OXFORD

PUBLIC SCHOOL

RANCHI-834011

2024-25

SYLLABUS

CLASS XI

NAME: .....

ROLL NO.: ..... CLASS & SECTION: .....

SUBJECT: ENGLISH CORE (301)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**HORNBILL:** 1. The Portrait of a Lady (Prose) 2. A Photograph (Poem) **GRAMMAR:** 1.Tenses 2. Re-ordering of sentences **CREATIVE WRITING SKILL:** 1. Speech	Make a detailed study of the Old Age Homes in India. (Clues: reasons for increase, statistics in India and condition of the old age homes) **OR** Create a photo frame for your mother and also write ten lines on her.
JULY	24	**HORNBILL:** 1. "We're Not Afraid to Die… if We Can All Be Together " (Prose) **SNAPSHOTS:** 1. The Summer of the Beautiful White Horse (Prose) 2. The Address (Prose) **CREATIVE WRITING SKILLS:** 1. Classified Advertisements 2. Debate	Collect information on Sthavi Asthana – India's grand hope for an Asian Games Gold in Horse Riding. **OR** Make a collage of the various classified advertisements published in the newspapers.
AUG	20	**HORNBILL:** 1. Discovering Tut: The Saga Continues (Prose) 2. The Laburnum Top (Poem) **READING COMPREHENSION:** 1. Note Making & Summarization	Research on the various trees and birds used in the poems and their significance. **OR** Role-play: Students take on different perspectives to

		GRAMMAR: 1. Clauses 2. Transformation of sentences	discuss a topic, fostering empathy and understanding while practicing communication skills in a simple, interactive format.
SEP	19	**HORNBILL:** 1. The Voice of the Rain (Poem) 2. Childhood (Poem)	Discussion on 'Water Cycle'. **OR** 'Heredity and Habits that Children acquire' (The science behind it.)
OCT	20	**Revision & First Terminal/Half Yearly Examination** **(55% Syllabus)**	
NOV	15	**HORNBILL:** 1.The Adventure (Prose) 2. Silk Road (Prose) **SNAPSHOTS:** 1**.** Birth (Prose)	Prepare a speech on the scientist and author Jayant Narlikar. **OR** Collect two newspaper reports on the advancements made in the world of medical science**.**
DEC	19	**HORNBILL:** 1. Father to Son (Poem) **SNAPSHOTS:** 1. Mother's Day (Play) 2. The Tale of Melon City (Poem)	Make a cartoon strip depicting your father's journey, achievements and regrets. **OR** Develop a script for a school play on 'Family Ties'.
JAN	20	**Integrated Grammar Exercises** **Revision (Whole Syllabus)**	
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: HINDI CORE (302)

माह	कार्य दिवस	विषय	क्रिया कलाप
जून	09	आरोह (भाग-१) - नमक का दारोगा, कबीर के दोहे अपठित गद्यांश, अपठित पद्यांश	'प्रेमचंद के साहित्य में यथार्थ चित्रण' विषय के ऊपर एक परियोजना कार्य तैयार करें
जुलाई	24	आरोह (भाग-१) - मियाँ नसीरुद्दीन, मीरा के पद वितान (भाग-१) - भारतीय गायिकाओं में बेजोड़ लता मंगेशकर औपचारिक पत्र लेखन	
अगस्त	20	आरोह (भाग-१) - अप्पू के साथ ढाई साल, घर की याद, विदाई संभाषण, चम्पा काले काले अक्षर नहीं चीन्हती वितान (भाग-१) - राजस्थान की रजत बूँदें	अभिव्यक्ति एवं जनसंचार माध्यम की उपयोगिता के ऊपर एक परियोजना कार्य तैयार करें
सितम्बर	19	आरोह (भाग-१) - गलता लोहा, रजनी, गजल वितान (भाग-१) - आलो आंधारी अभिव्यक्ति एवं जनसंचार माध्यम, शब्दकोश	
अक्टूबर	20	पुनरावृत्ति एवं प्रथम सावधिक परीक्षा (55% पाठ्यक्रम)	
नवम्बर	15	आरोह (भाग-१) - हे मेरे जूही के फूल जैसे ईश्वर, हे भूख मत मचल, वितान (भाग-१) - भारतीय कलाएँ अपठित गद्यांश, अपठित पद्यांश	
दिसम्बर	19	आरोह (भाग-१) - सबसे खतरनाक, जामून का पेड़, भारत माता औपचारिक पत्र लेखन, शब्दकोश	
जनवरी	20	आरोह (भाग-१) - आओ मिलकर बचाएँ अभिव्यक्ति एवं जनसंचार माध्यम	
फरवरी	21	**पुनरावृत्ति एवं वार्षिक परीक्षा** **(55% + 45% पाठ्यक्रम)**	
मार्च	24	**वार्षिक परीक्षा, परिणाम एवं पी. टी. एम.**	

SUBJECT: MATHEMATICS (041)

MONTH	WORKING DAYS	TOPICS
JUNE	09	**Unit-I: Sets and Functions** **Sets** Sets and their representations, Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers especially intervals (with notations). Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement. **Relations & Functions** Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself (up to R x R x R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function.
JULY	24	Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions. **Trigonometric Functions** Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing $sin\ (x \pm y)$ and $cos\ (x \pm y)$ in terms of sin$x$, sin$y$, cos$x$ & cos$y$ and their simple applications. Deducing identities like the following:

		$\tan(x\pm y) = \frac{\tan x \pm \tan y}{1 \pm \tan x \tan y}$, $\cot(x\pm y) = \frac{\cot x \cot y \pm 1}{\cot y \pm \cot x}$ $\sin\alpha \pm \sin\beta = 2\sin\frac{1}{2}(\alpha \pm \beta)\cos\frac{1}{2}(\alpha \mp \beta)$ $\cos\alpha \pm \cos\beta = 2\cos\frac{1}{2}(\alpha \pm \beta)\cos\frac{1}{2}(\alpha - \beta)$ $\cos\alpha - \cos\beta = -2\sin\frac{1}{2}(\alpha + \beta)\sin\frac{1}{2}(\alpha - \beta)$
AUG	20	**Unit-II: Algebra** **Complex Numbers and Quadratic Equations** Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane. **Linear Inequalities** Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. **Permutations and Combinations** Fundamental principle of counting. Factorial *n.* (n!) Permutations and combinations, derivation of formulae for P(n,r) and C(n,r) and their connections, simple applications.
SEP	19	**Binomial Theorem** Historical perspective, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications. **Sequences and Series** Sequences and Series. Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of *n* terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M.
OCT	20	**Revision & First Terminal / Half Yearly Examination (55% Syllabus)**
NOV	15	**Unit-III: Coordinate Geometry** **Straight Lines** Brief recall of two-dimensional geometry from earlier classes. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point-slope form, slope-intercept form, two-point form, intercept form, distance of a point from a line.

		Conic Sections Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle. **Introduction to Three-dimensional Geometry** Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points.
DEC	19	**Unit-IV: Calculus** **Limits and Derivatives** Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions, trigonometric, exponential and logarithmic functions. Definition of derivative, relate it to scope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions. **Unit-V: Statistics and Probability** **Statistics** Measures of Dispersion: Range, Mean deviation, variance and standard deviation ofungrouped/grouped data. **Probability** Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events.
JAN	20	**Revision**
FEB	21	**Revision & Annual Examination** **(55% + 45% Syllabus)**
MAR	24	**Annual Examination, Result & PTM**

SUBJECT: ACCOUNTANCY (055)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**Part- A: Financial Accounting- I** **Introduction to Accounting** Accounting- concept, meaning, as a source of information, 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-** Entity, Business Transaction, Capital, Drawings. Liabilities (Non-Current and Current). Assets (Non-Current, Current); Expenditure (Capital and Revenue), Expense, Revenue, Income, Profit, Gain, Loss, Purchase, Sales, Goods, Stock, Debtor, Creditor, Voucher, Discount (Trade discount and Cash Discount).	SOLVE QUESTION
JULY	24	**Theory Base of Accounting** Fundamental accounting assumptions: GAAP: Generally Accepted Accounting Principle. Concept Basic Accounting 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 • Accounting Standards: Applicability of Accounting Standards (AS) and Indian Accounting Standards (IndAS)	SOLVE QUESTION

		• Goods and Services Tax (GST): Characteristics and Advantages.	
AUG	20	**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. • Recording of Transactions: Books of Original Entry- Journal **Special Purpose Books:** • Cash Book: Simple, cash book with bank column and petty cashbook • Purchases book • Sales book • Purchases return book • Sales return book • Journal proper Note: Including trade discount, freight and cartage expenses for simple GST calculation. **Ledger:** Format, Posting from journal and subsidiary books, Balancing of account	SOLVE QUESTION
SEP	19	**Bank Reconciliation Statement:** • Need and preparation of Bank Reconciliation Statement **Depreciation, Provisions and Reserves** • Depreciation: Meaning, Features, Need, Causes, factors • Other similar terms: Depletion and Amortisation • Methods of Depreciation: i. Straight Line Method (SLM) ii.Written Down Value Method (WDV) Note: Excluding change of method • Difference between SLM and WDV; Advantages of SLM and WDV • Method of recoding depreciation i. Charging to asset account	SOLVE QUESTION & SAMPLE PAPER

		ii.Creating provision for depreciation/accumulated depreciation account • Treatment of disposal of asset	
OCT	20	**Provisions and Reserves** • Difference Between Provisions and Reserves. • Types of Reserves: i. Revenue reserve ii. Capital reserve iii.General reserve iv. Specific reserve v. Secret Reserve. • Difference between capital and revenue reserve. **Trial balance:** objectives, meaning and preparation (Scope: Trial balance with balance method only). **Revision & First Terminal / Half Yearly Examination (55% Sylllabus)**	SOLVE QUESTION
NOV	15	**Rectification of Errors** • Errors: classification-errors of omission, commission, principles, and compensating; their effect on Trial Balance. • Detection and rectification of errors; (i) Errors which do not affect trial balance (ii) Errors which affect trial balance • preparation of suspense account	SOLVE QUESTION & SAMPLE PAPER
DEC	19	**Part- B: Financial Accounting- II** **Unit- 3:Financial Statements of Sole Proprietorship** Financial Statements Meaning, objectives and importance; Revenue and Capital Receipts; Revenue and Capital Expenditure; Deferred Revenue expenditure. Opening journal entry. Trading and Profit and Loss Account: Gross Profit, Operating profit and Net profit. Preparation.	SOLVE QUESTION & SAMPLE PAPER

		Balance Sheet: need, grouping and marshalling of assets and liabilities. Preparation. **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. Preparation of Trading and Profit and Loss account and Balance Sheet of a sole proprietorship with adjustments.	
JAN	20	**Incomplete Records** Incomplete Records Features, reasons and limitations. Ascertainment of Profit/Loss by Statement of Affairs method. (excluding conversion method	SOLVE QUESTION & SAMPLE PAPER
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: PHYSICS (042)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**Unit- I: Physical World and Measurement** **Chapter- 2: Units and Measurements** Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Significant figures. Dimensions of physical quantities, dimensional analysis and its applications. **Unit- II: Kinematics** **Chapter- 3: Motion in a Straight Line** Frame of reference, motion in a straight line.Elementary concepts of differentiation and integration for describing motion, uniform and non-uniform motion, average speed and instantaneous velocity.	**SECTION-A** 1. To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Calipers and hence find its volume. 2. To measure diameter of a given wire and thickness of a given sheet using screw gauge.
JULY	24	**Unit-II: Kinematics** **Chapter- 3: Motion in a Straight Line** Uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment). **Chapter- 4: Motion in a Plane** 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.	3. To determine volume of an irregular lamina using screw gauge. 4. To determine radius of curvature of a given spherical surface by a spherometer. 5. A given body using parallelogram law of vectors.

AUG	20	**Chapter- 4: Motion in a Plane** Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. Motion in a plane, cases of uniform velocity and uniform acceleration-projectile motion, uniform circular motion. **Unit- III: Laws of Motion** **Chapter- 5: Laws of Motion** 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 (recapitulation only), Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road).	6. To determine the mass of two different objects using a beam balance. 7. To find the weightof using a simple pendulum, plot its L-T^2 graph and use it to find the effective length of second's pendulum. 8. To study variation of time period of a simple pendulum of a given length by taking bobs of same size but different masses and interpret the result.
SEP	19	**Unit- IV: Work, Energy and Power** **Chapter- 6: Work, Energy and Power** Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces, non-conservative forces, motion in a vertical circle; elastic and inelastic collisions in one and two dimensions. **Unit- V: Motion of System of Particles and Rigid Body**	9. To study the relationship between force of limiting friction and normal reaction and to find the co-efficient of friction between a block and a horizontal surface.

		Chapter- 7: System of Particles and Rotational Motion Centre of mass of a two-particle system, momentum. Conservation and centre of mass motion. Centre of mass of a rigid body; Centre of mass of a uniform rod. Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications.	10. 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. **SECTION- B** 1. To determine Young's modulus of elasticity of the material of a given wire.
OCT	20	**Revision & First Terminal/Half Yearly Examination (55% Syllabus)**	
NOV	15	**Chapter- 7: System of Particles and Rotational Motion** Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation). **Unit- VI: Gravitation (8 Periods)** **Chapter- 8: Gravitation** Kepler's law of planetary motion. Universal law of gravitation. Acceleration due to gravity and its	2. To find the force constant of a helical spring by plotting a graph between load and extension. 3. To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V,

		variation with altitude and depth. Gravitational potential energy and gravitational potential, escape speed, orbital velocity of a satellite. **Unit- VII: Properties of Bulk Matter** **Chapter- 9: Mechanical Properties of Solids** Elasticity, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear, modulus of rigidity, poisson's ratio; elastic energy. **Chapter- 10: Mechanical Properties of Fluids** 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. 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. **Chapter- 11: Thermal Properties of Matter** 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. Heat transfer-conduction, convection and radiation, thermal	and between P and 1/V. 4. To determine the surface tension of water by capillary rise method.

		conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law.	
DEC	19	**Unit-VIII: Thermodynamics** **Chapter- 12: Thermodynamics** Thermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work and internal energy. First law of thermodynamics, isothermal and adiabatic processes. Second law of thermodynamics, gaseous state of matter, change of condition of gaseous state – isothermal process, adiabatic process, reversible process, irreversible process and cyclic process. **Unit- IX: Behaviour of Perfect Gases and Kinetic Theory of Gases** **Chapter- 13: Kinetic Theory** Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases-assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.	5. To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body. 6. To study the relationship between the temperature of a hot body and time by plotting a cooling curve. 7. To determine specific heat capacity of a given solid by method of mixtures.
JAN	20	**Unit- X: Oscillations and Waves** **Chapter- 14: Oscillations** Periodic motion - time period, frequency, displacement as a function of time, periodic functions.	8. To study the relation between frequency and length of a given wire under

		Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a loaded spring- restoring force and force constant; energy in S.H.M. Kinetic and potential energies;simple pendulum derivation of expression for its time period. **Chapter- 15: Waves** Wave motion: Transverse and longitudinal waves, speed of travelling wave, 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.	constant tension using sonometer. 9. To study the relation between the length of a given wire and tension for constant frequency using sonometer. 10. To find the speed of sound in air at room temperature using a resonance tube by two resonance positions.
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

ACTIVITIES
SECTION-A

1. To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm.
2. To determine mass of a given body using a metre scale by principle of moments.
3. To plot a graph for a given set of data, with proper choice of scales and error bars.
4. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
5. To study the variation in range of a projectile with angle of projection.
6. To study the conservation of energy of a ball rolling down on an inclined plane (using a double inclined plane).
7. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

SECTION-B

1. To observe change of state and plot a cooling curve for molten wax.
2. To observe and explain the effect of heating on a bi-metallic strip.
3. To note the change in level of liquid in a container on heating and interpret the observations.
4. To study the effect of detergent on surface tension of water by observing capillary rise.
5. To study the factors affecting the rate of loss of heat of a liquid.
6. To study the effect of load on depression of a suitably clamped metre scale loaded at
7. its end (ii) in the middle.
8. To observe the decrease in pressure with increase in velocity of a fluid.

SUBJECT: CHEMISTRY (043)

MONTH	WORKING DAYS	TOPICS	PRACTICALS
JUNE	09	**Unit- I: Some Basic Concepts of Chemistry:** General Introduction: Importance and scope of Chemistry. Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass.	Experiment-1 Experiment-2
JULY	24	**Unit- I: Some Basic Concepts of Chemistry:** Percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry. **Unit- II: Structure of Atom:** Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations. Concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals. **Unit- III: Classification of Elements and Periodicity in Properties:** Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic	Experiment-3 Experiment-4 Experiment-5

		table, periodic trends in properties of elements - atomic radii, ionic radii, inert gas radii, Ionization enthalpy.	
AUG	20	**Unit- III: Classification of Elements and Periodicity in Properties:** Electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100. **Unit- IV: Chemical Bonding and Molecular Structure:** Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), Hydrogen bond.	Experiment-6 Experiment-7 Experiment-8
SEP	19	**Unit- VI: Chemical Thermodynamics** Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat. Measurement of ΔU and ΔH, Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction) Introduction of entropy as a state function, Gibb's energy change for spontaneous and nonspontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).	Experiment-9 Experiment-10

OCT	20	**Revision & First Terminal/Half Yearly Examination (55% Syllabus)**	
NOV	15	**Unit- VII: Equilibrium:** Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium – Le Chatelier's principle. Ionic equilibrium-ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, hydrolysis of salts (elementary idea), buffer solution, Henderson Equation, solubility product, common ion effect (with illustrative examples). **Unit- VIII: Redox Reactions:** Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions.	Experiment - 11 Experiment - 12
DEC	19	**Unit- XII: Organic Chemistry-** **Some Basic Principles and Techniques:** General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electrometric effect, resonance and hyper conjugation.Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions. **Unit- XIII: Hydrocarbons:** **Aliphatic Hydrocarbons:**	

		Alkanes: Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. **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.	
JAN	20	**Unit- XIII: Hydrocarbons:** **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. **Aromatic Hydrocarbons:** Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.	
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: BIOLOGY (044)

MONTH	WORKING DAYS	TOPICS	PRACTICAL/ PROJECT
JUNE	09	**Unit-I: Diversity In Living Organism.** **Chapter-1: The Living World** Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature. **Chapter-2: Biological Classification** Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups; Lichens, Viruses and Viroids. **Chapter-3: Plant Kingdom** Classification of plants into major groups; Salient and distinguishing features and a few examples of Algae, Bryophyta, Pteridophyta, Gymnospermae (Topics excluded– Angiosperms, Plant Life Cycle and Alternation of Generations)	1. Study and describe locally available common flowering plants, from family Solanaceae (Poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) including dissection and display of floral whorls, anther and ovary to show number of chambers (floral formulae and floral diagrams), type of root (tap and adventitious); type of stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound). Different types of inflorescence (cymose and racemose).
JULY	24	**Chapter-4: Animal Kingdom** Salient features and classification of animals, non-chordates up to phyla level and chordates up to class level (salient features and at a few examples of each category).	2. Preparation and study of T.S. of dicot and monocot roots and stems (primary). 3. Study of osmosis by potato osmometer.

		(No live animals or specimen should be displayed.) **Unit-II: Structural Organization in Plants and Animals** **Chapter-5: Morphology of Flowering Plants** Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of family Solanaceae **Chapter-6: Anatomy of Flowering Plants** Anatomy and functions of tissue systems in dicots and monocots. **Chapter-7: Structural Organization in Animals** Morphology, Anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of frog.	4. Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves of onion bulb). 5. Study of distribution of stomata on the upper and lower surfaces of leaves.
AUG	20	**Unit-III: Cell: Structure and Function** **Chapter-8: Cell-The Unit of Life** Cell theory and cell as the basic unit of life, structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, golgi bodies, lysosomes,	6. Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials. 7. Separation of plant pigments through paper chromatography.

		vacuoles, mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus. **Chapter-9: Biomolecules** Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, and nucleic acids; Enzyme - types, properties, enzyme action. (Topics excluded: Nature of Bond Linking Monomers in a Polymer, Dynamic State of Body Constituents Concept of Metabolism, Metabolic Basis of Living, The Living State) **Chapter-10: Cell Cycle and CellDivision.** Cell cycle, mitosis, meiosis and their significance.	
SEP	19	**Unit-IV: Plant Physiology** **Chapter-13: Photosynthesis in Higher Plants** Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis.	**SPOTTING** 1. Parts of a compound microscope. 2. Specimens/slides/models and identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.

		Chapter-14: Respiration in Plants Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient. **Chapter-15: Plant - Growth and Development** Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; plant growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA.	3. Virtual specimens/slides/models and identifying features of - Amoeba, Hydra, liver fluke, Ascaris, leech, earthworm, prawn, silkworm, honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit. 4. Mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.
OCT	20	**Revision & First Terminal/Half Yearly Examination (55% Syllabus)**	
NOV	15	**Unit-V: Human Physiology** **Chapter-17: Breathing & Exchange of Gases** Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.	

		Chapter-18: Body Fluids and Circulation Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure. **Chapter-19: Excretory Products and their Elimination** Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system – structure and function; urine formation, osmoregulation; regulation of kidney function - renin -angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.	
DEC	19	**Chapter-20: Locomotion and Movement** Types of movement - ciliary, flagellar, muscular; skeletal muscle, contractile proteins and muscle contraction; skeletal	5. Human skeleton and different types of joints with the help of virtual images / models only.

		system and its functions; joints; disorders of muscular and skeletal systems - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout. **Chapter-21: Neural Control & Coordination** Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse.	
JAN	20	**Chapter-22: Chemical Coordination and Integration** Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goitre, diabetes, Addison's disease. Note: Diseases related to all the human physiological systems to be taught in brief.	
FEB	21	**Revision and Annual Examination** **(55 %+ 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: COMPUTER SCIENCE (083)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUN	09	**Unit- I: Computer Systems and Organisation** • Basic Computer Organisation: Introduction to computer system, hardware, software, input device, output device, CPU, memory (primary, cache and secondary), units of memory (Bit, Byte, KB, MB, GB, TB, PB) • Types of software: system software (operating systems, system utilities, device drivers), programming tools and language translators (assembler, compiler & interpreter), application software • Operating system (OS): functions of operating system, OS user interface • Boolean logic: NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws and logic circuits • Number system: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems. • Encoding schemes: ASCII, ISCII and UNICODE (UTF8, UTF32)	LAB ASSIGNMENT
JUL	24	**Unit- II: Computational Thinking and Programming- 1** • Introduction to problem solving: Steps for problem solving (analyzing the problem, developing an algorithm, coding, testing and debugging). representation of	LAB ASSIGNMENT

		algorithms using flow chart and pseudo code, decomposition • Familiarization with the basics of Python programming: Introduction to Python, features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode, Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, use of comments • Knowledge of data types: number (integer, floating point, complex), Boolean, sequence (string, list, tuple), none, mapping (dictionary), mutable and immutable data types • Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators (is, is not), membership operators (in, not in) • Expressions, statement, type conversion & input/output: precedence of operators, expression, evaluation of expression, python statement, type conversion (explicit & implicit conversion), accepting data as input from the console and displaying output • Errors: syntax errors, logical errors, runtime errors • Introduction to Python modules: Importing module using 'import ' and using from statement, Importing math module (pi, e, sqrt, ceil, floor,	

		pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median, mode) • **Flow of control:** introduction, use of indentation, sequential flow, conditional and iterative flow control • **Conditional statements:** if, if-else, if-elif-else, flowcharts, simple programs.	
AUG	20	• **Iterative statements:** for loop, range function, while loop, flowcharts, break and continue statements, nested loops. • **Introduction to Python Modules :** Using import <module> and from statement, importing math, random (random, randrange, randint), statistics (mean, median, mode). **Strings**: introduction, indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, built-in functions: len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(), rstrip(), strip(), replace(), join(), partition(), split()	LAB ASSIGNMENT
SEP	19	• **Lists:** introduction, indexing, list operations (concatenation, repetition, membership & slicing), traversing a list using loops, built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(),	LAB ASSIGNMENT

		pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists.	
OCT	20	**Revision & First Terminal/ Half Yearly Examination (55% Syllabus)**	
NOV	15	• **Tuples:** introduction, indexing, tuple operations (concatenation, repetition, membership & slicing), built-in functions: len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple.	LAB ASSIGNMENT
DEC	19	• **Dictionary:** introduction, accessing items in a dictionary using keys, mutability of dictionary (adding a new item, modifying an existing item), traversing a dictionary, built-in functions: len(), dict(), keys(), values(), items(), get(), update(), del(), clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted(), copy().	LAB ASSIGNMENT
JAN	20	**Unit- III: Society, Law and Ethics** • Digital Footprints. • Digital society and Netizen: net etiquettes, communication etiquettes, social media etiquettes. • Data protection: Intellectual Property Right (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open source softwares and licensing (Creative Commons, GPL and Apache). • Cyber-crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, preventing cyber crime. • Cyber safety: safely browsing the	LAB ASSIGNMENT

		web, identity protection, confidentiality, cyber trolls and bullying. • Safely accessing web sites: malware, viruses, trojans, adware. • E-waste management: proper disposal of used electronic gadgets. • Indian Information Technology Act (IT Act) • Technology & Society: Gender and disability issues while teaching and using computers.	
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: ARTIFICIAL INTELLIGENCE (843)

MONTH	WORKING DAYS	TOPICS	LEARNING OUTCOMES
JUNE	09	**SECTION-A** Unit 1 : Communication Skills-III Unit 2 : Self-Management Skills-III Unit 3 : ICT Skills-III Unit 4 : Entrepreneurial Skills-III Unit 5 : Green Skills-III **SECTION-B** **UNIT 1 - INTRODUCTION: ARTIFICIAL INTELLIGENCE FOR EVERYONE** • What is Artificial Intelligence? • Evolution of AI • Types of AI • Domains of AI • AI Terminologies • Benefits and limitations of AI	**Students will be able to – •** Communicate effectively about AI concepts and applications in written and oral formats. • Describe the historical development of AI. • Differentiate between various types and domains of AI, including their applications.
JULY	24	**UNIT 2 - UNLOCKING YOUR FUTURE IN AI** • The Global Demand • Some Common Job Roles In AI • Essential Skills and Tools for Prospective AI Careers • Opportunities in AI across Various Industries	Students will be able to – • Articulate the demand for AI professionals and the diverse career opportunities available in the field. • Identify the requisite skills and tools needed to pursue a career in artificial intelligence. •

AUG	20	**UNIT 3 - PYTHON PROGRAMMING** Level 1 : Basics of python programming, character sets, tokens, modes, operators, datatypes, Control Statements Level 2 : CSV Files, Libraries – Numpy, Pandas, Scikit-learn **UNIT 4 - INTRODUCTION TO CAPSTONE PROJECT** • Design Thinking • Empathy Map • Sustainable Development Goals • Capstone Project	Students will be able to – • Decompose any problem using the 5W1H method. • Apply Design thinking methodology. • Create empathy maps. • Align problems to SDGs.
SEP	19	**UNIT 5 - DATA LITERACY – DATA COLLECTION TO DATA ANALYSIS** • What is Data Literacy? • Data Collection • Exploring Data • Statistical Analysis of data • Representation of data, Python Programs for Statistical Analysis and Data Visualization • Introduction to Matrices • Data Pre-processing • Data in Modelling and Evaluation	Students will be able to – • Explain the importance of data literacy in AI. • Identify different data collection methods and their applications. • Comprehend mathematical concepts related to matrices, its operations, and applications. • Apply basic data analysis techniques to analyse data. • Visualize the data using different techniques.
OCT	20	**REVISION & FIRST TERMINAL / HALF YEARLY EXAMINATION (55% SYLLABUS)**	**SYLLABUS DEADLINE – 27TH SEPT.**

NOV	15	**UNIT 6 – MACHINE LEARNING ALGORITHMS** • Machine Learning in a nutshell • Types of Machine Learning • Supervised Learning • Understanding Correlation, Regression, Finding the line, Linear Regression algorithm • Classification – How it works, Types, k – Nearest Neighbour algorithm • Unsupervised Learning • Clustering – How it works, Types, k -means Clustering algorithm	Students will be able to – • Differentiate the different types of machine learning methods. • They will be able to understand the concept behind each machine learning methods. • Apply these methods to develop simple solutions for some day-today situations. • Build up this knowledge to the next level to apply during Capstone Project development.
DEC	19	**UNIT 7 – LEVERAGING LINGUISTICS AND COMPUTER SCIENCE** • Understanding Human Language Complexity • Introduction to Natural Language Processing (NLP) - Emotion Detection and Sentiment Analysis, Classification Problems, Chatbot • Phases of NLP • Applications of NLP	Students will be able to – • Develop a better understanding of the complexities of language and the challenges involved in NLP tasks.
JAN	20	**UNIT 8 – AI ETHICS AND VALUES** • Ethics in Artificial Intelligence • The five pillars of AI Ethics • Bias, Bias Awareness, Sources of Bias • Mitigating Bias in AI Systems	Students will be able to – • Demonstrate an understanding of

		• Developing AI Policies • Moral Machine Game • Survival of the Best Fit Game	the fundamental principles of ethics and gain insight into ethical considerations related to AI technologies. • Develop an understanding of AI bias, its sources, and its real-world implications.
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	**SYLLABUS DEADLINE – 17TH JANUARY**
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: HISTORY (027)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**Section- I:Early Societies** **1. Writing and City Life** **Focus**: Iraq, 3rd millennium BCE • Growth of Towns	Map Skill
JULY	24	**Writing and City Life (Contd.)** • Nature of early urban societies • Historians' Debate on uses of writing **Section- II: Empires** **2 .An Empire Across Three Continents** **Focus**: Roman Empire, 27 BCE to 600 CE • Political Evolution • Economic Expansion • Religion-Culture Foundation • Late Antiquity • Historians' view on the Institution of Slavery	Map Skill
AUG	20	**3. Nomadic Empires** **Focus**:The Mongol, 13th – 14th centuries • The nature of Nomadism • Formation of Empires • Conquests and relations with other States • Historians' view on the nomadic societies and state formation	Timeline and Map Skill

SEP	19	**Section-III:Changing Traditions** **4. The Three Orders** **Focus**: Western Europe 13th-16th centuries • Feudal society and economy • Formation of state • Church and society • Historians' views on decline of feudalism	Map Skill and Assignment
OCT	20	**Revision & First Terminal/Half Yearly Examination(55% Syllabus)**	
NOV	15	**5. Changing Cultural Traditions** **Focus**: Europe 14th- 17th centuries • New ideas and new trends in literature and arts • Relationship with earlier ideas • The contribution of West Asia • Historians' viewpoint on the validity of the notion 'European Renaissance'	Map Skill
DEC	19	**Section- IV: Towards Modernisation** **6. Displacing Indigenous People** **Focus**: North America and Australia, 18th- 20th centuries • European colonists in North America and Australia • Formation of White Settler societies • Displacement and repression of local people • Historians' viewpoint on the impact of European settlement on indigenous population	Map Skill

JAN	20	**7. Paths To Modernisation** **Focus**: East Asia, late 19th to 20th centuries • Militarisation and economic growth in Japan • China and the Communist alternative • Historians' debate on the meaning of modernisation	Map Skill
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: POLITCAL SCIENCE (028)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**Part-A** 1. Constitution: Why and How? • Why do we need a Constitution? • The authority of a Constitution **Part-B** 1. Political Theory : An Introduction • What is Politics? • What do we study in Political Theory? • Why should we study Political Theory? 2. Freedom • The Ideals of Freedom • The sources of constraints: Why do we need constraints? • The Harm Principle • Negative and Positive Liberty	Write a short note on different provisions adopted by India from other countries.
JULY	24	**Part-A** 9.Constitution as a Living Document • Are Constitutions static or dynamic? • Contents of Amendments made so far • Controversial Amendments • Basic Structure of the Constitution 10. The Philosophy of the Constitution • Meaning of the Philosophy of the Constitution • Political Philosophy of the Constitution • Criticisms and Achievements	

		Part-B 3. Equality • Why does Equality matter? • Three dimensions of Equality • How can we promote Equality?	
AUG	20	**Part- A** 2. Rights in the Indian Constitution • The importance of Rights • Fundamental Rights • Directive Principles of State Policy **Part- B** 4. Social Justice • What is Justice? • John Rawls Theory of Justice • Free Market vs State Intervention 5. Rights • What are Rights? • Where do Rights come from? • Kinds of Rights	Compare and contrast between Fundamental Rights and Directive Principles of State Policy.
SEP	19	**Part- A** 3. Election and Representation • Elections and Democracy • Election System in India • Why did India adopt FPTP System? • Reservation of Constituencies • Electoral Reforms 4. Executive • Meaning of Executive and its types • Parliamentary Executive in India • Prime Minister and Council of Ministers	What is the procedure of reserving seats in the constituencies? Differentiate between Permanent Executive and Political Executive.

		• Permanent Executive: Bureaucracy 5. Legislature • Why do we need a Parliament? • Why do we need two Houses of Parliament? • What does the Parliament do? • How does the Parliament make Laws? • How does the Parliament control Executive? • What do the Committees of Parliament do? • How does the Parliament regulate itself?	How is LokSabha more powerful than Rajya Sabha?
OCT	20	**Revision & First Terminal / Half Yearly Examination (55% Syllabus)**	
NOV	15	**Part- A** 6. Judiciary • Why do we need an Independent Judiciary? • Structure and Jurisdiction of the Judiciary • Judicial Activism • Judiciary and Rights • Judiciary and Parliament **Part- B** 6. Citizenship • Full and Equal Citizenship • Universal and Global Citizenship	How has Judicial Activism expanded in the last few years?

DEC	19	**Part- A** 7. Federalism • What is Federalism? • Federalism in the Indian Constitution • Conflicts in India's Federal System • Special provisions **Part- B** 7. Nationalism • Nation and Nationalism • National Self Determination • Nationalism and Pluralism	Briefly describe the Quasi Federal Characteristics of Indian Government. How can you say that the feeling of Nationalism united and divided the countries?
JAN	20	**Part- A** 8. Local Governments • Why Local Governments? • Growth of Local Government in India • 73rd and 74th Amendment Acts and their implementation **Part- B** 8. Secularism • What is Secularism? • Secular State • Western and Indian Model of Secularism • Criticisms of Indian Secularism	To what extent the idea of decentralisation has been achieved in India? Features of a Secular State.
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: ECONOMICS (030)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**Part- B: Introductory Microeconomics** **Unit- 4: Introduction** • Meaning of Microeconomics and Macroeconomics • Positive and Normative Economics • What is an Economy? • Central Problems of an Economy: what, how and for whom to produce; opportunity cost. • PPC And Opportunity Cost **Part- A: Statistics for Economics** **Unit- 1: Introduction** • What is Economics? • Meaning, scope, functions and importance of statistics in Economics	Report on Adam Smith and his theory of Invisible hands.
JULY	24	**Unit- 2: Collection, Organisation and Presentation of data.** • Collection of data - sources of data - primary and secondary; how basic data is collected with concepts of Sampling; methods of collecting data; some important sources of secondary data: Census of India and National Sample Survey Organisation.	

		• Organisation of Data: Meaning and types of variables; Frequency Distribution. • Presentation of Data: Tabular Presentation and Diagrammatic Presentation of Data: (i) Geometric forms (bar diagrams and pie diagrams), (ii) Frequency diagrams (histogram, polygon and Ogive) and (iii) Arithmetic line graphs (time series graph). **Part- B :** **Unit-5: Consumer's Equilibrium and Demand.** • Consumer's Equilibrium-meaning of utility, marginal utility, law of diminishing marginal utility, conditions of consumer's equilibrium using marginal utility analysis. • Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium.	

AUG	20	**Part- B:** **Unit- 5: Consumer's Equilibrium and Demand (Contd.)** • Demand, market demand, determinants of demand, demand schedule, demand curve and its slope, movement along and shifts in the demand curve; price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand – percentage-change method. **Part- A: Statistics for Economics** **Unit- 3: Statistical Tools and Interpretation** • Measures of Central Tendency- Arithmetic Mean, Median and Mode	Application of Central Tendency in Industrial Production
SEP	19	**Part- B: IntroductoryMicroeconomics** **Unit- 6: Producer's Behaviour and Supply.** • Meaning of Production Function – Short-Run and Long-Run • Total Product, Average Product and Marginal Product. • Returns to a Factor • Cost: Short run costs - total cost, total fixed cost, total variable cost; Average cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationships.	
OCT	20	**Revision & First Terminal/Half Yearly Examination (55% Syllabus)**	

NOV	15	**Part- B: Introductory Microeconomics** **Unit- 6: Producer's Behaviour and Supply (Contd.)** Revenue - total, average and marginal revenue - meaning and their relationship. Supply, market supply, determinants of supply, supply schedule, supply curve and its slope, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply - percentage-change method.	
DEC	19	**Part- A: Statistics for Economics** **Unit- 3: Statistical Tools and Interpretation** • Correlation – Meaning and properties, Scatter Diagram; Measures of Correlation – Karl Pearson's method (two variables ungrouped data). Spearman's Rank method **Unit- 3: Statistical Tools and Interpretation (Contd.)** • Introduction to Index Numbers - meaning, types - wholesale price index, consumer price index, uses of index numbers; Inflation and index numbers.	Application of Statistics in deriving Correlation between Health Expenditure and Economic Development
JAN	20	**Part- B: Introductory Microeconomics** **Unit- 7: Forms of Market and Price Determination under Perfect Competition with simple applications.** • Perfect competition - Features;	Graphical chart on Determination of Equilibrium Prices in Perfect Competition

		Determination of market equilibrium and effects of shifts in demand and supply. • Simple Applications of Demand and Supply: Price Ceiling, Price Floor	
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: BUSINESS STUDIES (054)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**Part- A: Foundation of Business** **Unit- 1: Evolution and Fundamentals of Business** • History of Trade and Commerce in India: 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 • Business – meaning and characteristics • Business, profession and employment- Concept • Objectives of business • Classification of business activities - Industry and Commerce	Case studies
JULY	24	• Industry-types: primary, secondary, tertiary Meaning and subgroups • Commerce-trade: (types-internal, external; wholesale and retail) and auxiliaries to trade; (banking, insurance, transportation, warehousing, communication, and advertising) – meaning • Business risk-Concept **Forms of Business organizations** • Sole Proprietorship-Concept, merits and limitations • Partnership-Concept, types, merits and limitation of partnership. • Registration of a partnership firm, partnership deed.	Case studies

		• Types of partners	
AUG	20	• Hindu Undivided Family Business: Concept • Cooperative Societies-Concept, merits, and limitations. • Company - Concept, merits and limitations; Types: Private, Public and One Person Company – Concept • Formation of company - stages, important documents to be used in formation of a company • Choice of form of business organization	Case studies
SEP	19	**Public, Private and Global Enterprises** Public sector and private sector enterprises- Concept, Forms of public sector enterprises: Departmental Undertakings, Statutory Corporations and Government Company, Global Enterprises – Feature, Joint venture, Public private partnership – concept.	Case studies/Flow chart
OCT	20	**Business Services** • Business services – meaning and types. Banking: Types of bank accounts - savings, current, recurring, fixed deposit and multiple option deposit account • Banking services with particular reference to Bank Draft, Bank Overdraft, Cash credit. E-Banking: meaning, types of digital payments • Insurance – Principles, Types – life, health, fire and marine insurance – concept • Postal Service - Mail, Registered Post, Parcel, Speed Post, Courier – meaning **Revision&First Terminal / Half Yearly Examination (55% Syllabus)**	Case studies
NOV	15	**Emerging Modes of Business**	Case studies

		• E - business: concept, scope and benefits **Social Responsibility of Business and Business Ethics** • Concept of social responsibility • Case of social responsibility • Responsibility towards owners, investors, consumers, employees, government and community • Role of business in environment protection Business Ethics - Concept and Elements	
DEC	19	**Part- B: Finance and Trade** **Sources of Business Finance** • Concept of business finance • Owners' funds- equity shares, preferences share, retained earnings • Borrowed funds: debentures and bonds, loan from financial institution and commercial banks, public deposits, trade credit, Inter Corporate Deposits (ICD) **Small Business and Enterprises** • Entrepreneurship Development (ED): Concept, Characteristics and Need. Process of Entrepreneurship Development: Start-up India Scheme, ways to fund start-up. Intellectual Property Rights and Entrepreneurship • Small scale enterprise as defined by MSMED Act 2006 (Micro, Small and Medium Enterprise Development Act) • Role of small business in India with special reference to rural areas Government schemes and agencies for small scale industries: National Small Industries Corporation (NSIC) and District Industrial	PROJECT

		Centre (DIC) with special reference to rural, backward areas	
JAN	20	**Internal Trade** • Internal trade - meaning and types services rendered by a wholesaler and a retailer • Types of retail-trade-Itinerant and small scale fixed shops retailers • Large scale retailers-Departmental stores, chain stores – concept **GST (Goods and Services Tax): Concept and key-features** **International Trade** • International trade: concept and benefits • Export trade – Meaning and procedure • Import Trade - Meaning and procedure • Documents involved in International Trade; indent, letter of credit, shipping order, shipping bills, mate's receipt (DA/DP) • World Trade Organization (WTO) meaning and objectives **Revision And Practice Paper**	Case studies
FEB	21	**Revision & Annual Examination (55% + 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: PHYSICAL EDUCATION (048)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**UNIT-I:Changing Trends and Career in Physical Education** 1. Concept, Aims & Objectives of Physical Education 2. Development of Physical Education in India – Post Independence 3. Changing Trends in Sports- playing surface, wearable gear and sports equipment, technological advancements 4. Career options in Physical Education 5. Khelo-India Program and Fit – India Program	SAI KHELO INDIA TEST
JULY	24	**UNIT-II: Olympism Value Education** 1. Olympism - Concept and Olympics Values (Excellence, Friendship & Respect) 2. Olympic Value Education – Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, Balance Among Body, Will & Mind 3. Ancient and Modern Olympics 4. Olympics - Symbols, Motto, Flag, Oath, and Anthem 5. Olympic Movement Structure - IOC, NOC, IFS, Other Members **UNIT- III:Yoga** 1. Meaning and importance of Yoga 2. Introduction to Astanga Yoga 3. Yogic Kriyas (Shat Karma) 4. Pranayama and its types. 5. Active Lifestyle and stress management through Yoga	BROCKPORT PHYSICAL FITNESS TEST

AUG	20	**UNIT-IV: Physical Education and Sports for Children with Special Needs (Divyang)** 1. Concept of Disability and Disorder 2. Types of Disability, its causes & nature (Intellectual disability, Physical disability). 3. Disability Etiquette 4. Aim and objectives of Adaptive Physical Education. 5. Role of various professionals for children with special needs (Counselor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist, and Special Educator)	GAMES AND SPORTS (SKILL OF ANYONE IOA RECOGNISED GAME OF CHOICE)
SEPT	19	**UNIT-V: Physical Fitness, Health and Wellness** 1. Meaning & importance of Wellness, Health, and Physical Fitness. 2. Components/Dimensions of Wellness, Health, and Physical Fitness 3. Traditional Sports & Regional Games for promoting wellness 4. Leadership through Physical Activity and Sports 5. Introduction to First Aid – PRICE	YOGIC PRACTICES
		UNIT-VI: Test, Measurement & Evaluation 1. Define Test, Measurements and Evaluation. 2. Importance of Test, Measurements and Evaluation in Sports. 3. Calculation of BMI, Waist – Hip Ratio, Skin fold measurement (3-site) 4. Somato Types (Endomorphy, Mesomorphy & Ectomorphy) 5. Measurements of health-related fitness.	
OCT	20	**Revision & First Terminal/ Half Yearly Examination (55% Syllabus)**	

NOV	15	**UNIT-VII: Fundamentals of Anatomy, Physiology in Sports** 1. Definition and importance of Anatomy and Physiology in Exercise and Sports. 2. Functions of Skeletal System, Classification of Bones, and Types of Joints. 3. Properties and Functions of Muscles 4. Structure and Functions of Circulatory System and Heart. 5. Structure and Functions of Respiratory System.	
DEC	19	**UNIT-VIII: Fundamentals Of Kinesiology And Biomechanics in Sports** 1. Definition and Importance of Kinesiology and Biomechanics in Sports. 2. Principles of Biomechanics. 3. Kinetics and Kinematics in Sports. 4. Types of Body Movements - Flexion, Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation. 5. Axis and Planes – Concept and its application in body movements.	
JAN	20	**UNIT-IX: Psychology and Sports** 1. Definition & Importance of Psychology in Physical Education & Sports; 2. Developmental Characteristics at Different Stages of Development; 3. Adolescent Problems & their Management; 4. Team Cohesion and Sports; 5. Introduction to Psychological Attributes: Attention, Resilience, Mental Toughness **UNIT-X: Training & Doping in Sports** 1. Concept and Principles of Sports Training 2. Training Load: Over Load, Adaptation, and Recovery 3. Warming-up & Limbering Down – Types, Method & Importance 4. Concept of Skill, Technique, Tactics & Strategies 5. Concept of Doping and its disadvantages.	

FEB	21	**Revision and Annual Examination (55 %+ 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

PRACTICAL (Max. Marks 30)

Physical Fitness Test: SAI Khelo India Test, Brockport Physical Fitness Test (BPFT)* 6 Marks

Proficiency in Games and Sports

(Skill of any one IOA recognized Sport/Game of Choice)** 7 Marks

Yogic Practices 7 Marks

Record File *** 5 Marks

Viva Voce (Health/ Games & Sports/ Yoga) 5 Marks

❖ *Test for CWSN (any 4 items out of 27 items. One item from each component: Aerobic Function, Body Composition, Muscular strength & Endurance, Range of Motion or Flexibility)

❖ **CWSN (Children with Special Needs – Divyang): Bocce/ Boccia, Sitting Volleyball, Wheel Chair Basketball, Unified Badminton, Unified Basketball, Unified Football, Blind Cricket, Goalball, Floorball, Wheel Chair Races and Throws, or any other Sport/Game of choice.

❖ **Children with Special Needs can also opt any one Sport/Game from the list as alternative to Yogic Practices. However, the Sport/ Game must be different from Test - 'Proficiency in Games and Sports'

***Record File shall include:

Ø Practical-1: Fitness tests administration. (SAI Khelo India Test)

Ø Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.

Ø Practical-3: Anyone one IOA recognized Sport/Game of choice. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.

SUBJECT: PAINTING (049)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	9	**UNIT-I:** Art introduction Visual art, Performing art, Literary art Fine art (different types) meaning of Drawing Difference between drawing and paintings Perspective and Proportion expression and Alignment Dimension Traditional and Modern art Six Limbs of Paintings Origin of Painting **REVISION**	Still-Life PencilShading
JULY	24	Pre historic rock paintings Bhimbetka paintings Study of Rock paintings and Wizard dance Art of Indus valley civilization Study of Sculptures and Teracottas **REVISION** 1. Dancing Girl 2. Male Torso 3. Mother goddess 4. Study of steatite (seal), Bull seal 5. Decoration of Earthen ware 6. Painted Earthen ware (Jars)	Still-Life Water Colour Nature-study monochromatic
AUG	20	**UNIT-II:** Art during Mauryan, shunga, kushan and Gupta periods Study of sculptures 1. Lion Capital of Sarnath	Nature-study colour

		2. Chauri bearer 3. Seated Buddha 4. Jain tirthankara **REVISION** Introduction of Ajanta And its location Number of caves Paintings and sculptures Subject matter and technique used	
SEPT	19	**UNIT- III:** Introduction of Temple Sculpture Study of Temple Sculpture Iconography 1. Decent of Ganga 2. Trimurti 3. Laxmi Narayan Kandriya Mahadev temple cymbal player	Nature-study colour
OCT	20	1. Sun Temple 2. Mother and Child **Revision & First Terminal/ Half Yearly Examination (55% Syllabus)**	Nature-study colour
NOV	15	**UNIT-IV:** Introduction to Indian Bronze Casting Different methods of Bronze casting	Poster on social Awareness
DEC	19	Study of Bronze Sculptures 1. Natraj 2. Devi Uma	Folk Art
JAN	20	Introduction of Indo-Islamic Artitecture Artistic aspects of Indo-Islamic art 1. Taj Mahal 2. Qutub Minar 3. Gol Gumbad	Composition of Nature with human and animal figure
FEB	21	**Revision and Annual Examination (55 %+ 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

SUBJECT: YOGA (841)

MONTH	WORKING DAYS	TOPICS	ACTIVITY
JUNE	09	**Unit-1: Introduction to Yoga and Yogic Practices -I** • YogaEtymology,definition,Aim,objective andmisconceptiontext • Yoga origin, history and development	YOGA PRACTICAL
JULY	24	**Unit- 1: Introduction to Yoga and Yogic Practices- I (Contd.)** • Rules and regulations to be followed by yoga practitioners • Introduction to Major schools of Yoga (Janan, Yoga Bhakti, Yoga Karma, Patanjali, Hatha) • Introductiontoyogicpractices(SukshamaVyayama,SuryaNamaskarandAsanas)	YOGA PRACTICAL
AUG	20	**Unit- 2: Introduction to Yoga Texts-I** • Introduction and study of Patanjali Yoga Sutra including memorization of selected Sutra • Introduction and study of Bhagavad Gita including memorization of selected Slokas	YOGA PRACTICAL
SEPT	19	**Unit-2: Introduction to Yoga Texts–I (Contd.)** • Introduction of Hata Pradpika. • Introduction and study of Gheranda Samhita.	YOGA PRACTICAL
OCT	20	**Revision & First Terminal/ Half Yearly Examination (55% Syllabus)**	

NOV	15	**Unit-3: Yoga for Health Promotion–I** • Brief introduction to human body • Role of yoga for health promotion • Yogic attitudes and practices	YOGA PRACTICAL
DEC	19	**Unit-3: Yoga for Health Promotion- I (Contd.)** • Holistic approach of yoga towards the health and diseases • Introduction to yoga diet and its relevance and importance in yoga Sadhana • Dincharya and Ritucharya with respect of yogic lifestyle	YOGA PRACTICAL
JAN	20	**Revision And Yoga Practice**	
FEB	21	**Revision and Annual Examination (55 %+ 45% Syllabus)**	
MAR	24	**Annual Examination, Result & PTM**	

RISE & SHINE