

AVB PUBLIC SCHOOL

SYLLABUS (2024-2025)

CLASS: XI

ENGLISH (301)

QUESTION PAPER DESIGN

Typology	Marks
Reading skills	26
Writing skills & Grammar	23
Literature	31
Total	80
Assessment of Speaking & Listening skills	10 (5+5)
Project Work	10
Total	100

April - May

Hornbill: The Portrait of A Lady, A photograph (Poem), We're not Afraid to Die... if we can be together

Snapshots: The Summer of the Beautiful White Horse

Grammar: Tenses, Transformation of Sentences

Writing: Advertisement

Reading: Unseen Comprehension

July - August

Hornbill: Discovering Tut: The Saga Continues , The Voice of the Rain (Poem)

Snapshots: TheAddress

Grammar: Sentence Reordering, Clauses, Vocabulary Building Exercises

Writing: Speech

Reading: Note Making

ASSESSMENT OF LISTENING AND SPEAKING SKILLS

September - October

Hornbill: The Adventure, The Laburnum Top (Poem), Father to Son (Poem)

Snapshots: Mother's Day, Birth

Writing: Poster Designing

Grammar: Tenses, Vocabulary Building Exercises

Reading: Unseen Comprehension

November - December

Hornbill: Childhood (Poem)

Snapshots: The Tale of Melon City

Grammar: Reordering of Sentences Transformation of Sentences

Writing: Debate Writing

Reading: Note-making

January and February

Hornbill: The Silk Road

Grammar: Integrated Grammar, Reordering of Sentences

Reading: Note-making

PROJECT WORK ASSESSMENT

PERIODIC TEST– I

Hornbill: The Portrait of A Lady, A photograph (Poem), We're not Afraid to Die... if we can be together

Snapshots: The Summer of a Beautiful White Horse

Grammar: Tenses, Transformation of Sentences

Writing: Advertisement

Reading: Unseen Comprehension

MID TERM Examination

Hornbill: The Portrait of A Lady, We're not Afraid to Die... if we can be together, Discovering Tut:, The Saga Continues, A photograph (Poem), The Voice of the Rain (Poem)

Snapshots: The Summer of a Beautiful White Horse, The Address

Grammar: Tenses, Sentence Reordering, Clauses, Transformation of Sentences

Writing: Advertisement, Speech

Reading: Unseen Comprehension

Note Making

PERIODIC SYLLABUS II

Hornbill: The Adventure, The Laburnum Top (Poem), Father to Son (Poem)

Snapshots: Mother's Day, Birth

Writing: Poster designing

Grammar: Tenses, Vocabulary Building Exercises

Reading: Unseen Comprehension

ANNUAL EXAMINATION

Hornbill: The Portrait of A Lady, A photograph (Poem), We're not Afraid to Die... if we can be together, Discovering Tut: The Saga Continues , The Voice of the Rain (Poem), The Adventure, The, Laburnum Top (Poem), Father to Son (Poem) , Childhood (Poem), The Silk Road

Snapshots: The Summer of a Beautiful White Horse , The Address, Mother's Day, Birth, The Tale of Melon City

Grammar: Tenses, Clauses, Reordering, Transformation of Sentences

Writing: Poster , Classified Advertisement, Speech, Debate

Reading: Unseen passage, Note making

CHEMISTRY (043)

Theory: 70 Marks

TIME ALLOWED: 3 Hours

Practical: 30 Marks

	UNITS	MARKS
PART A	CHEMISTRY BOOK 1	
Unit 1	Some basic concepts of chemistry	7
Unit 2	Structure of atoms	9
Unit 3	Periodic classification	6
Unit 4	Chemical bonding	7
Unit 5	Thermodynamics	9
Unit 6	Equilibrium	7
PART B	CHEMISTRY BOOK 2	
Unit 7	Redox	4
Unit 8	Organic chemistry: some basic principles and techniques	11
Unit 9	Hydrocarbon	10

	Theory (Part A + Part B)	70
PART C	Practical Work	30
	Total	100

PRACTICAL EVALUATION SCHEME	MARKS
Volumetric Analysis	08
Salt analysis	08
Content based experiment	06
Project work	04
Class record and viva	04
Total marks	30

THEORY SYLLABUS

APRIL - MAY

Unit 1: 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, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.

Unit 2: Atomic structure - 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.

JULY

Unit 3: Periodic classification- Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.

Unit 4: -Chemical Bonding and Molecular Structure-Valence electrons, ionic bond, covalent bond, bond parameters, Lewis's structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involvings, p and d-orbitals and shapes of some simple molecules, molecular orbital Theory of homonuclear diatomic molecules (qualitative idea only), Hydrogen bond.

AUGUST - SEPTEMBER

Unit 5: 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 non-spontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).

Unit 6: 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).

REVISION TERM 1

OCTOBER - NOVEMBER

Unit 7: 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.

Unit 8: 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, electromeric effect, resonance and hyperconjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

Unit 9: Hydrocarbons-

Aliphatic hydrocarbon: Alkanes -Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis.

Alkenes -Nomenclature, the 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.

Alkynes-Nomenclature, the 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 the functional group in monosubstituted benzene. Carcinogenicity and toxicity

DECEMBER

1. SAMPLE PAPERS FOR CHAPTERS OF BOOK1 AND BOOK2

2. REVISION FOR FINAL EXAMS

3.COMPLETION OF ALL PRACTICALS + MOCK PRACTICALS

JANUARY - FEBRUARY

Revision + Mock tests

PRACTICAL SYLLABUS

PRACTICAL	MONTHS
1. Bending a glass tube	April
2. Preparation of standard solution of oxalic acid	April
3. Titration of sodium hydroxide vs oxalic acid	May
4. Preparation of standard solution of sodium carbonate	May
5. Titration of Hydrochloric acid vs sodium carbonate solution	May
6. SALT ANALYSIS	July
7. SALT ANALYSIS	July
8. SALT ANALYSIS	July
9. SALT ANALYSIS	August
10. Crystallization of impure crude sample of Copper sulphate	August
11. REVISION OF ALL PRACTICALS	SEPTEMBER- OCTOBER
12. MOCK PRACTICALS + DOUBTS	NOVEMBER- DECEMBER

ASSESSMENTS

PERIODIC TEST 1 (JULY)

UNIT 1: Some basic concepts of chemistry

UNIT 2: Atomic structure

UNIT 3: Periodic classification

MID TERM EXAMINATION (SEPTEMBER)

UNIT1: Some basic concepts of chemistry

UNIT 2: Atomic structure

UNIT 3: Periodic Classification

UNIT 4: Chemical Bonding

UNIT 5: Thermodynamics

PRACTICAL ASSESSMENT:

Titration + salt analysis

PERIODIC TEST 2 (DECEMBER)

UNIT 6: Equilibrium

UNIT 7: Redox

UNIT 8: Organic chemistry

ANNUAL EXAMINATION (FEBRUARY)

UNIT1: Some basic concepts of chemistry

UNIT 2: Atomic structure

UNIT 3: Periodic Classification

UNIT 4: Chemical Bonding

UNIT 5: Thermodynamics

UNIT 6: Equilibrium

UNIT 7: Redox

UNIT 8: Organic chemistry

UNIT 9: HYDROCARBONS

PRACTICAL ASSESSMENT:

Titration + salt analysis

BIOLOGY (044)

Unit	Title	Marks
I	Diversity of Living Organisms	15
II	Structural Organization in Plants and Animal	10
III	Cell: Structure and Function	15
IV	Plant Physiology	12
V	Human Physiology	18
	Total	70

ASSESSMENT

UNIT TEST-I	Chapter-1: The Living World Chapter-2: Biological Classification Chapter-3: Cell: The Unit of Life
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MID TERM EXAMINATION	Chapter-1: The Living World Chapter-2: Biological Classification Chapter-3: Plant Kingdom Chapter-4: Animal Kingdom Chapter-5: Morphology of Flowering Plants Chapter-6: Anatomy of Flowering Plants Chapter-7: Structural Organisation in Animals Chapter-8: Cell: The Unit of Life Chapter-9: Cell Cycle and Cell Division
UNIT TEST-II	Chapter-11: Photosynthesis in Higher Plants Chapter-12: Respiration in Plants Chapter-13: Plant Growth and Development
ANNUAL EXAMINATION	Chapter-1: The Living World Chapter-2: Biological Classification Chapter-3: Plant Kingdom Chapter-4: Animal Kingdom Chapter-5: Morphology of Flowering Plants Chapter-6: Anatomy of Flowering Plants Chapter-7: Structural Organisation in Animals Chapter-8: Cell: The Unit of Life Chapter-9: Biomolecules Chapter-10: Cell Cycle and Cell Division Chapter-11: Photosynthesis in Higher Plants Chapter-12: Respiration in Plants Chapter-13: Plant Growth and Development Chapter-14: Breathing and Exchange of Gases Chapter-15: Body Fluids and Circulation Chapter-16: Excretory Products and Their Elimination Chapter-17: Locomotion and Movement Chapter-18: Neural Control and Coordination Chapter-19: Chemical Coordination and Integration

LIST OF PRACTICALS

Evaluation Scheme	Marks
One Major Experiment Part A (Experiment No- 1,3,7,8)	5
One Minor Experiment Part A (Experiment No- 6,9,10,11,12,13)	4
Slide Preparation Part A (Experiment No- 2,4,5)	5
Spotting Part B	7
Practical Record + Viva Voce	4
Project Record + Viva Voce	5
TOTAL	30

A. List of Experiments

- 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).
- Preparation and study of T.S. of dicot and monocot roots and stems (primary).
- Study of osmosis by potato osmometer.

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.
6. Comparative study of the rates of transpiration in the upper and lower surfaces of leaves.
7. Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.
8. Separation of plant pigments through paper chromatography.
9. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.
10. Test for presence of urea in urine.
11. Test for presence of sugar in urine.
12. Test for presence of albumin in urine.
13. Test for presence of bile salts in urine.

B. Study and observe the following (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.
3. Virtual specimens/slides/models and identifying features of - Amoeba, Hydra, liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon, and rabbit.
4. Mitosis in onion root tip cells and Animals cells (grasshopper) from permanent slides.
5. Different types of inflorescences (cymose and racemose).
6. Human skeleton and different types of joints with the help of virtual images/models only.

PHYSICS (042)

Time: 3 hrs.

Max Marks: 70

		No. of Periods	Marks
Unit-I	Physical World and Measurement	08	23
	Chapter-2: Units and Measurements		
Unit-II	Kinematics	24	
	Chapter-3: Motion in a Straight Line		
	Chapter-4: Motion in a Plane		
Unit-III	Laws of Motion	14	
	Chapter-5: Laws of Motion		
Unit-IV	Work, Energy and Power	14	17
	Chapter-6: Work, Energy and Power		
Unit-V	Motion of System of Particles and Rigid Body	18	
	Chapter-7: System of Particles and Rotational Motion		
Unit-VI	Gravitation	12	
	Chapter-8: Gravitation		

Unit-VII	Properties of Bulk Matter	24	20
	Chapter-9: Mechanical Properties of Solids		
	Chapter-10: Mechanical Properties of Fluids		
	Chapter-11: Thermal Properties of Matter		
Unit-VIII	Thermodynamics	12	
	Chapter-12: Thermodynamics		
Unit-IX	Behavior of Perfect Gases and Kinetic Theory of Gases	08	
	Chapter-13: Kinetic Theory		
Unit-X	Oscillations and Waves	26	10
	Chapter-14: Oscillations		
	Chapter-15: Waves		
Total		160	70

APRIL-MAY

Physical World and Measurement

Unit I: 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, and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment).

JULY-AUGUST

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 areal number; addition and subtraction of vectors, 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.

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).

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.

SEPTEMBER

Unit V: Motion of System of Particles and Rigid Body

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. 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).

OCTOBER-NOVEMBER

Unit VI: Gravitation

Chapter-8: Gravitation

Kepler's laws of planetary motion, universal law of gravitation. Acceleration due to gravity and its 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 (qualitative idea only), 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 simple 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; C_p , C_v - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wien's displacement Law, Stefan's law.

DECEMBER

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, Second law of thermodynamics: gaseous state of matter, change of condition of gaseous state - isothermal, adiabatic, reversible, irreversible, and cyclic processes.

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 equipartition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.

JANUARY

Unit X: Oscillations and Waves

Chapter-14: Oscillations

Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their applications. Simple harmonic motion (S.H.M) and its equations of motion; 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.

Periodic Test-1

- **Units and Measurement**

- Motion in a straight line
- Motion in a plane

Periodic Test-2

- Unit III: Laws of Motion
- Unit IV: Work, Energy and Power

Periodic Test-3

- Unit VII: Properties of Bulk Matter

Mid Term Examination-September-2024

- Unit I: Physical World and Measurement
- Unit II: Kinematics (Motion in a straight line)
- Unit II: Kinematics (Motion in a plane)
- Unit III: Laws of Motion
- Unit IV: Work, Energy and Power

Annual Examination

Complete Syllabus Prescribed by CBSE

PRACTICALS

Total Periods: 60

- Record of at least 8 Experiments [with 4 from each section], to be performed by the students.
- Record of at least 6 Activities [with 3 each from section A and section B], to be performed by the students.
- Report of the project carried out by the students.

EVALUATION SCHEME

Time 3 hours

Max. Marks: 30

Topic	Marks
Two experiments one from each section	7+7
Practical record (experiment and activities)	5
One activity from any section	3
Investigatory Project	3
Viva on experiments, activities and project	5
Total	30

SECTION–A

Experiments

April/May

1. To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.
2. To measure diameter of a given wire and thickness of a given sheet using screw gauge.

July

3. To determine volume of an irregular lamina using screw gauge.
4. Using a simple pendulum, plot its T^2 graph and use it to find the effective length of second's pendulum.
5. 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.

Activities

1. To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm.
2. To plot a graph for a given set of data, with proper choice of scales and error bars.
3. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
4. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

SECTION-B

Experiments

August

1. To find the force constant of a helical spring by plotting a graph between load and extension.
2. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.

October - November

3. To study the relation between the length of a given wire and tension for constant frequency using sonometer.
4. To find the speed of sound in air at room temperature using a resonance tube by two resonance positions.

Activities

1. To observe change of state and plot a cooling curve for molten wax.
 2. To note the change in level of liquid in a container on heating and interpret the observations.
 3. To study the factors affecting the rate of loss of heat of a liquid.
 4. To study the effect of load on depression of a suitably clamped metre scale loaded at (i) its end (ii) in the middle.
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MATHEMATICS (041)

Theory: 80 marks

Time: 3 hours

Practical: 20 marks

EVALUATION SCHEME

S.NO.	UNITS	MARKS
1	Sets and Functions	23
2	Algebra	25
3	Coordinate Geometry	12
4	Calculus	08
5	Statistics and Probability	12
	TOTAL	80
	INTERNAL ASSESSMENT	20
	GRAND TOTAL	100

APRIL-MAY

Unit-I: Sets and Functions

1. 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.

2. 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 $\mathbb{R} \times \mathbb{R} \times \mathbb{R}$). 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. 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.

3. Trigonometric Functions

JULY-AUGUST

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 $\sin 2x + \cos 2x = 1$, 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:

$$\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}, \cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$$

$$\sin \alpha \pm \sin \beta = 2 \sin \frac{1}{2}(\alpha \pm \beta) \cos \frac{1}{2}(\alpha \mp \beta)$$

$$\cos \alpha + \cos \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$$

$$\cos \alpha - \cos \beta = -2 \sin \frac{1}{2}(\alpha + \beta) \sin \frac{1}{2}(\alpha - \beta)$$

Identities related to $\sin 2x$, $\cos 2x$, $\tan 2x$, $\sin 3x$, $\cos 3x$ and $\tan 3x$.

Unit-II: Algebra

1. 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

2. Linear Inequalities

Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line.

Unit-V Statistics and Probability

1. Statistics

Measures of Dispersion: Range, mean deviation, variance and standard deviation of ungrouped/grouped data.

SEPTEMBER-OCTOBER

Unit-II: Algebra

3. Permutations and Combinations

Fundamental principle of counting. Factorial n . $(n!)$ Permutations and combinations, derivation of formulae for ${}^n P_r$ and ${}^n C_r$ and their connections, simple applications.

4. Binomial Theorem

Historical perspective, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications

5. Sequence and Series

Sequence 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.

NOVEMBER- DECEMBER

Unit-III: Coordinate Geometry

1. Straight Lines

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.

2. 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.

3. Introduction to Three-dimensional Geometry

Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points.

JANUARY-FEBRUARY

Unit-IV: Calculus

1. 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 slope 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

2. 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.

PRACTICAL:

ACTIVITY 1: To find the number of subsets of given set and verify that if a set has n number of elements, then the total number of subsets is 2^n .

ACTIVITY 2: To represent set theoretic operations using Venn diagrams.

ACTIVITY 3: To identify a relation and a function

ACTIVITY 4: To find analytically $\lim_{x \rightarrow c} \frac{x^2 - c^2}{x - c}$

ACTIVITY 5: To demonstrate that the Arithmetic mean of two different positive numbers is always greater than the Geometric mean.

ACTIVITY 6: To plot the graphs of $\sin x$, $\sin 2x$, $2\sin x$ and $\sin 2x$, using same coordinate axes.

ACTIVITY 7: To find the values of sine and cosine functions in second, third and fourth quadrants using their given values in first quadrant.

ACTIVITY 8: To construct a parabola.

ACTIVITY 9: To write the sample space, when a coin is tossed once, two times, three times, four times.

ACTIVITY 10: To verify the relation between the degree measure and the radian the measure of an angle.

INTERNAL ASSESSMENT	20 MARKS
Periodic Tests (Best 2 out of 3 tests conducted)	10 Marks
Mathematics Activities	10 Marks

ASSESSMENT:

PERIODIC TEST-I(JULY)

CHAPTER-: SETS

CHAPTER-: RELATION AND FUNCTION

CHAPTER-: TRIGNOMETRIC FUNCTION

MID TERM EXAMINATION(SEPTEMBER)

CHAPTER-: SETS

CHAPTER-: RELATION AND FUNCTION

CHAPTER-: TRIGNOMETRIC FUNCTION

CHAPTER -: COMPLEX NUMBER AND QUADRATIC EQUATIONS

CHAPTER -: LINEAR INEQUALITIES

CHAPTER -: STATISTICS

PERIODIC TEST-II(DECEMBER)

CHAPTER -: PERMUTATION AND COMBINATION

CHAPTER -: BINOMIAL THEOREM

CHAPTER -: SEQUENCE AND SERIES

ANNUAL EXAMINATION:

FULL SYLLABUS AS PER CBSE

PSYCHOLOGY (037)

Theory Paper

3 Hours

Marks: 70

Units	Topics	Marks
I	What is Psychology?	11
II	Methods of Enquiry in Psychology	13
IV	Human Development	11
V	Sensory, Attentional and Perceptual Processes	8
VI	Learning	9
VII	Human Memory	8
VIII	Thinking	5
IX	Motivation and Emotion	5
	Total	70

APRIL

Unit 1-What is Psychology?

The topics in this unit are:

1. Introduction
2. What is Psychology?
 - Psychology as a Discipline
 - Psychology as a Natural Science
 - Psychology as a Social Science
3. Understanding Mind and Behavior
4. Popular Notions about the Discipline of Psychology
5. Evolution of Psychology
6. Development of Psychology in India
7. Branches of Psychology
8. Psychology and Other Disciplines
9. Psychology in Everyday Life

MAY

Unit 2- Methods of Enquiry in Psychology

The topics in this unit are:

1. Introduction
2. Goals of Psychological Enquiry
 - Steps in Conducting Scientific Research
 - Alternative Paradigms of Research
3. Nature of Psychological Data
4. Some Important Methods in Psychology
 - Observational Method
 - Experimental Method
 - Correlational Research
 - Survey Research
 - Psychological Testing
 - Case Study
5. Analysis of Data
 - Quantitative Method
 - Qualitative Method
6. Limitations of Psychological Enquiry
7. Ethical Issues

JULY

Unit 4- Human Development

The topics in this unit are:

1. Introduction
2. Meaning of Development
 - Life-Span Perspective on Development
3. Factors Influencing Development
4. Context of Development
5. Overview of Developmental Stages

- Prenatal Stage
- Infancy
- Childhood

- Challenges of Adolescence
- Adulthood and Old Age

AUGUST-SEPTEMBER

Unit 5- Sensory, Attentional and Perceptual Processes

The topics in this unit are:

1. Introduction
2. Knowing the world
3. Nature and varieties of Stimulus
4. Sense Modalities
 - Functional limitation of sense organs
5. Attentional Processes
 - Selective Attention
 - Sustained Attention
6. Perceptual Processes
 - Processing Approaches in Perception
7. The Perceiver
8. Principles of Perceptual Organization
9. Perception of Space, Depth and Distance
 - Monocular Cues and Binocular Cues
10. Perceptual Constancies
11. Illusions
12. Socio-Cultural Influences on Perception

OCTOBER-NOVEMBER

Unit 6- Learning

The topics in this unit are:

1. Introduction
2. Nature of Learning
3. Paradigms of Learning
4. Classical Conditioning
 - Determinants of Classical Conditioning
5. Operant/Instrumental Conditioning
 - Determinants of Operant Conditioning
 - Key Learning Processes
6. Observational Learning
7. Cognitive Learning
8. Verbal Learning
9. Skill Learning
10. Factors Facilitating Learning

11. Learning Disabilities

Unit 7- Human Memory

The topics in this unit are:

1. Introduction
2. Nature of memory
3. Information Processing Approach: The Stage Model
4. Memory Systems: Sensory, Short-term, and Long-term Memories
5. Levels of Processing
6. Types of Long-term Memory
 - Declarative and Procedural; Episodic and ~~Smit~~
7. Nature and Causes of Forgetting
 - Forgetting due to Trace Decay, Interference and Retrieval Failure
8. Enhancing Memory
 - Mnemonics using Images and Organization

DECEMBER

Unit 8- Thinking

The topics in this unit are:

1. Introduction
2. Nature of Thinking
 - Building Blocks of Thought
3. The Processes of Thinking
4. Problem Solving
5. Reasoning
6. Decision-making
7. Nature and Process of Creative Thinking
 - Nature of Creative Thinking
 - Process of Creative Thinking
8. Thought and Language
9. Development of Language and Language Use

Unit 9- Motivation and Emotion

The topics in this unit are:

1. Introduction
2. Nature of Motivation
3. Types of Motives
 - Biological Motives
 - Psychosocial Motives
4. Maslow's Hierarchy of Needs
5. Nature of Emotions
6. Expression of Emotions
 - Culture and Emotional Expression
 - Culture and Emotional Labelling
7. Managing Negative Emotions

8. Enhancing Positive Emotions

JANUARY- Revision

ASSESSMENT

PERIODIC TEST 1

Unit 1: What is Psychology?

Unit 2: Methods of enquiry in Psychology

HALF YEARLY EXAMINATION

Unit1- What is Psychology?

Unit2- Methods of Enquiry in Psychology

Unit 4- Human Development

Unit 5- Sensory, Attentional and Perceptual Processes

PERIODIC TEST 2

Unit 6: Learning

Unit 7: Human Memory

ANNUAL EXAMINATION

Complete syllabus as per CBSE

Practical (Projects, experiments, small studies, etc.)

30 marks

The students shall be required to undertake *one project and conduct two experiments*. The project would involve the use of different methods of enquiry like observation, survey, interview, questionnaire, small studies related to the topics covered in the course (e.g., Human development, Learning, Memory, Motivation, Perception, Attention and Thinking). Experiments could focus on cause-and-effect relationship.

Practical Examination	
• Practical (Experiments) file	05 Marks
• Project File	05 Marks
• Viva Voce (Project and experiments)	05 Marks
• One experiment (05 marks for conduct of experiment and 10 marks for reporting)	15 Marks
Total	30 Marks

COMPUTER SCIENCE (083)

Learning Outcomes

Students should be able to:

- a) develop basic computational thinking
- b) explain and use data types
- c) appreciate the notion of algorithms
- d) develop a basic understanding of computer systems- architecture and operating system
- e) explain cyber ethics, cyber safety, and cybercrime
- f) understand the value of technology in societies along with consideration of gender and disability issues.

Distribution of Marks:

THEORY (70 MARKS)

Unit No.	Unit Name		Marks
I	Computer System & Organisation	10	
II	Computational Thinking and Programming -1		45
III	Society, Law, and Ethics		15

PRACTICAL (30 MARKS)

S.No.	Unit Name	Marks (Total=30)
1.	Lab Test (12 marks)	
	Python program (60% logic + 20% documentation + 20% code quality)	12
2.	Report File + Viva (10 marks)	
	Report file: Minimum 20 Python programs	7
	Viva voce	3
3.	Project (that uses most of the concepts that have been learnt)	8

APRIL-MAY

Chapter -2 Data Representation

Number System: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems.

Encoding Schemes: ASCII, ISCII, and Unicode (UTF8, UTF32)

Chapter -3- Boolean Logic

● Boolean logic: NOT, AND, OR, NAND, NOR, XOR, NOT, truth tables and De Morgan's laws, Logic circuits

JULY

Chapter -5 Getting started with Python

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,

Chapter -6 Python Fundamentals

Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments

AUGUST -SEPTEMBER

Chapter -7 Data Handling

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 operators, augmented assignment operators, identity operators (is, is not), membership operators (in not in)

- Expressions, statement, type conversion, and input/output: precedence of operators, expression, evaluation of an expression, type-conversion (explicit and implicit conversion), accepting data as input from the console and displaying output.
- Errors- syntax errors, logical errors, and run-time errors

Chapter -9 Flow of Control

Flow of Control: introduction, use of indentation, sequential flow, conditional and iterative flow

- Conditional statements: if, if-else, if-elif-else, flowcharts, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number.
- Iterative Statement: for loop, range (), while loop, flowcharts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number, etc.

Chapter -10 String Manipulation

Strings: introduction, string operations (concatenation, repetition, membership and slicing), traversing a string using loops, built-in functions/methods—len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(),rstrip(), strip(), replace(), join(), partition(), split()

Revision of Mid-term Exam

OCTOBER -NOVEMBER

Chapter -11 List Manipulation

Lists: introduction, indexing, list operations (concatenation, repetition, membership and slicing), traversing a list using loops, built-in functions/methods—len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, suggested programs: finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list.

Chapter-12 Tuples

Tuples: introduction, indexing, tuple operations (concatenation, repetition, membership and slicing); built-in functions/methods – len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple; suggested programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple.

Chapter -13 Dictionaries

Dictionary: introduction, accessing items in a dictionary using keys, mutability of a dictionary (adding a new term, modifying an existing item), traversing a dictionary, built-in functions/methods – len(), dict(), keys(), values(), items(), get(), update(), del, clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), sorted(); Suggested programs: count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them.

DECEMBER

Chapter-1 Computer System Overview

- 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, and interpreter), application software
- Operating System (OS): functions of the operating system, OS user interface

Chapter-4 Introduction to Problem Solving

Introduction to Problem-solving: Steps for Problem-solving (Analyzing the problem, developing an algorithm, coding, testing, and debugging), representation of algorithms using flowchart and pseudocode, decomposition

Chapter-8 Introduction to Python Modules

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()).

JANUARY- FEBRUARY

Chapter-14 Cyber Safety

- Digital Footprints
- Digital Society and Netizen: net etiquettes, communication etiquettes, social media etiquettes
- Data Protection: Intellectual property rights (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open-source software and licensing (Creative Commons, GPL and Apache)

Chapter-15 Society Law & Ethics

- Cyber Crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, cyber trolls, cyber bullying
- Cyber safety: safely browsing the web, identity protection, confidentiality
- Malware: viruses, trojans, adware
- E-waste management: proper disposal of used electronic gadgets.
- Information Technology Act (IT Act)
- Technology and society: Gender and disability issues while teaching and using computers

Revision & Completion of Project Work

PERIODIC TEST -1 (JULY)

- Chapter-2 Data representation
- Chapter-3 Boolean Logic
- Chapter-5 Getting started with Python
- Chapter-6 Python Fundamentals

MID TERM EXAMINATION (SEPTEMBER)

- Chapter-2 Data representation
- Chapter-3 Boolean Logic
- Chapter-5 Getting started with Python
- Chapter-6 Python Fundamentals
- Chapter-7 Data Handling
- Chapter-9 Flow of Control
- Chapter-10 String Manipulation

PERIODIC TEST -2 (DECEMBER)

- Chapter-11 List Manipulation
- Chapter-12 Tuples
- Chapter-13 Dictionaries

Annual Examination (March)

Complete syllabus as per CBSE guidelines

ACCOUNTANCY (055)

<u>UNITS</u>		<u>MARKS</u>
Part A: Financial Accounting-1		
	Unit-1: Theoretical Framework	12
	Unit-2: Accounting Process	44
Part B: Financial Accounting-II		
	Unit-3: Financial Statements of Sole Proprietorship	24
Part C: Project Work		20
TOTAL		100

APRIL-MAY

Part A : Financial Accounting-I

Unit-1: Theoretical Framework

Introduction to Accounting • Accounting- concept, objectives, advantages and limitations, types of accounting information; users of accounting information and their needs. Qualitative Characteristics of Accounting Information. Role of Accounting in Business. • Basic Accounting Terms- Business Transaction, Capital, Drawings. Liabilities (Non-Current and Current). Assets (Non-Current, Current); Fixed assets (Tangible and Intangible), Expenditure (Capital and Revenue), Expense, Income, Profit, Gain, Loss, Purchase, Sales, Goods, Stock, Debtor, Creditor, Voucher, Discount.

JULY

Unit 2: Theory Base of Accounting

Fundamental accounting assumptions: GAAP: Concept • Business Entity, Money Measurement, Going Concern, Accounting Period, Cost Concept, Dual Aspect, Revenue Recognition, Matching, Full Disclosure, Consistency, Conservatism, Materiality and Objectivity • System of Accounting. Basis of Accounting: cash basis and accrual basis • Accounting Standards: Applicability • Goods and Services Tax (GST): Characteristics and Objective.

Unit 3: Accounting Process

Voucher and Transactions: Source documents and Vouchers, Preparation of Vouchers, Accounting Equation Approach: Meaning and Analysis
Rules of Debit and Credit.

Unit 4: Journal

Original book of entry: recording of simple and compound entries

AUGUST-SEPTEMBER

Unit 5: Special Purpose books

: • Cash Book: Simple, cash book with bank column and petty cashbook • Purchases book • Sales book
• Purchases return book • Sales return book

Unit 6: Ledger posting

Format, posting from journal and subsidiary books, Balancing of accounts

Unit 7: Bank Reconciliation Statement

• Need and preparation.

Unit 8: Depreciation Reserve and Provision

- Concept and Merits of charging depreciation.

- Straight line method of depreciation

Project on Books of Original Entry, Journal, Ledger and Trial

#Activities:PPT/Cartooning/Craftwork/Photoshop designing

OCTOBER-NOVEMBER

Unit 8: Depreciation, Provisions and Reserve

- Depreciation: Concept, Features, Causes, factors • Other similar terms: Depletion and Amortisation •Methods of Depreciation: i. Straight Line Method (SLM) ii. Written Down Value Method (WDV)

Unit 9: Trial balance

- **Errors and Rectification**

- Trial balance: objectives and preparation (Scope: Trial balance with balance method only) • Errors: types-errors of omission, commission, principles, and compensating; their effect on Trial Balance. • Detection and rectification of errors; preparation of suspense account.

Project work (part II) preparation of financial statement

DECEMBER

Unit 10: Financial Statement Analysis

Financial Statements Meaning, objectives and importance; Revenue and Capital Receipts; Revenue and Capital Expenditure; Deferred Revenue expenditure. Trading and Profit and Loss Account: Gross Profit, Operating profit and Net profit. Preparation. 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, interest on capital and managers commission. Preparation of Trading and Profit and Loss account and Balance Sheet of a sole proprietorship with adjustments.

JANUARY-FEBRUARY

Part B: Financial Accounting- II

Unit 11: Incomplete Records: Single Entry System

- Preparation of statement of affairs
- Determination of opening and closing capital
- Preparation of statement of Profit and loss

REVISION OF COMPLETE SYLLABUS

ASSESSMENTS

Periodic Test 1 (August)

- Introduction of Accounting
- Basic terms of Accounting
- Theory Base of Accounting
- Accounting Equation
- Rules of debit and credit

Mid Term Examination (September)

- Introduction of Accounting
- Theory Base of Accounting
- Recording of Business Transaction
- Preparation of Ledger, Trial Balance and Bank Reconciliation
- Cashbook
- Depreciation, Reserve and Provisions

Periodic Test II (December)

- Rectification of Errors
- Trial balance

Annual Examination (March)**Complete syllabus as per CBSE guidelines****Project Work**

PROJECT	
PARTICULARS	MARKS
FILE	12
VIVA	8
TOTAL	20

ECONOMICS (030)**Theory: 80****Time Allowed: 3 Hours****Project: 20 Marks**

Units		Marks
Part A	Introductory Microeconomics	
	Introduction	4
	Consumer Equilibrium and Demand	15
	Producer Behaviour and Supply	15
	Forms of market and Price Determination	6
	Total	40
Part B	Statistics for Economics	
	Introduction	15
	Collection, Introduction and Presentation of Data	
	Statistical Tools and Interpretation	25
	Total	40
Part C	Project Work	20
Grand Total	A+B+C Theory Paper = 80 Marks Project = 20 Marks	100

April & May

Micro Economics

➤ **Unit: 5 Demand**

- ✓ 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 and total expenditure method.

Statistics

➤ **Unit:1 Introduction**

- ✓ Concept of Economics and Significance of Statistics. What is Economics? Meaning, scope, functions and importance of statistics in Economics

✓ **Unit:2 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 Organization

✓

July

Micro Economics

➤ **Unit:5 Consumer 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.

Statistics

✓ **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; concepts of production possibility frontier and opportunity cost.

August & September

➤ **Unit:2 Organization of Data**

- ✓ Meaning and types of variables; Frequency Distribution. Presentation of Data
- ✓ (Textual and Tabular Presentation) 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).

➤ **Unit:3 Measures of Central Tendency - Arithmetic mean**

Project Work

October & November

Micro Economics

➤ **Unit:6 Production function**

- ✓ Meaning of Production Function – Short-Run and Long-Run. Total Product, Average Product and Marginal Product. Returns to a Factor

➤ **Unit:7 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.

➤ **Unit:7 Revenue**

- ✓ 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.

➤ **Unit:7 Producer Equilibrium**

- ✓ Meaning and its conditions in terms of marginal revenue marginal cost.

Statistics

- **Unit:3 Measures of Central tendency**
- ✓ (Median and Mode)

December

Micro Economics

- **Unit:6 Supply**
- ✓ 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.
- ✓ **Unit:7 Main forms of market**
- ✓ Perfect competition - Features; Determination of market equilibrium and effects of shifts in demand and supply.

Statistics

- ✓ **Unit:3 Measures of Correlation**
- ✓ Meaning and properties, scatter diagram; Measures of correlation – Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation.

January & February

Micro Economics

- ✓ **Unit:7 Price Determination and Simple Applications**
- ✓ Simple Applications of Demand and Supply: Price ceiling, price floor.

Statistics

- ✓ **Unit:3 Index Numbers**
- ✓ Meaning, types - wholesale price index, consumer price index and index of industrial production, uses of index numbers; Inflation and index numbers
- ✓ Revision

Periodic test 1

Micro Economics

Demand

Statistics

Concept of Economics and significance of Statistics in Economics

Collection of Data

Half-yearly

Micro Economics

Introduction

Demand & Elasticity of Demand

Consumer Equilibrium

Statistics

Concept of Economics and significance of Statistics in Economics

Collection of Data

Census and sample method of collection of Data

Organization of Data

Presentation of Data : Textual and Tabular

Diagrammatic presentation of Data: Bar diagram and Pie Diagram

Frequency Diagrams: Histogram, Polygon and ogive

Arithmetic line – Graph or time series graph

Measures of Central Tendency – Arithmetic mean

Periodic test 2

Micro Economics

Production Function

Cost

Revenue

Statistics

Median and Mode

FINAL EXAMINATION

Complete syllabus as per CBSE

BUSINESS STUDIES (054)

Theory: 80 Marks Time Allowed: 3 Hours

Project: 20 Marks

	Units	Marks
Part A	Foundations of Business	
1	Nature and Purpose of Business	16
2	Forms of Business Organisations	
3	Public, Private and Global Enterprises	14
4	Business Services	
5	Emerging Modes of Business	10
6	Social Responsibility of Business and Business Ethics	
Part B	Finance and Trade	
7	Sources of Business Finance	20
8	Small Business	
9	Internal Trade	20
10	International Trade	
	Theory (Part A + Part B)	80
Part C	Project Work (ONE)	20
	Total	100

APRIL AND MAY

PART A: FOUNDATIONS 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
- 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

Unit 2: 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. Types of partners
- 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

JULY

Unit 3: 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. Public private partnership – concept

Project work

AUGUST-SEPTEMBER

Unit 4: 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

Unit 5: Emerging Modes of Business

- E - business: concept, scope and benefits

Unit 6: 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

OCTOBER-NOVEMBER

Part B: Finance and Trade

Unit 7: Sources of Business Finance

- Concept of business finance
- Owners' funds- equity shares, preference share, retained earnings
- Borrowed funds: debentures and bonds, loan from financial institution and commercial banks, public deposits, trade credit, Inter Corporate Deposits (ICD).

Unit 8: 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 Centre (DIC) with special reference to rural, backward areas

DECEMBER

Unit 9: Internal Trade

- Internal trade - meaning and types of 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

Unit 10: 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

JANUARY- Revision

ASSESSMENTS

PERIODIC TEST 1

Unit 1: Nature and Purpose of Business

Unit 2: Forms of business organizations

PERIODIC TEST 2

Unit 3: Public, Private and global enterprises

Unit 4: Business services

Unit 5: Emerging modes of business

MID TERM EXAMINATION

Unit 1: Nature and Purpose of Business

Unit 2: Forms of business organizations

Unit 3: Public, Private and global enterprises

Unit 4: Business services

Unit 5: Emerging modes of business

Unit 6: Social responsibility of business

Unit 7: Sources of business finance

Unit 8: Small Business and enterprises

ANNUAL EXAMINATION-Complete syllabus

PROJECT ASSESSEMENT

**PROJECT WORK TOTAL 20 MARKS (ONLY ONE PROJECT)
ASSESSMENT RUBRICS**

ASSESSMENT RUBRICS	MARKS
Initiative, cooperativeness, and participation	2
Creativity in presentation	2
Content, observation and research work	4
Analysis of situations	4
Viva based on the project	8
TOTAL	20

PHYSICAL EDUCATION (048)

APRIL-MAY-

Unit-I Changing Trends & Career in Physical Education

- Concept, Aims & Objectives of Physical Education
- Development of Physical Education in India – Post Independence
- Changing Trends in Sports- playing surface, wearable gears and sports equipment, technological advancements.
- Career Options in Physical Education
- Khelo-India and Fit-India Program

Unit II Olympism

- Ancient and Modern Olympics
- Olympism – Concept and Olympics Values (Excellence, Friendship & Respect)
- Olympic Value Education – Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, Balance Among Body, Will & Mind
- Olympics - Symbols, Motto, Flag, Oath, and Anthem
- Olympic Movement Structure - IOC, NOC, IFS, Other members

JULY-AUGUST

Unit III Yoga

- Meaning & Importance of Yoga
- Introduction to Ashtanga Yoga
- Introduction to Yogic Kriyas (Shat Karma)
- Pranayama and its types.
- Active Lifestyle and stress management through Yoga

Unit IV Physical Education & Sports for CWSN (Children with Special Needs - Divyang)

- Concept of Disability and Disorder
- Types of Disability, its causes & nature (Intellectual disability, Physical disability)
- Aim & Objective of Adaptive Physical Education
- Disability Etiquette
- Role of various professionals for children with special needs (Counsellor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist & Special Educator)

SEPTEMBER

Unit V Physical Fitness, Health, and Wellness

- Meaning and Importance of Wellness, Health, and Physical Fitness
 - Components/Dimensions of Wellness, Health, and Physical Fitness
 - Traditional Sports & Regional Games for promoting wellness.
- Leadership through
- Physical Activity and Sports
 - Introduction to First Aid – PRICE

OCTOBER - NOVEMBER

Unit VI Test, Measurement & Evaluation

- Define Test, Measurements and Evaluation
- Importance of Test, Measurements and Evaluation in Sports.
- Calculation of BMI, Waist – Hip Ratio, Skin fold measurement (3-site)

- Somato Types (Endomorphy, Mesomorphy & Ectomorphy)
- Measurements of health-related fitness

Unit VII Fundamentals of Anatomy, Physiology in Sports

- Definition and Importance of Anatomy and Physiology in exercise and sports
- Functions of Skeletal system, classification of bone and types of joints.
- Properties and Functions of Muscles.
- Function and Structure of Circulatory system and heart.
- Function and Structure of Respiratory system.

DECEMBER

Unit-VIII Fundamentals of Kinesiology and Biomechanics in Sports

- Definition and Importance of Kinesiology and Biomechanics in sports
- Principles of Biomechanics
- Kinetics and Kinematics in Sports
- Types of Body Movements - Flexion, Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation
- Axis and Planes – Concept and its application in body movements

Unit-IX Psychology & Sports

- Definition & Importance of Psychology in Physical Education & Sports
- Developmental Characteristics at Different Stages of Development;
- Adolescent Problems & Their Management
- Team Cohesion and Sports
- Introduction to Psychological Attributes: Attention, Resilience, Mental Toughness

JANUARY - FEBRUARY

Unit-X Training and Doping in Sports

- Concept and Principles of Sports Training
- Training Load: Overload, Adaptation, and Recovery
- Warming-up & Limbering Down – Types, Method & Importance
- Concept of Skill, Technique, Tactics & Strategies
- Concept of Doping and its disadvantages

REVISION OF SYLLABUS

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 IOA recognised Sports/Game of choice):7 Marks.

**Basketball, Football, Kabaddi, Kho-Kho, Volleyball, Handball, Hockey, Cricket.

Yogic Practices** 7 Marks

Record File *** 5 Marks

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

***Record File shall include:

Practical-1: Labelled diagram of 400 M Track & Field with computations.

Practical-2: Describe Changing Trends in Sports in terms of change in playing surface, wearable gears and sports equipment, technological advancements.

Practical-3: Labelled diagram of field & equipment of any one game of your choice out of the above list.

Assessments

PERIODIC TEST -1 (AUGUST)

Unit-I Changing Trends & Career in Physical Education

Unit-II Olympism

Unit-III Yoga

MID TERM EXAMINATION (SEPTEMBER)

Unit-I Changing Trends & Career in Physical Education

Unit-II Olympism

Unit-III Yoga

Unit-IV Physical Education & Sports for CWSN (Children with Special Needs - Divyang)

Unit-V Physical Fitness, Health, and Wellness

PERIODIC TEST -II (DECEMBER)

Unit VI Test, Measurement & Evaluation

Unit VII Fundamentals of Anatomy, Physiology in Sports

ANNUAL EXAMINATION (MARCH)

ENTIRE SYLLABUS
