayam, Sitlipranayam.<br>5. Back Pain and Arthritis: Procedure, Benefits & Contraindications of Tadasan, Urdhawahastootansana, Ardh-Chakrasana, Ushtrasana, Vakrasana, Sarala Maysyendrsana, Bhujandgasana, Gomukhasana, Bhadrasana, Makarasana, NadiShodhana pranayama. |

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| **AUGUST** | **Unit IV: Physical Education and Sports for CWSN (Children with Special Needs - Divyang)** | **Physical Education and Sports for CWSN (Children with Special Needs - Divyang)** | 1. Organisations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics)<br>2. Concept of Classification and Divisioning in Sports.<br>3. Concept of Inclusion in sports, its need, and Implementation;<br>4. Advantages of Physical Activities for Children with special needs.<br>5. Strategies to make Physical Activities assessable for children with special needs. |
| | **Unit V: Sports & Nutrition** | **Sports & Nutrition** | 1. Concept of balanced diet and nutrition<br>2. Macro and Micro Nutrients: Food sources & functions<br>3. Nutritive & Non-Nutritive Components of Diet<br>4. Eating for Weight control – A Healthy Weight, The Pitfalls of Dieting, Food Intolerance, and Food Myths<br>5. Importance of Diet in Sports-Pre, During and Post competition Requirements |
| **SEPTEMBER** | **TERM I EXAMINATION** | | |
| **Physical Education Test**<br><br>Fitness Test – SAI Khelo India Fitness Test in school: Age group 5-8 years/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test | **ACTIVITIES:**<br>1. Volleyball Ground Marking<br>Basketball Ground Marking | | |

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| **SYLLABUS:**<br><br>**UNIT TEST:**<br>**1. Management of Sporting Events**<br>**2. Children & Women in Sports** | **SYLLABUS:**<br><br>**TERM 1 EXAMINATION:**<br>**1. Management of Sporting Events**<br>**2. Children & Women in Sports**<br>**3. Yoga as Preventive Measure for Lifestyle Disease**<br>**4. Physical Education and Sports for CWSN (Children with Special Needs - Divyang)**<br>**5. Sports & Nutrition** |

**TERM II (OCTOBER to MARCH)**

| MONTH | UNIT | CHAPTERSS | TOPIC |
|---|---|---|---|
| **OCTOBER** | **Unit VI: Test & Measurement in Sports** | **Test & Measurement in Sports** | 1. Fitness Test – SAI Khelo India Fitness Test in school:<br>Age group 5-8 years/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test<br>Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Partial Abdominal Curl Up, PushUps for boys, Modified Push-Ups for girls).<br>2. Measurement of CardioVascular Fitness – Harvard Step Test – Duration of the Exercise in Seconds x100/5.5 X Pulse count of 1-1.5 Min after Exercise.<br>3. Computing Basal Metabolic Rate (BMR)<br>4. Rikli & Jones -<br>Senior Citizen Fitness Test<br>Chair Stand Test for lower body strength<br>Arm Curl Test for upper body strength<br>Chair Sit & Reach Test for lower body flexibility<br>Back Scratch Test for upper body flexibility<br>Eight Foot Up & Go Test for Agility<br>Six-Minute Walk Test for Aerobic Endurance<br>5. Johnsen – Methney Test of Motor Educability (Front Roll, Roll, Jumping Half-Turn, Jumping full turn |

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| | **Unit VII: Physiology & Injuries in Sport** | **Physiology & Injuries in Sport** | 1. Physiological factors determining components of physical fitness<br>2. Effect of exercise on the Muscular System<br>3. Effect of exercise on the Cardio-Respiratory System<br>4. Physiological changes due to aging<br>5. Sports injuries: Classification (Soft Tissue Injuries -Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green Stick, Comminuted, Transverse Oblique & Impacted) |
| **NOVEMBER** | **Unit VIII: Biomechanics and Sports** | **Biomechanics and Sports** | 1. Newton's Law of Motion & its Application in Sports<br>2. Types of Levers and their application in Sports.<br>3. Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports<br>4. Friction & Sports<br>5. Projectile in Sports |
| | **Unit IX: Psychology and Sports** | **Psychology and Sports** | 1. Personality; its definition & types (Jung Classification & Big Five Theory)<br>2. Motivation, its type & techniques.<br>3. Exercise Adherence: Reasons, Benefits & Strategies for Enhancing it<br>4. Meaning, Concept & Types of Aggressions in Sports<br>5. Psychological Attributes in Sports – Self-Esteem, Mental Imagery, SelfTalk, Goal Setting |
| | **Unit X:** | **Training in Sports** | 1. Concept of Talent Identification and Talent Development in Sports<br>2. Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle.<br>3. Types & Methods to Develop – Strength, Endurance, and Speed.<br>4. Types & Methods to Develop – Flexibility and Coordinative Ability.<br>5. Circuit Training - Introduction & its importance |
| **DECEMBER & JANUARY** | | **REVISION & PRE-BOARD EXAMINATION** | |
| **FEBRUARY& MARCH** | | **CBSE BOARD EXAMINATION** | |

| **Physical Education Test** | **ACTIVITIES:** |
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| . 1. Fitness Test – SAI Khelo India Fitness Test in school:<br>. Age group 5-8 years/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test<br><br>**3.** Rikli & Jones -<br>Senior Citizen Fitness Test<br>Chair Stand Test for lower body strength<br>Arm Curl Test for upper body strength<br>Chair Sit & Reach Test for lower body flexibility<br>Back Scratch Test for upper body flexibility<br>Eight Foot Up & Go Test for Agility<br>Six-Minute Walk Test for Aerobic Endurance | . Physical Fitness Test: SAI Khelo India Test, Brockport Physical Fitness Test (BPFT)<br><br>. Proficiency in Games and Sports (Skill of any one IOA recognized Sport/Game of Choice)<br><br>. Yogic Practices<br><br>. Record File<br><br>. Viva Voce (Health/ Games & Sports/ Yoga) |

# SUBJECT: BIOLOGY

| TERM 1 | | | |
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| **MONTH** | **UNIT** | **CHAPTER** | **TOPICS** |
| **MARCH** | | **CHAPTER 1 - SEXUAL REPRODUCTION IN FLOWERING PLANTS** | 1. Flower structure<br>2. Development of male and female gametophytes<br>3. Pollination – types, agencies, and examples<br>4. Out breeding devices<br>5. Pollen-pistil interaction<br>6. Double fertilization<br>7. Post-fertilization events -<br>a) Development of endosperm and embryo,<br>b) Development of seed and formation of fruit;<br>8. Special modes-apomixis, parthenocarpy, polyembryony;<br>9. Significance of seed dispersal and fruit formation. |
| **APRIL** | | **CHAPTER 2 - HUMAN REPRODUCTION** | 1. Male and female reproductive systems.<br>2. Microscopic anatomy of testis and ovary.<br>3. Gametogenesis – spermatogenesis and oogenesis.<br>4. Menstrual cycle.<br>5. Fertilization, embryo development up to blastocyst formation.<br>6. Implantation.<br>7. Pregnancy and placenta formation (elementary idea).<br>8. Parturition (elementary idea)<br>9. Lactation (elementary idea). |
| **APRIL** | **UNIT-VI REPRODUCTION** | **CHAPTER 3 - REPRODUCTIVE HEALTH** | 1. Need for reproductive health and prevention of sexually transmitted diseases (STDs).<br>2. Birth control – need and methods.<br>3. Contraception and medical termination of pregnancy (MTP)<br>4. Amniocentesis |

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| | | | 5. Infertility and assisted reproductive technologies - IVF, ZIFT, GIFT. |
| **APRIL** | | **CHAPTER 4 - PRINCIPLES OF INHERITANCE AND VARIATION** | 1. Heredity and variation: Mendelian inheritance.<br>2. Deviations from Mendelism – incomplete dominance, co-dominance.<br>3. Multiple alleles and inheritance of blood groups, pleiotropy;<br>4. Elementary idea of polygenic inheritance;<br>5. Chromosome theory of inheritance;<br>6. Chromosomes and genes;<br>7. Sex determination – in humans, birds and honey bee;<br>8. Linkage and crossing over;<br>9. Sex-linked inheritance – hemophilia, color blindness;<br>10. Mendelian disorders in humans – thalassemia;<br>11. Chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes. |
| **MAY** | | **CHAPTER 5 - MOLECULAR BASIS OF INHERITANCE** | 1. Search for genetic material and DNA as genetic material.<br>2. Structure of DNA and RNA.<br>3. DNA packaging.<br>4. DNA replication.<br>5. Central dogma.<br>6. Transcription.<br>7. Genetic code.<br>8. Translation.<br>9. Gene expression and regulation – lac operon.<br>10. Genome and human and rice genome projects.<br>11. DNA fingerprinting. |
| **JULY** | **UNIT-VII GENETICS AND EVOLTION** | **CHAPTER 6 - EVOLUTION** | 1. Origin of life on Earth.<br>2. Biological evolution and evidences for biological evolution (paleontological, comparative anatomy, embryology and molecular evidence).<br>3. Darwin's contribution in the field of evolution.<br>4. Modern synthetic theory of evolution. |

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| | | | 5. Mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection.<br>6. Gene flow and genetic drift.<br>7. Hardy - Weinberg's principle.<br>8. Adaptive Radiation.<br>9. Human evolution. |
| **JULY** | **UNIT-VIII BIOLOGY AND HUMAN WELFARE** | **CHAPTER 7 - HUMAN HEALTH AND DISEASES** | 1. Common diseases on humans.<br>2. Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control.<br>3. Basic concepts of immunology – vaccines.<br>4. Cancer.<br>5. HIV and AIDs;.<br>6. Adolescence: drug and alcohol abuse. |
| **AUGUST** | | **CHAPTER 8 - MICROBES IN HUMAN WELFARE** | 1. Microbes in household food processing.<br>2. Microbes in industrial production.<br>3. Microbes in sewage treatment.<br>4. Microbes in energy generation.<br>5. Microbes as bio control agents and biofertilizers.<br>6. Antibiotics: production and judicious use. |
| **AUGUST** | **UNIT-IX BIOTECHNOLOGY AND ITS APPLICATIONS** | **CHAPTER 9 - BIOTECHNOLOGY - PRINCIPLES AND PROCESSES** | 1. Principles of biotechnology.<br>2. Tools of recombinant DNA technology.<br>3. Restriction enzymes<br>4. Separation and isolation of DNA fragments.<br>5. Cloning vectors.<br>6. Competent host for transformation with recombinant DNA.<br>7. Process recombinant DNA technology.<br>8. Amplification of gene of interest using Polymerase chain reaction.<br>9. Insertion of recombinant DNA into the host cell and obtaining the foreign gene product. |

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| **OCTOBER** | **UNIT-IX BIOTECHNOLOGY AND ITS APPLICATIONS** | **CHAPTER 10 - BIOTECHNOLOGY AND ITS APPLICATIONS** | 1. Application of biotechnology in health and agriculture.<br>2. Human insulin and vaccine production.<br>3. Stem cell technology.<br>4. Gene therapy.<br>5. Genetically modified organisms - Bt crops.<br>6. Transgenic Animals.<br>7. Bio safety issues.<br>8. Bio piracy and patents. |
| **OCTOBER** | **Unit-X Ecology and Environment** | **CHAPTER 11 - ORGANISMS AND POPULATIONS** | 1. Organisms and its environment: Habitat and niche, population and ecological adaptations.<br>2. Population interactions-mutualism, competition, predation, parasitism.<br>3. Population attributes - growth, birth rate and death rate, age distribution. |
| **NOVEMBER** | | **CHAPTER 12 - ECOSYSTEM** | 1. Ecosystems: Patterns, components.<br>2. Productivity and decomposition;.<br>3. Energy flow; pyramids of number, biomass, energy.<br>4. Nutrient cycles (carbon and phosphorous).<br>5. Ecological succession.<br>6. Ecological services - carbon fixation, pollination, seed dispersal, and oxygen release. |
| | | **CHAPTER 15 - BIODIVERSITY AND ITS CONSERVATION** | 1. Concept of biodiversity.<br>2. Patterns of biodiversity.<br>3. Importance of biodiversity.<br>4. Loss of biodiversity.<br>5. Biodiversity conservation.<br>6. Hotspots, endangered organisms, extinction, Red Data Book.<br>7. Biosphere reserves, national parks, sanctuaries and Ramsar sites. |

# Informatics Practices Code No. 065

| Month | Unit | Chapter | Topics |
|---|---|---|---|
| April & May | Unit - 1<br>Data Handling using Pandas and Data Visualization | Chapter 2 Data Handling using Pandas - I | • Revision of List and Dictionary<br>• Difference between different Data Structures<br>• Introduction to Python Libraries<br>• Series<br>• DataFrame<br>• Importing and Exporting Data between CSV Files and DataFrames<br>• Pandas Series Vs NumPy ndarray |
| July | Unit - 1<br>Data Handling using Pandas and Data Visualization | Chapter 4<br>Plotting Data using Matplotlib | • Introduction to Matplotlib<br>• Plotting using Matplotlib<br>• Customisation of Plots<br>• The Pandas Plot Function (Pandas Visualisation) |
| August | Unit - 3 Introduction to Computer Networks | Chapter 5 Internet and Web | • Introduction to Computer Networks<br>• Types of Networks<br>• Network Devices<br>• Networking Topologies<br>• The Internet<br>• Applications of Internet<br>• Website<br>• Web Page<br>• Web Server<br>• Hosting of a Website<br>• Browser |
| Septembe r | Term I Assessment (Practical + Practical File + Viva+ Written) | | |
| October | Unit -2 Querying and SQL Functions | Chapter 1 Querying and SQL Functions | • Introduction to SQL functions<br>• Functions in SQL<br>• GROUP BY in SQL<br>• Operations on Relations<br>• Using Two Relations in a Query |
| November | Unit - 4<br>Societal Impacts | Chapter 6<br><br>Societal Impacts | • Introduction to social Impacts<br>• Digital Footprints<br>• Digital Society and Netizen<br>• Data Protection |

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| | | | • Creative Commons<br>• Cyber Crime<br>• Indian Information Technology Act (IT Act)<br>• E-waste: Hazards and Management<br>• Impact on Health |
| December | Unit - 1<br>Data Handling using Pandas and Data Visualization | Chapter 3 Data Handling using Pandas - II | • Introduction to pandas II<br>• Descriptive Statistics<br>• Data Aggregations<br>• Sorting a DataFrame<br>• Group by Functions<br>• Altering the Index<br>• Other DataFrame Operations<br>• Handling Missing Values |

# Subject: Psychology

| **Class: XII** | | | **Subject: Psychology** |
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| **Month** | **Unit** | **Chapter** | **Topics** |
| March | PRACTICAL<br><br>PRACTICAL | INTRODUCTION TO PSYCHOLOGICAL TESTING<br><br>PRACTICAL ON NON-VERBAL INTELLIGENCE TEST | Introduction to Psychological Testing.<br><br>To assess the intelligence of the subject by using Non-Verbal Intelligence Test by Dr. Atmananda Sharma. |

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| April | CHAPTER -1 | VARIATIONS IN PSYCHOLOGICAL ATTRIBUTES | Individual Differences in Human Functioning, Assessment of Psychological Attributes, Psychometric Theories of Intelligence, Information Processing Theory, Theory of Multiple Intelligence, Triarchic Theory of Intelligence, Planning, Attention arousal and Simultaneous<br><br>successive Model of Intelligence, Individual Differences in Intelligence, Culture and Intelligence, Emotional Intelligence, Special Abilities: Aptitude, Nature and Measurement, Creativity. |
| | CHAPTER -2 | SELF AND PERSONALITY | Self and Personality, Concept of Self, Cognitive and Behavioural Aspects of Self, Culture and Self, Concept of Personality, Type and Trait approach, Psychodynamic and Post Freudian Approach, Behavioural Approach, Cultural and Humanistic Approach, Assessment of Personality: Self-report Measures, Projective Techniques, Behavioural Analysis. |

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| May | CHAPTER -3 | MEETING LIFE CHALLENGES | Nature, Types and Sources of Stress, Effects of Stress on Psychological Functioning and Health, Stress and Health, General Adaptation Syndrome, Stress and Immune System, Lifestyle Coping with Stress, Stress Management Techniques, Promoting Positive Health and Well-being Life Skills, Resilience and Health. |
| | PRACTICAL | PRACTICAL ON EYSENCK'S PERSONALITY QUESTIONNAIRE - REVISED | To assess the personality dimensions of the subject using Eysenck's Personality Questionnaire- Revised. |
| | PRACTICAL | PRACTICAL ON SINHA'S COMPREHENSIVE ANXIETY TEST. | To assess the anxiety of the subject using Sinha's Comprehensive Anxiety Test. |
| July | CHAPTER -4 | PSYCHOLOGICAL DISORDERS | Concepts of Abnormality and Psychological Disorders, Classification of Psychological Disorders, Factors Underlying Abnormal Behaviour Major Psychological Disorders, Anxiety Disorders, Obsessive-Compulsive and Related Disorders, Trauma-and Stressor-Related Disorders, Somatic Symptom and Related Disorders, Dissociative Disorders, Depressive Disorder, Bipolar and Related Disorders, Schizophrenia Spectrum and Other Psychotic Disorders, Neurodevelopmental Disorders, Disruptive, Impulse-Control and Conduct Disorders, Feeding and Eating Disorders, Substance Related and Addictive Disorders. |
| | PRACTICAL | PRACTICAL ON DBDA | To assess the abilities of the subject using David's Battery of Differential Abilities. |

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| August | CHAPTER -5 | THERAPEUTIC APPROACHES | Nature and Process of psychotherapy, Therapeutic relationship, Behaviour Therapy, Cognitive Therapy, Humanistic-Existential Therapy, Alternative Therapies, Factors contributing to healing in Psychotherapy, Ethics in Psychotherapy, Rehabilitation of the Mentally Ill |
| September | **TERM I EXAMINATION** | | |
| October | CHAPTER -6<br><br>PRACTICAL | ATTITUDE AND SOCIAL COGNITION<br><br>PRACTICAL ON SELF CONCEPT RATING SCALE. | Explaining Social Behaviour, Nature and Components of Attitudes, Attitude Formation and Change, Attitude-Behaviour Relationship, Prejudice and Discrimination, Strategies for Handling Prejudice<br><br>To assess the Self-concept of the subject using Self Concept Rating Scale. |
| November | CHAPTER -7 | SOCIAL INFLUENCE AND GROUP PROCESSES<br><br>**REVISION** | Nature and Formation of Groups, Type of Groups, Influence of Group on Individual Behaviour, Social Loafing, Group Polarisation. |
| December | **PRE-BOARD EXAMINATION I** | | |
| January | **PRE-BOARD EXAMINATION II** | | |

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| | | | • Import and Export of Data between Pandas and MySQL |
| January | Unit - 5 Project Work | | • Project work & Revision |
| February | Unit - 5<br>Project Work | | • Project work & Revision |
| March | Term II Assessment (Practical + Practical File + Viva + Project File ) | | |

## Subject: ENTREPRENEURSHIP

| **Month** | **Unit** | **Chapter** | **Topics** |
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| April | I | Entrepreneurial Opportunity | Sensing Entrepreneurial Opportunities<br>Environment Scanning<br>Problem Identification<br>Idea fields<br>Spotting Trends<br>Creativity and Innovation<br>Selecting the Right Opportunity |
| May | II | Entrepreneurial Planning | Forms of business organization-<br>Sole proprietorship, Partnership, Company<br>Business Plan: concept, format.<br>Components:<br>Organisational plan;<br>Operational plan;<br>Production plan;<br>Financial plan;<br>Marketing plan;<br>Human Resource plan |
| July | **III** | Enterprise Marketing | Marketing and Sales Strategy<br>Branding, Logo, Tagline<br>Promotion Strategy |
| August | IV | Enterprise Growth Strategies | Franchising: Concept and types<br>Franchising: Advantages and limitations to franchisor and franchisee.<br>Mergers and Acquisition: Concept, reasons and types. |

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| September | **Term - 1 Examination** UNITS 1 to 4 | | | - 1 to 4 |
| October | **V** | Business Arithmetic | Unit of Sale, Unit Cost for multiple products or services<br>Break even Analysis for multiple products or services<br>Computation of Working Capital<br>Inventory Control and EOQ<br>Return on Investment (ROI) and Return on Equity (ROE) | |
| November | VI | Resource Mobilization | Capital Market: Concept<br>Primary market: Concept, methods of issue<br>Angel Investor: Features<br>Venture Capital: Features, funding. | |
| December & January | **Pre-Board Examinations** | Complete syllabus as per CBSE Board examination (Units 1 To 6) | | |