D.A.V. MULTIPURPOSE PUBLIC SCHOOL, SECTOR-15, SONEPAT
SYLLABUS (2026-27)

CLASS : CLASS XII (SCIENCE)

Subject	Month	Chapter No. & Name	Vocabulary Words/Expressions/Terms
English	April	Flamingo (Prose) 1. The Last Lesson	enslaved, thunderclap, gesture, bub, blushed, mounted on his chair, wretches, worn smooth, twined, acquisition, salvage, grasp, indiscriminate, substantiate, procrastination,in great dread of,in unison, counted on, thumbed at the edges, Viva La France, apprentice, strength to resist, Chauvinism, Primer, Reproach, chocked. angelus
		2 Lost Spring	· looking for,slog their daylight hours, roof over his head, perpetual state of poverty, Dark hutments, Imposed the baggage on the child, scrounging, glibly, perpetual, acquaintance, transit homes, squatters, mutter, shuffles, metaphorically, desolation, drowned (I want to drive a car) mirage, dingy, slog, hovel, wobbly, primeval, shack, unkempt, shanty town, drab, sanctity, vicious circle, sizzling, hauled up, hurtling down
		Poetry 1 My Mother at Sixty-six	corpse, sprinting, spilling, wan, ashen, doze, pain of separation, escapist tendency, symbolic significance, interpolating, spontaneous, inertness
		Poetry 2. Keeping Quiet	exotic, to have no truck with death, interrupt, survivors, breakthrough, diplomatic, repression, strength of humanity, introspection, treading, attaining, a fanciful idea, envisaged, distinctions, single-mindedly focused, channelized

		Writing Section	**Invitations Writing**
	May	Vistas 1 The Third Level	angling, arched, corridor, currency, fare, fulfillment, insecurity,premium, psychiatrist, refuge, maiden, philately, premium, leg-of-mutton sleeves, brass spittoons, glint, ducked, suburban, stack, refuge, tan gabardine
		2 The Tiger King	frailties, atrocious, Autocrat, whimsical, capricious, obstinacy, ruthless, wrath, despicable, valour, placate, crouching behaviour, comical figure, imperative, transfixed, stupefaction, enunciated, squeaky, confiscated, brandishing, deliberations, ascertained, flout, catastrophic, supplication, crumpled, quills, pierced, suppurating
		Writing Section	Practice of Notice Writing and Invitation Writing
		U.T.1 **(11th May)**	Whole syllabus covered in April and May
	June	**Summer Break**	
	July	Flamingo Prose Chapter 3 Deep Water	treacherous, subdued my pride, flailed at the surface, fising for landlocked salmon, misadventure, bob on the surface like a cork, curtain of life fell, back and forth across the pool, skinny, aping, miniature, residual, canoeing, oblivion, flailed, aversion, perseverance
		Chapter 4 Rattrap	Keep body and soul together, Plods along the road, impenetrable prison, eased his way, things have gone downhill, hunger gleamed in his eyes, unwonted joy, nodded a haughty consent, fallen in to the line of thought,compassionately, dissimulate, slouch, monotonous, vagabond,

			baits, dreary, snare, trudging, carved off, generous with his confidences, incredulous, thickets, impenetrable, staggered, barges and scows, sifted, pig iron, intruder, tramp, ragamuffin, deigned, manor, inconspicuously, forebodings, puckered, sheriff, rind, interceded, jagged
		Poetry 1 A Thing of Beauty	bower, morrow, wreathing, spite, despondence, dearth, gloomy, pall, sprouting, boon, rills, covert, brake, grandeur, brink, tranquility, diversions, coexistence, engrossed, allusion, sublimate, mighty
		Vistas 3. Journey to the End of the Earth	Akademic Shokalskiy, time zones, checkpoints, ecospheres, expansive, immensity, amalgamated, Gondwana, thrived, Cordilleran folds, pre-Cambrian granite,frigid, drake, circumpolar, metabolic, billboards, austral summer light, surreal, ubiquitous, avalanche, calving, prognosis, ruckus, unmitigated, pristine, ice-cores, latitude, longitude, ecosystem, biodiversity, repercussions,phytoplankton, assimilate, parable, gangplank,Gore-Tex, ice-floes
,		1 The Enemy	Yonder, cripping up, wreathing, haori, kimono, voluble, headlessly, staggered, spiked, tended, solemn, beachcomber, stanch, stupor, courteously,conviction, impulsively, ebbing, tokonoma, peered into, retching, flickers,incision, quivered, hypodermic, porcelain spoon, contemptuously, brusquely, indispensable, assassins, gaunt, stubbly, fathoms, dereliction, prejudice, haggard
		Practice of Article and Report Writing	New words and expressions will be noted down by the students in their diaries
		U.T. 2 **(10thJuly)**	Whole syllabus covered till July 14

	August	Prose 1 Indigo	urge, convention, delegates, recounted, emaciated, sharecroppers, resolute, tenacity, haunches, yeoman, pestered, enroute, harbour, advent, chided, arable, irksome, resist, multitude, maltreated, spontaneous, hitherto, dreaded, baffled, reconvened, upshot, desertion, depositions, throbbed, protracted, entreaty, unlettered, extorted, deadlock, adamant, trenches, alleviate, distress, intertwined
		2 Poets and Pancakes	maiden, fiery, broadcasting, hideous, potions, cubicle, barge in, woes, covertly, having hand, diction, deftly, sprawling, improvident, sycophant, tirade, struck dumb, coat of mail, homilies, literati, compunction, peppered with, incongruity, travails, drudge, disillusioned,
		Poetry 4. A Roadside Stand	: pathetically, pled, withering, out of sorts, marred, quarts, kin, mercifully, beneficent, swarm, enforcing, soothe, longing, in vain, lurks, squeal, plow up, bound, requisite, at one stroke, sane
		Vistas **5. On the Face of It**	Rustling, startled, windfalls, grader, daft, dribble, peculiar, trespassing, fuss, thumping, swishes, scrumps, philanthropist, large-hearted, unpalatable, auditory sense, intimidate, grudges, outward appearance, deceptive, trash, reminiscent
		Practice of unseen passages, Notice, Invitations, Article, Report Writing and the syllabus covered for Half-Yearly Examination	New words during practice of the Writing and Reading Section will be noted down by students in their notebooks.
	September	**Half Yearly Exam** **8th September**	**Half Yearly Syllabus** **Whole syllabus covered till September**

	October	1. Going Places	earmarked, melancholy, plump, scooping, grimy, stooped,incongruity, crooked, cluttered, tightening in her throat, tinkering with, apprentice, voluntarily, prized out, outlying, fascination, exotic, longed, affections, forbade, instinctively, expectantly, applause, cradled, arcade, chastened, tossed, grunt, wriggled disdain, reverently, grimaced,muttered, inaudible, aggressively, amber glow, prodigy, jeered, apparently, pilgrimage, blend, ecstatic, inquisition, being nosey, startled, glared, gawky, blinked,chuffed, hushed, wharf,unceasing, drone, muffled, elapsed, pangs of doubt, stirring, despondent, resignation, envisage, propped, freckled, shimmer, lumbering, hovered, momentarily, exultant, approbation
		Poetry 5. Aunt Jennifer's Tigers	Prance, topaz, denizens, beneath, sleek, chivalric, fluttering, massive, wedding band, mastered, ordeals, ambience, counterpart, ferocious, oppression, suppression, ivory, patriarchal society, subjugation, supersede
		Vistas 6. Memories of Childhood	belfry, clatter, bedlam, stiff, closely, clinging, moccasin, tapped, immodestly, ceased, venture, shingled hair. Squeaking shoes, whither, huddled, peered, shuddering, closet, gnaw off, braids, indignities, anguish
		Revision of the syllabus covered in October month for UT3	New words during practice of the Writing and Reading Section will be noted down by students in their notebooks.
	November	UT-3 From 21st October	Revision of whole syllabus New words during practice of the Writing and Reading Section will be noted down by students in their notebooks.

	December	**Revision & Pre Board-1** **(1st December)**	
	January	**Revision & Pre Board-2** **(2nd January,2027)**	
	February	Final Exam	
	March	Final Exam	
Physics	**April**	Chapter No.1,2 Name of the Chapter : Electric Charges and Fields Electrostatic Potential and Capacitance	1. Electric charge: A fundamental property of matter that can be positive or negative. 2. Coulomb's Law: A law stating that the force between two point charges is directly proportional to the product of the charges and inversely proportional to the square of the distance between them. 3. Electric field: A region of space where a charged particle experiences a force, 4. Electric potential: The electric potential energy per unit charge at a point in an electric field. 5. Potential difference: The difference in electric potential between two points. 6. Electric flux: The measure of the electric field passing through a given surface. 7. Gauss's Law: A relationship between the electric flux through a closed surface and the total charge enclosed by that surface. 8. Electric dipole: A system of two equal and opposite charges separated by a small distance. 9.Superposition Principle: The total electric field at a point due to multiple charges is the vector sum of the electric fields produced by each individual charge. 10. Capacitance: The ability of a system to store electric charge, measured in Farads.

			11. Capacitor: A device designed to store electrical charge, consisting of two conductors separated by an insulator. 12. Conductor: A material that allows electric charge to flow freely through it. 13. Insulator: A material that does not allow electric charge to flow easily through it. 14. Dielectric: A material that can be polarized by an electric field, increasing the capacitance of a capacitor.
	May	Chapter No.3 Name of the Chapter :Current Electricity	1. Electric Current: The flow of electric charge through a conductor, measured in amperes (A). 2. Resistance: The opposition offered by a conductor to the flow of electric current, measured in ohms (Ω). 3. Potential Difference: The difference in electric potential between two points in a circuit, measured in volts (V). 4. Resistivity: A material property that describes its inherent resistance to the flow of electric current. 5. Drift Velocity: The average velocity of electrons in a conductor due to an electric field. 6. Ohm's Law: A relationship stating that the current through a conductor is directly proportional to the potential difference across it, provided the temperature remains constant. 6. Series Circuits: A circuit where components are connected end-to-end, with the same current flowing through each component. 7. Parallel Circuits: A circuit where components are connected side-by-side, with the potential difference across each component being the same. 8.Conductors: Materials that allow electric current to flow through them easily. 9. Insulators: Materials that strongly resist the flow of electric current. 10. Combination of Resistors: Calculating the equivalent resistance of resistors connected in series or parallel. 11. Electrical Energy: The energy transferred by an electric current over a period of time, measured in joules (J).

			12. Power: The rate at which electrical energy is transferred, measured in watts (W). 13. Kirchhoff's Current Law: The algebraic sum of all currents entering and exiting a node must equal zero." 14. Kirchhoff's voltage law (KVL):is a law in current electricity that states the sum of all voltage changes in a closed loop is zero. 15. Meter Bridge:A meter bridge is a laboratory instrument that measures the resistance of an unknown material. 16. Wheat stone bridge:An electrical circuit that measures an unknown resistance by balancing two legs of a bridge circuit.
		U.T.1 **(11th May)**	**Syllabus** **Chapter-1 Electric Charges and Fields** **Chapter-2 Electrostatic Potential and Capacitance**
	June	**Summer Break**	
	July	Chapter No.4 Name of the Chapter :Moving Charges and Magnetism	1. Magnetic field:The region around a magnet or current-carrying conductor where a magnetic force can be detected. 2. Magnetic force:The force exerted on a moving charge when it is placed in a magnetic field. 3. Ampere's Circuital Law: A law relating the line integral of the magnetic field around a closed loop to the current enclosed by the loop. 4. Lorentz force:The total force acting on a charged particle in an electric and magnetic field. 5. Magnetic flux density (tesla): The strength of a magnetic field, measured in Tesla. 6.Right-hand rule:A method used to determine the direction of the magnetic field produced by a current-carrying conductor. 7. Magnetic dipole moment:A measure of a magnet's strength and orientation, related to the loop current and area of a current loop.

			8. Solenoid:A coil of wire that produces a relatively uniform magnetic field when current flows through it. 9. Biot-Savart Law: A law used to calculate the magnetic field produced by a current-carrying wire, considering small current segments. 10. Torque: the measure of the force that can cause an object to rotate about an axis. 11. Shunt resistance: is the resistance of a low-resistance path in an electrical circuit.Shunt resistors are connected in parallel to the circuit. 12. Moving coil galvanometer: It is a device that measures electric current using a coil in a magnetic field. It's an electromagnetic device that can measure very small amounts of current.
		Chapter No. 5 Name of the Chapter:Magnetism and Matter	1. Magnetic dipole: A pair of equal and opposite magnetic poles separated by a small distance, representing the basic magnetic unit of a material. 2. Magnetic susceptibility: A measure of how easily a material can be magnetized when placed in a magnetic field. 3. Magnetization: The degree to which a material is magnetized, indicating the net magnetic moment per unit volume. 4. Ferromagnetic: Materials that are strongly attracted to a magnetic field and can retain their magnetization even after the field is removed (e.g., iron). 5.Paramagnetic: Materials that are weakly attracted to a magnetic field. 6.Diamagnetic: Materials that are weakly repelled by a magnetic field. 7.Magnetic flux: The measure of the total magnetic field passing through a given surface. 8.Magnetic pole: The point on a magnet where the magnetic field is strongest, either north or south. 9.Permeability: A measure of how easily a magnetic field can pass through a material. 10.Magnetic moment: The strength of a magnetic dipole, indicating the tendency of a material to align with a magnetic field.

			11. Curie temperature: the temperature at which certain materials lose their permanent magnetism.
		Chapter No.-6 Name of the Chapter: Electromagnetic Induction	1.Magnetic flux : The number of magnetic field lines passing through a surface, measured in Webers (Wb). 2.Faraday's law: States that the induced EMF in a conductor is directly proportional to the rate of change of magnetic flux through the conductor. 3. Lenz's law: Determines the direction of the induced current, stating that it opposes the change in magnetic flux that caused it. 4.Induced EMF: The electromotive force generated in a conductor due to a changing magnetic field. 5.Self-induction: When a changing current in a coil induces an EMF within itself. 6.Mutual induction :When a changing current in one coil induces an EMF in a nearby coil. 7.Eddy currents: Circular currents induced in a conductor when a changing magnetic field passes through it. 8.Transformer: A device that uses the principle of mutual induction to change the voltage of an alternating current. 9.Generator: A device that converts mechanical energy into electrical energy using the principle of electromagnetic induction. 10. Step-up transformer: It increases the voltage from an input to an output. 11. Step-down transformer reduces the primary voltage level to a lower level via the secondary output.
		U.T. 2 **(10thJuly)**	**Syllabus** **Chapter- 3 Current Electricity** **Chapter-4 Moving charges and magnetism**
		Chapter No.7 Name of the Chapter: Alternating Current	1. Amplitude (Peak Value): The maximum value of voltage or current in a cycle. 2. Frequency: The number of complete cycles of AC per second, measured in Hertz (Hz).

	August		3. Time Period: The time taken to complete one cycle. 4. Cycle: A complete variation of voltage or current from positive to negative and back to positive. Instantaneous Value: The value of voltage or current at any given instant in time. 5. Root Mean Square (RMS) Value: The effective value of AC, representing the equivalent DC value that produces the same heating effect. 6. Phase Angle: The angle by which the voltage waveform leads or lags the current waveform in a circuit. 7. Impedance: The total opposition to AC flow in a circuit, combining resistance and reactance. 8. Reactance: The opposition to AC flow due to capacitance or inductance. 9.Power Factor: The ratio of true power to apparent power in an AC circuit, indicating the phase relationship between voltage and current. 10.Resonance Frequency: The frequency at which the reactance of a circuit is zero, resulting in maximum current flow.
		Chapter No.-8 Name of the Chapter: Electromagnetic waves	1.Electromagnetic Waves:A changing magnetic field will induce a changing electric field and vice-versa—the two are linked. These changing fields form electromagnetic waves. 2. The electromagnetic spectrum is the full range of electromagnetic radiation, organized by frequency or wavelength. 3. Radio waves are a type of electromagnetic radiation with the lowest frequencies and the longest wavelengths in the electromagnetic spectrum, 4.Microwave is a form of electromagnetic radiation with wavelengths shorter than other radio waves but longer than infrared waves. 5. An X-ray is a medical imaging technique that uses radiation to create pictures of the inside of the body.

			6.Displacement current is the rate at which an electric field changes over time. 7. transverse wave is a wave that oscillates perpendicularly to the direction of the wave's advance. 8.Gamma rays have the smallest wavelengths and the most energy of any wave in the electromagnetic spectrum.
		Chapter No.- 9 Name of the Chapter: Ray Optics and optical instruments	1.Reflection:When light bounces back from a surface, changing its direction. 2.Refraction:The bending of light as it moves from one medium to another, like from air to water. 3.Dispersion:The separation of white light into its constituent colors due to different wavelengths refracting at different angles. 4.Prism:A transparent object with angled faces that can split light into its spectrum through refraction. 5.Lens:A curved piece of transparent material used to focus or diverge light rays, categorized as convex (converging) or concave (diverging). 6.Focal length:The distance between the optical center of a lens and the point where light rays converge. 7.Optical center:The center point of a lens through which light rays pass without deviation. 8.Total internal reflection:The phenomenon where light is completely reflected back into a medium when the angle of incidence exceeds a critical angle. 9.Power of lens:A measure of the converging or diverging ability of a lens, inversely proportional to its focal length. 10. Microscope: It is an instrument that makes an enlarged image of a small object to be seen by the unaided eye. 11. Telescope:A telescope is an optical instrument that uses lenses and mirrors to magnify and view distant objects. 12. Angular Magnification:the ratio of the angle subtended by an image to the angle subtended by an object.

	September	**Half Yearly Exam** **8th September**	**Chapters 1-9**
		Chapter-10 **Name of the Chapter: Wave Optics**	1.Wavefronts: A wavefront is a surface where all points are oscillating in the same phase, representing the propagation of a wave. 2.Types of wavefronts: Depending on the source, wavefronts can be spherical, cylindrical, or plane. 3. Huygens' Principle: This principle states that every point on a wavefront acts as a source of secondary wavelets, and the envelope of these wavelets determines the new wavefront at a later time. 4. Interference:Interference occurs when two or more waves overlap, resulting in a combined wave with a varying amplitude, described as constructive or destructive interference. 5. Young's Double-Slit Experiment: This experiment demonstrates the wave nature of light by showing the interference pattern formed when light passes through two narrow slits. Diffraction: 6. Diffraction is the bending of waves around obstacles or through small openings, causing them to spread out.
	October	Chapter No.11 Name of the Chapter:Dual Nature of radiation and matter	1.Wave-particle duality: The fundamental idea that light and matter can behave as both waves and particles. 2. Photoelectric effect: The phenomenon where electrons are ejected from a metal surface when illuminated by light of a suitable frequency. 3. Photon: A discrete packet of energy considered as a particle of light. 4. Work function: The minimum energy required to remove an electron from the surface of a metal.

			5. Threshold frequency: The minimum frequency of light needed to initiate the photoelectric effect. 6. De Broglie wavelength: The wavelength associated with a moving particle, calculated using the formula λ = h/p where h is Planck's constant and p is momentum. 7. Planck's constant: A fundamental constant relating the energy of a photon to its frequency. 8.Matter waves: Waves associated with moving particles, described by the de Broglie wavelength. 9. Electron emission: The process of electrons being released from a metal surface. 10.Thermionic emission: Electron emission from a metal due to thermal energy. 11.Field emission: Electron emission from a metal due to a strong electric field. 12. Stopping Potential:Stopping potential is the minimum negative voltage applied to the anode to stop the photocurrent.
		Chapter No.-12 Name of the Chapter- Atoms	1.Atomic Spectra: The study of light emitted or absorbed by atoms, revealing information about their structure and energy levels. 2. Electron Orbits: The concept of electrons moving around the nucleus in specific paths or energy levels, as proposed by Bohr's model. 3. Bohr's Model: A model of the atom where electrons orbit the nucleus in quantized energy levels, explaining the hydrogen atom's spectral lines. 4. de-Broglie's Explanation of Bohr's Postulate: de-Broglie's wave-particle duality concept explains why electrons can only exist in certain orbits, based on their wavelength and the circumference of the orbit. 5.Line Spectra of Hydrogen: The specific wavelengths of light emitted by hydrogen atoms, characterized by distinct lines, providing evidence for quantized energy levels. 6.Atomic Excitation and De-excitation: When an atom absorbs energy, its electrons move to higher energy levels (excitation). When these

			electrons return to lower levels, they emit energy in the form of light (de-excitation). 7.Atomic Number: The number of protons in the nucleus of an atom, which determines the element's identity. 8.Rydberg Constant: A fundamental constant used in calculating the wavelengths of spectral lines in hydrogen and hydrogen-like atoms.
		Chapter No- 13 Name of the Chapter: Nuclei	1. Nucleus: The central part of an atom where protons and neutrons reside, containing almost all the mass of the atom. 2.Proton: A positively charged subatomic particle present in the nucleus. 3.Neutron: A neutral subatomic particle present in the nucleus. Electron: A negatively charged particle orbiting the nucleus. 4.Atomic number (Z): The number of protons in an atom, which identifies the element. 5.Mass number: The total number of protons and neutrons in an atom. 6.Isotope: Atoms of the same element with a different number of neutrons, hence different mass numbers. 7.Nuclear force: The strong force holding protons and neutrons together in the nucleus. 8.Nuclear fission: The splitting of a heavy nucleus into smaller nuclei, releasing a large amount of energy. 9.Nuclear fusion: The combining of two light nuclei to form a heavier nucleus, releasing energy. 10.Binding energy: The energy required to separate the nucleons in a nucleus. 11.Nuclear density: The high density of the nucleus due to its small size and concentrated mass.
		Chapter No.14 Name of the Chapter: Semiconductor	1.Semiconductor: A material with conductivity between that of a conductor and an insulator, like silicon or germanium. 2.Doping: The process of adding impurities to a semiconductor to alter its conductivity. 3.Intrinsic semiconductor: A pure semiconductor with no added impurities.

	November		4.Extrinsic semiconductor: A semiconductor with added impurities, creating either p-type or n-type semiconductors. 5.P-type semiconductor: A semiconductor doped with trivalent impurities, where "holes" are the majority carriers. 6.N-type semiconductor: A semiconductor doped with pentavalent impurities, where electrons are the majority carriers. 7.P-n junction: The boundary between a p-type and n-type semiconductor, crucial for diode functionality. 8.Diode: A two-terminal semiconductor device that allows current to flow in one direction only. 9.Forward bias: Applying a voltage to a diode in a direction that allows current to flow easily. 10.Reverse bias: Applying a voltage to a diode in a direction that opposes current flow. 11.Breakdown voltage: The voltage at which a reverse-biased diode experiences a sudden large increase in current. 12.Depletion region: A region near the p-n junction where charge carriers are depleted due to diffusion. 13.Majority carrier: The type of charge carrier that is most abundant in a semiconductor (electrons in n-type, holes in p-type). 14.Minority carrier: The less abundant type of charge carrier in a semiconductor. 15.Rectifier: A circuit that converts alternating current (AC) to direct current (DC) using diodes.
		U.T.3 **(21st October)**	Chapter:10 Wave Optics Chapter:11 Dual nature of matter and radiation Chapter:12 Atoms
	December	**Revision & Preboard-1** **(1st December)**	Chapter- 1-14

	January	**Revision & Preboard-2** **(2nd January,2027)**	Chapter: 1-14
	February	Final Exam	
	March	Final Exam	

Chemistry	**April**	Chapter No. 1 Name of the Chapter SOLUTION	1. Solution:A solution is a homogeneous mixture of two or more chemically non-reacting substances. 2. Colligative properties: Colligative properties of solutions are those properties which depend only upon the number of solute particles in the solution and not on their nature. 3. Osmotic pressure (Π) :is the pressure which must be applied to the solution side (more concentrated solution) to just prevent the passage of pure solvent into it through a semipermeable membrane. 4. Van't hoff factor: ' i' is used to express the extent of association or dissociation of solutes in solution. It is ratio of the normal and observed molar masses of the solute 5. Raoult's Law: A law stating that the partial vapor pressure of each volatile component in a solution is equal to the vapor pressure of the pure component multiplied by its mole fraction in the solution. 6. Henry's Law: A law stating that the amount of a gas that dissolves in a liquid is directly proportional to the partial pressure of the gas above the liquid. 7. Concentration of Solutions: This refers to the amount of solute dissolved in a given quantity of solvent or solution. 8. Molality: Molality (m) is defined as the number of moles of the solute per kilogram (kg) of the solvent 9. Dalton's law of partial pressures: it states that the total pressure(ptotal) over the solution phase in the container is the sum of the partial pressures of the components of the solution 10. Isotonic solutions: Two solutions having same osmotic pressure at a given temperature are called isotonic solutions **Activities** **1.Raoult's Law" Comic Strip:** Illustrate a story explaining how a non-volatile solute reduces the number of solvent molecules

			escaping at the surface, using characters to represent molecules. 2.Boiling-point elevation - Boil water and then 1 M NaCl solution; note temperature rise. - Discuss why elevation is smaller to spot than depression. 3.Relative lowering of vapour pressure (demo) - Set up two closed bottles with water vs NaCl solution; humidity sensor strips or qualitative observation over days. - Link to Raoult's law. Worksheet: Write Activity and observation
		Chapter No. 2 Name of the Chapter ELECTROCHEMISTRY	1. Electrochemistry: The branch of chemistry that deals with the interconversion of chemical energy and electrical energy through redox reactions. 2. Redox Reaction: A chemical reaction in which oxidation and reduction occur simultaneously. Oxidation involves the loss of electrons, and reduction involves the gain of electrons. 3. Oxidation: The process in which an atom, ion, or molecule loses electrons. 4. Reduction: The process in which an atom, ion, or molecule gains electrons. 5. Electrode: A conductor through which electric current enters or leaves a substance, such as a metal in an electrochemical cell. 6. Electrolyte: A substance that conducts electricity when dissolved in water or melted. It contains ions that move to the electrodes. 7. Electrochemical Cell: A device that generates electricity through a spontaneous redox reaction. It consists of two electrodes and an electrolyte. 8. Galvanic (Voltaic) Cell: A type of electrochemical cell that generates electrical energy from spontaneous redox reactions. 9. Electrolysis: The process of using electric current to drive a non-spontaneous chemical reaction, such as the decomposition of water into hydrogen and oxygen.

			10. Standard Electrode Potential (E°): The potential of a half-cell relative to the standard hydrogen electrode (SHE) under standard conditions (25°C, 1 M concentration, 1 atm pressure). 11. Half-Cell: A part of an electrochemical cell in which either oxidation or reduction takes place. Each half-cell consists of a metal electrode in a solution of its ions. 12. Cell Potential (Ecell): The potential difference between the two half-cells in an electrochemical cell. It is the driving force for the flow of electrons. 13. Nernst Equation: An equation that relates the electrode potential of a half-cell to the concentration of ions involved in the redox reaction. 14. Faraday's Law of Electrolysis: A law that states that the amount of substance deposited or liberated at an electrode during electrolysis is directly proportional to the quantity of electric charge passed through the electrolyte. 15. Conductance: The ability of a solution to conduct electricity, which depends on the concentration of ions and the mobility of the ions in the solution. **<u>Activities</u>** 1.“Battery” lemon test Insert Zn nail and Cu coin in lemon (don’t touch), connect to cheap LED with wires. Faint glow shows galvanic cell. Try two lemons in series—brighter? Shows EMF addition. 2. Electrolysis mimic Saltwater + baking soda + electrodes (pencil leads) → bubbles (H_2/O_2). Link: water splitting. 3. Corrosion demo Nail in water vs nail in saltwater → rusts faster (salt). Link: cathodic protection. 4. Real-life log List: - Corrosion ($Fe \rightarrow Fe^{2+}$) - Fuel cells (H_2-O_2 redox)

			Write one use each. 5. Worksheet: Activity, observation, equation, item-use
		Chapter No. 3 Name of the Chapter CHEMICAL KINETICS	1. Reaction Rate: The change in concentration of reactants or products per unit time. It indicates how fast or slow a reaction occurs. 2. Order of Reaction: The sum of the exponents of the concentration terms in the rate law expression. It indicates how the rate of reaction is affected by the concentration of reactants. 3. Rate Constant (k): A proportionality constant that relates the rate of reaction to the concentrations of reactants, specific to a particular reaction at a given temperature. 4. Activation Energy (Ea): The minimum energy required for reactants to collide successfully and form products. It represents the energy barrier for a reaction to take place. 5. Collision Theory: A theory that states that for a reaction to occur, reactant particles must collide with sufficient energy and proper orientation. 6. Catalyst: A substance that increases the rate of a chemical reaction by providing an alternative pathway with a lower activation energy, without being consumed in the reaction. 7. Half-Life ($t_{1/2}$): The time required for half of the reactant to be consumed in a reaction. It is often used to study first-order reactions. 8. First-Order Reaction: A reaction whose rate is directly proportional to the concentration of one reactant raised to the first power. 9. Second-Order Reaction: A reaction whose rate is proportional to the square of the concentration of one reactant or to the product of the concentrations of two reactants. 10. Integrated Rate Law: An equation that relates the concentration of reactants to time. It provides a mathematical description of how concentration changes as the reaction proceeds.

			11. Arrhenius Equation: An equation that describes how the rate constant (k) depends on temperature and activation energy. 12. Mechanism of a Reaction: The step-by-step sequence of elementary reactions by which overall chemical change occurs. 13. Elementary Reaction: A reaction that takes place in a single step and involves a simple collision between molecules, atoms, or ions. 14. Molecularity of a Reaction: The number of molecules involved in an elementary reaction. **<u>Activities</u>** Kitchen kinetics Mix equal parts cold water with effervescent vitamin C tablets, repeat with warm water. Time how long fizz audible level lasts. Higher T → faster rate. Record temps with phone sensor or tap water feel (cold/lukewarm/hot).
	May	Chapter No. 6 Name of the Chapter HALO ALKANES AND HALO ARENES	1. Haloalkane: A compound in which one or more halogen atoms (e.g., chlorine, bromine, iodine, or fluorine) are bonded to a carbon atom in an alkane chain. 2. Alkyl Halide: Another name for a haloalkane; refers to an alkane (a saturated hydrocarbon) with one or more halogen atoms attached. 3. Halogen: A group of elements in the periodic table (Fluorine, Chlorine, Bromine, Iodine, and Astatine) that can replace a hydrogen atom in an alkane to form a haloalkane. 4. Nucleophilic Substitution: A chemical reaction in which a nucleophile (electron-rich species) replaces a leaving group (such as a halogen atom) on a carbon atom. 5. Elimination Reaction: A reaction in which a molecule loses atoms or groups (like a halogen and a hydrogen) to form a double bond, usually resulting in an alkene. 6. Primary Haloalkane: A haloalkane in which the halogen is attached to a carbon atom that is bonded to only one other carbon atom.

			7. Secondary Haloalkane: A haloalkane in which the halogen is attached to a carbon atom that is bonded to two other carbon atoms. 8. Tertiary Haloalkane: A haloalkane in which the halogen is attached to a carbon atom that is bonded to three other carbon atoms. 9. Carbon Chain: A chain of carbon atoms in an organic molecule, typically making up the backbone of a haloalkane. 10. Reactivity: The ability of a chemical compound to undergo chemical reactions; in the case of haloalkanes, their reactivity is influenced by factors like the type of halogen and the structure of the carbon chain. 11. Radical Substitution: A reaction mechanism in which radicals (highly reactive atoms or molecules with unpaired electrons) replace a hydrogen atom in an alkane with a halogen atom, often in the presence of light or heat. 12. Wurtz Reaction : A reaction where two alkyl halides (often haloalkanes) react with sodium metal to form a new alkane by coupling the two alkyl groups. Example: 2 CH_3Cl + 2 Na → C_2H_6 (ethane) + 2 NaCl 13. Finkelstein Reaction: A halogen exchange reaction where an alkyl halide reacts with a metal halide (like sodium iodide) to exchange the halogen (e.g., chlorine with iodine). Example: CH_3CH_2Cl + NaI → CH_3CH_2I + NaCl **<u>Activities</u>** 1. SN1/SN2 role-play (living room) Label three chairs: 1° = “crowded door” (one person blocks), 3° = “wide door” (easy). For SN2, send one student walking through: reaches primary door faster (less steric). For SN1 activity, make carbocation-stability posters (3° > 2° > 1°); guess which forms fastest—links to Lucas test. Photo the set up as evidence. 2. Aryl halide “non-reactive” demo Tear 5 paper strips: one = C–Cl single bond (easy rip), second glue 3 strips side-by-side

			(resonance—partial double-bond); try to rip C–Cl—harder. Explain aryl C–Cl shares double-bond character, so less reactive. 3. Real-home connection log Find product labels (PVC pipe = haloalkane polymer, teflon tape, chlorobenzene in adhesives); list 3 items, note C–Cl presence. Write one-line: “aryl halide inert, so PVC doesn’t break down easily”—link to environmental point.
		U.T.1 **(11th May)**	SOLUTION AND ELECTRO CHEMISTRY
	June	**Summer Break**	Project and numericals
	July	Chapter No. 7 Name of the Chapter ALCOHOL PHENOL AND ETHER	1. Alcohol: Organic compounds containing one or more hydroxyl (-OH) groups attached to a saturated carbon atom. Example: Ethanol (CH_3CH_2OH). 2. Phenol: A compound that consists of a hydroxyl group (-OH) bonded to an aromatic ring (benzene). Example: C_6H_5OH (phenol). 3. Ether: Organic compounds where an oxygen atom is bonded to two alkyl or aryl groups. General formula: R-O-R'. Example: Diethyl ether ($CH_3CH_2OCH_2CH_3$). 4. Hydroxyl Group (-OH): A functional group consisting of an oxygen atom bonded to a hydrogen atom, commonly found in alcohols and phenols. 5. Primary Alcohol: Alcohols where the hydroxyl group is attached to a carbon that is connected to only one other carbon atom. Example: Ethanol (CH_3CH_2OH). Secondary Alcohol: Alcohols where the hydroxyl group is attached to a carbon that is connected to two other carbon atoms. Example: Isopropanol ($CH_3CH(OH)CH_3$).

			Tertiary Alcohol: Alcohols where the hydroxyl group is attached to a carbon that is connected to three other carbon atoms. Example: Tert-butyl alcohol ($(CH_3)_3COH$). Aromatic Alcohol: Alcohols in which the hydroxyl group is attached to an aromatic ring. Example: Benzyl alcohol ($C_6H_5CH_2OH$). Ethanol (Ethyl Alcohol): A type of alcohol commonly used in beverages, fuel, and industrial processes. Chemical formula: C_2H_5OH. Phenolic Group: The functional group consisting of a hydroxyl group attached to an aromatic ring. It is found in phenols. 6. Etherification: The process of forming an ether by reacting an alcohol with an alkyl halide or another alcohol, usually in the presence of an acid catalyst. 7. Williamson Ether Synthesis: A method for preparing ethers by reacting an alkoxide ion with an alkyl halide. Example: $CH_3O^- + CH_3CH_2Br \rightarrow CH_3CH_2OCH_3$. 8. Alcohol Dehydration: A chemical reaction where alcohols are converted into alkenes by removing water, typically under acidic conditions. Example: Ethanol → Ethene (C_2H_4) + H_2O. 9. Phenolic Resin: Synthetic polymers made from phenol and formaldehyde, used in a wide range of applications, including adhesives and coatings. 10. Lucas reagent test: Alcohols react with Lucas reagent ($ZnCl_2$ in HCl) to form alkyl chlorides. Tertiary alcohols react immediately, secondary alcohols react slowly, and primary alcohols do not react at all under normal conditions. Application: Used to distinguish between primary, secondary, and tertiary alcohols. **Activities** 1. pH indicator test Use turmeric (curcumin) powder: mix pinch in water → yellow. Add lemon juice (acid), baking soda (base). Note color: red in base (phenolate ion), yellow in acid. Link to phenol acidity. 2. Ester smell demo

			Mix 1 tsp vinegar + 1 tsp cooking oil (fatty acid source), microwave 10 sec. Sniff—faint fruity smell (ester formation). Write equation RCOOH + R'OH → RCOOR'. 3. Lucas test analogy (no $ZnCl_2$) Take 3 cups: water (1°), isopropanol (2°), tert-butanol (3°). Add pinch salt each, stir. Tert-butanol mixes best (H-bonding weakest—steric). Link to Lucas test logic. 4. Real-life log Find 3 items: hand sanitizer (alcohol), neem oil (phenol), vinegar (acetic acid). Write use + solubility (alcohols water-soluble). Worksheet: Activity, observation, principle, item-use. Submit photo + 2-line theory link.

		Chapter No 4 Name of the Chapter D AND F BLOCK ELEMENTS	1. d-block elements: These are elements found in Groups 3 to 12 of the periodic table, characterized by having their outermost electrons in d orbitals. They are also known as transition metals. 2. f-block elements: These elements are found in the lanthanide and actinide series and have their outermost electrons in f orbitals. They are often referred to as inner transition metals. 3. Transition metals: These are elements in the d-block that typically exhibit multiple oxidation states, high melting points, and the ability to form complex compounds. 4. Lanthanides: These are the 15 elements in the f-block from lanthanum (La) to lutetium (Lu). They are also called rare earth elements and are known for their magnetic and optical properties. 5. Actinides: This is the series of f-block elements from actinium (Ac) to lawrencium (Lr), which includes radioactive elements such as uranium and thorium. 6. Oxidation states: The possible charges that an atom can have when it loses or gains electrons. Transition metals often exhibit multiple oxidation states due to the involvement of both their s and d orbitals in bonding. 7. Coordination compounds: Chemical compounds formed when transition metal ions are bonded to one or more ligands (molecules or ions that donate electron pairs to the metal). 8. Ligands: Molecules or ions that donate electron pairs to the metal ion in coordination compounds. 9. Chelation: A process where a ligand forms multiple bonds with a single metal ion, creating a stable ring structure. 10. Magnetic properties: Transition metals often exhibit magnetic behavior due to the presence of unpaired electrons in their d orbitals, leading to different types of magnetism, such as paramagnetism and ferromagnetism. 11. Complex ion: A charged species consisting of a central metal atom or ion bonded to one or

			more ligands. These are commonly formed by transition metals. 12. Lanthanide contraction: The gradual decrease in the size of the lanthanide ions as the atomic number increases, caused by the poor shielding of the nuclear charge by the 4f electrons. 13. Actinide contraction: Similar to the lanthanide contraction, this refers to the decrease in size of actinide ions as the atomic number increases, influenced by the poor shielding effect of the 5f electrons. 14. Alloy: A mixture of a metal with other elements, often another metal, to enhance properties such as strength, durability, or resistance to corrosion. Many transition metals are commonly used to form alloys. **<u>Activities</u>** 1. Color logic – coin demo Take a copper vessel/bottle and a 10-rupee coin. Rub coin with kashmiri mirch (turmeric) paste—stays yellow. Now dip coin in lemon juice (acidic)—turns red (Cu^{2+} complex). Link to transition metal color (d-d). 2. $KMnO_4$-like redox mimic Mix 1 tsp baking soda + 1 tsp lemon juice → bubbles (oxidation). Add a drop of food color (e.g., blue gulal)—fades fast (like $KMnO_4$ oxidising). Write: MnO_4^- acts as oxidant. 3 Real-life log List 2 items: - d-block: stainless steel (Fe/Cr/Ni), coins (Cu/Ni) - f-block: Ce in lighter flints Write one use each. Worksheet: Activity, observation, theory hint, item-use. 2 lines on why d/f metals are coloured.
		U.T. 2 **(10thJuly)**	1. Chemical kinetics 2. HaloAlkanes and haloarenes

	August	Chapter No 5. Name of the Chapter COORDINATION COMPOUNDS	1. Coordination Compound:A compound containing a central metal atom or ion bonded to surrounding ligands via coordinate covalent bonds. 2. Ligand: An atom, ion, or molecule that donates a pair of electrons to the central metal atom or ion to form a coordinate bond. 3. Coordination Number: The number of coordinate bonds formed between the central metal ion and the ligands in a coordination compound. 4. Central Metal Ion: The metal atom or ion in a coordination compound that is bonded to the surrounding ligands. 5. Coordinate Bond:A type of covalent bond where both electrons in the bond come from the same atom, usually the ligand. 6. Chelating Ligand: A ligand that forms multiple bonds with a central metal ion through more than one donor atom. Examples include ethylenediamine and oxalate ion. 7. Monodentate Ligand: A ligand that forms only one bond with the central metal ion, donating one pair of electrons. Example: Cl^-, NH_3. 8. Bidentate Ligand: A ligand that can form two bonds with the central metal ion, donating two pairs of electrons. Example: ethylenediamine (en). 9. Polydentate Ligand: A ligand that can form multiple bonds with the central metal ion, donating more than two pairs of electrons. Example: $EDTA^{4-}$. 10. Transition Metal: A metal that has an incomplete d subshell or can form cations with an incomplete d subshell. Transition metals are commonly found as central metal ions in coordination compounds. 11. Oxidation State: The charge of a metal ion in a coordination compound, determined by the charge of the ligands and the number of bonds formed. 12. Coordination Sphere: The central metal ion along with the ligands directly bonded to it in a coordination compound.

			13. Isomerism: The occurrence of two or more compounds with the same formula but different arrangements of atoms or ions. In coordination chemistry, this can be structural or stereoisomerism. 14. Crystal Field Theory (CFT): A theory that describes the interaction between ligands and the metal ion in terms of the electrostatic attraction between the central metal ion and the surrounding ligands. 15. Ligand Field Theory (LFT): An extension of crystal field theory that also considers the effects of ligand-electron interactions and molecular orbitals, providing a more detailed explanation of bonding in coordination compounds. **<u>Activities</u>** 1.*Coordination color demo* $CuSO_4$ may not be home—but turmeric solution changes color with baking soda (ligand effect). Discuss ligand-metal color; simpler: tea color changes with lemon (pH) as proxy for complex color shifts. 2. Hard water demo Mix soap + hard water (Mg^{2+}/Ca^{2+}) → less lather. Link: [Mg/soap] complex reduces free soap. 3. Real-life log List 2 items: - Chlorophyll (Mg^{2+} complex) - Hemoglobin (Fe^{2+} heme) Write one use each. 4.*Coordination color demo* $CuSO_4$ may not be home—but turmeric solution changes color with baking soda (ligand effect). Discuss ligand-metal color; simpler: tea color changes with lemon (pH) as proxy for complex color shifts. Write the Activity and Observation
		Chapter No 8	1. Alcohol: Organic compounds containing one or more hydroxyl (-OH) groups attached to a saturated carbon atom. Example: Ethanol (CH_3CH_2OH).

		Name of the Chapter ALCOHOL PHENOL AND ETHER	2. Phenol: A compound that consists of a hydroxyl group (-OH) bonded to an aromatic ring (benzene). Example: C_6H_5OH (phenol). 3. Ether: Organic compounds where an oxygen atom is bonded to two alkyl or aryl groups. General formula: R-O-R'. Example: Diethyl ether ($CH_3CH_2OCH_2CH_3$). 4. Hydroxyl Group (-OH): A functional group consisting of an oxygen atom bonded to a hydrogen atom, commonly found in alcohols and phenols. 5. Primary Alcohol: Alcohols where the hydroxyl group is attached to a carbon that is connected to only one other carbon atom. Example: Ethanol (CH_3CH_2OH). Secondary Alcohol: Alcohols where the hydroxyl group is attached to a carbon that is connected to two other carbon atoms. Example: Isopropanol ($CH_3CH(OH)CH_3$). Tertiary Alcohol: Alcohols where the hydroxyl group is attached to a carbon that is connected to three other carbon atoms. Example: Tert-butyl alcohol ($(CH_3)_3COH$). Aromatic Alcohol: Alcohols in which the hydroxyl group is attached to an aromatic ring. Example: Benzyl alcohol ($C_6H_5CH_2OH$). Ethanol (Ethyl Alcohol): A type of alcohol commonly used in beverages, fuel, and industrial processes. Chemical formula: C_2H_5OH. Phenolic Group: The functional group consisting of a hydroxyl group attached to an aromatic ring. It is found in phenols. 6. Etherification: The process of forming an ether by reacting an alcohol with an alkyl halide or another alcohol, usually in the presence of an acid catalyst. 7. Williamson Ether Synthesis: A method for preparing ethers by reacting an alkoxide ion with an alkyl halide. Example: $CH_3O^- + CH_3CH_2Br \rightarrow CH_3CH_2OCH_3$. 8. Ethanolamine: A chemical compound containing both an alcohol and an amine group. It is often used in personal care products and cleaning agents.

			9. Alcohol Dehydration: A chemical reaction where alcohols are converted into alkenes by removing water, typically under acidic conditions. Example: Ethanol → Ethene (C_2H_4) + H_2O. 10. Phenolic Resin: Synthetic polymers made from phenol and formaldehyde, used in a wide range of applications, including adhesives and coatings. 11. Lucas reagent test: Alcohols react with Lucas reagent ($ZnCl_2$ in HCl) to form alkyl chlorides. Tertiary alcohols react immediately, secondary alcohols react slowly, and primary alcohols do not react at all under normal conditions. Application: Used to distinguish between primary, secondary, and tertiary alcohols. **Activities** 1. pH indicator Turmeric + water → yellow. Add soap (basic) → red (phenolate ion). Link: phenols acidic. 2. Ester sniff Vinegar + cooking oil, microwave 10 sec → fruity smell (ester). Link: alcohol + acid → ester. 3. Solubility play Sugar (polar) vs oil (nonpolar) in water. Link: alcohols water-soluble via H-bonds. 4. Real-life log List items: - Hand sanitizer (alcohol) - Neem oil (phenol) Write one use each. Worksheet: Activity, observation, item-use.
		Half Yearly Syllabus	Chapter no 1,2,3,4,5,6,
	September	**Half Yearly Exam** **8th September**	

	October	Chapter No. 9 Name of the Chapter ALDEHYDE KETONE AND CARBOXYLIC ACIDS	1. Carbonyl Group (C=O): A functional group consisting of a carbon atom double-bonded to an oxygen atom (C=O), found in aldehydes, ketones, and carboxylic acids. 2. Nucleophilic Addition: A type of chemical reaction where a nucleophile (an electron-rich species) attacks an electrophilic carbonyl carbon, leading to the formation of a new bond. 3. OxidationThe process in which a molecule loses electrons, often resulting in an increase in the number of bonds to oxygen or a decrease in the number of bonds to hydrogen. 4. Reduction: A chemical reaction in which a molecule gains electrons, typically leading to a decrease in the number of bonds to oxygen or an increase in bonds to hydrogen. 5. Esterification: A chemical reaction between a carboxylic acid and an alcohol that produces an ester and water. 6. Acid-Base Reactions: Reactions where a proton (H^+) is transferred between a donor (acid) and a recipient (base). 7. Aldol Condensation: A reaction where an aldehyde or ketone undergoes nucleophilic addition with another molecule of aldehyde or ketone, followed by dehydration to form α,β-unsaturated carbonyl compounds. 8. Grignard Reagent: A type of organomagnesium compound, often written as RMgX, where R is an alkyl or aryl group and X is a halide. 9. Acidity of Carboxylic Acids: Carboxylic acids are weak acids, meaning they can donate a proton (H^+) to form a carboxylate ion ($RCOO^-$). 10. Tautomerism: A type of isomerism where two isomers (tautomers) can rapidly interconvert, typically involving the migration of a hydrogen atom and the shifting of a double bond. 11. Electrophilicity: The tendency of a molecule to accept electrons, often at the carbonyl carbon in aldehydes and ketones. 12. Decarboxylation: The loss of a carboxyl group (-COOH) from a carboxylic acid, usually as carbon dioxide (CO_2).

			13.Acyl Group: A functional group derived from a carboxylic acid by removal of the hydroxyl group (-OH), typically represented as R-CO-. Aromaticity: A property of certain cyclic compounds where the electrons are delocalized over the ring structure, making the molecule more stable. **<u>Activities</u>** 1. pH showdown Mix 1 tsp vinegar (acetic acid) + 1 tsp baking soda → fizz. Test pH with turmeric (red in base, yellow in acid). Link to COOH → H^+ release. 2. Ester sniff Mix 1 tsp vinegar + 1 tsp cooking oil, microwave 10 sec. Sniff—fruity smell (ester). Write: $CH_3COOH + ROH \rightarrow CH_3COOR$. 3. Soap logic Mix oil + water → don't mix. Add 1 tsp vinegar + pinch baking soda, shake—emulsion forms. Link to soap ($R\text{-}COO^-$) emulsifying. 4. Real-life log Find 3 items: vinegar (pickling), soap (cleaning), citrus fruits (ascorbic acid). Note acidity use. Worksheet: Activity, observation, equation, item-use.
		Chapter No 10 Name of the Chapter BIOMOLECULES	1. Biomolecule:A molecule that is involved in the structure, function, and regulation of living organisms. Biomolecules include proteins, nucleic acids, lipids, and carbohydrates. 2. Proteins: Large, complex molecules made up of amino acids. They perform a variety of functions within organisms, including catalyzing biochemical reactions (enzymes), providing structure, and regulating cellular processes. 3. Amino Acids: The building blocks of proteins. There are 20 standard amino acids, each with a specific side chain, and their sequence determines the structure and function of a protein. 4. Enzymes: Proteins that act as biological catalysts, speeding up chemical reactions without being consumed in the process.

			5. Nucleic Acids: Biomolecules that store and transmit genetic information. There are two main types: DNA (Deoxyribonucleic Acid) and RNA (Ribonucleic Acid). 6. DNA (Deoxyribonucleic Acid): A molecule that carries the genetic instructions used in the growth, development, functioning, and reproduction of organisms. DNA is a double-stranded helix made up of nucleotides. 7. RNA (Ribonucleic Acid): A single-stranded molecule involved in protein synthesis and gene regulation. Types of RNA include messenger RNA (mRNA), transfer RNA (tRNA), and ribosomal RNA (rRNA). 8. Carbohydrates: Organic compounds made up of carbon, hydrogen, and oxygen. They are a primary energy source and are involved in cellular recognition and structure. 9. Monosaccharides: The simplest form of carbohydrates, consisting of a single sugar molecule (e.g., glucose, fructose). They are the building blocks of more complex carbohydrates. 10. Polysaccharides: Long chains of monosaccharides linked together. Examples include starch, glycogen, and cellulose. 11. Peptide Bonds: The covalent bond formed between two amino acids, linking them together in a protein chain. 12. Gene: A segment of DNA that encodes information for the synthesis of a protein or RNA molecule. 13. Hydrogen Bond: A weak bond between two molecules due to an electrostatic attraction between a hydrogen atom and an electronegative atom (such as oxygen or nitrogen). Activities 1. Starch check Add 2 drops iodine (from first aid) to rice/potato slice → blue-black. Link to starch-I_2 complex. 2. Protein color show soaked gram (protein source) + 1 tsp baking soda + few drops $CuSO_4$ (if available) → purple (biuret test). Else, just note gram dal (protein-rich).

			3. Sugar test Benedict's logic: mix 1 tsp sugar + 1 tsp baking soda in water, boil → no change (needs Cu^{2+}). Or just chew rice (starch → maltose = carbs). 4. Real-life log List foods: rice (carb), dal (protein), ghee (lipid). Note function (energy, build, store). Worksheet: Test, food item, color/observation, biomolecule
	November	Chapter No. Name of the Chapter AMINES	1. Amines: Organic compounds that contain nitrogen atoms bonded to one or more alkyl or aryl groups (e.g., methylamine, aniline). 2. Primary Amine: An amine where the nitrogen atom is attached to one alkyl or aryl group (e.g., methylamine, CH_3NH_2). 3. Secondary Amine: An amine where the nitrogen atom is attached to two alkyl or aryl groups (e.g., dimethylamine, CH_3NHCH_3). 4. Tertiary Amine: An amine where the nitrogen atom is attached to three alkyl or aryl groups (e.g., trimethylamine, $N(CH_3)_3$). 5. Aromatic Amine: An amine in which the nitrogen is attached to an aromatic ring (e.g., aniline, $C_6H_5NH_2$).Gabriel Synthesis: A method to synthesize primary amines by reacting phthalimide with an alkyl halide, followed by hydrolysis. 6. Hofmann Ammonolysis: A reaction where an amide is converted to a primary amine by reacting with bromine and an alkali, with the loss of a carbon atom. 7. Diazotization: A reaction where an aromatic amine reacts with nitrous acid to form a diazonium salt, which can then undergo further reactions, such as coupling with other compounds to form azo dyes. 8. Amine Acylation (Schotten-Baumann Reaction): The reaction of an amine with an acyl chloride or anhydride to form an amide. 9. Benzylamine Synthesis (Mannich Reaction): A three-component reaction where an

			amine, formaldehyde, and a carbonyl compound (usually a ketone or aldehyde) react to form β-amino ketones or aldehydes. 10. Sandmeyer Reaction: A reaction where an aromatic diazonium salt reacts with copper(I) chloride, bromide, or cyanide to replace the diazonium group with a halide or nitrile group. Activities 1. Basic sniff Mix 1 tsp baking soda (base) + water → slippery feel. Compare to soap (amine-like basic feel). Link: amines basic like NH_3. 2. Smell test Sniff fresh fish (amines = rotten fish smell) vs vinegar (acid). Link: low MW amines pungent; food spoilage. 3. pH logic Turmeric + lemon juice → yellow; add baking soda → red. Link: amines turn turmeric red (like bases). 4. Real-life log List items: - Medicines (e.g., paracetamol has amine) - Food (cheese = amino acids) Write one use. Worksheet: Activity, observation, theory hint, item-use.
		U.T.3 **(21st October)**	Chapter 9 Aldehyde ketone and carboxylic acids
	December	**Revision & Preboard-1**	**(1st December)** **Complete syllabus**
	January	**Preboard-2**	**(2nd January,2027)** Complete syllabus

	February	Final Exam	
	March	Final Exam	
Biology	**April**	**Chapter : 1, Reproduction in Flowering Plants**	**Modes of Reproduction** ● **Asexual Reproduction** – Reproduction without gamete formation (e.g., vegetative propagation). ● **Sexual Reproduction** – Involves the fusion of male and female gametes. **2. Flower Structure and Functions** ● **Flower** – The reproductive organ of angiosperms. ● **Androecium** – The male reproductive whorl, consisting of stamens. ● **Gynoecium** – The female reproductive whorl, consisting of carpels. ● **Stamen** – Male reproductive unit, containing anther and filament. ● **Anther** – Produces pollen grains, contains microsporangia. ● **Carpel (Pistil)** – Female reproductive organ; consists of stigma, style, and ovary. ● **Ovary** – Enlarged basal part of pistil, contains ovules. ● **Ovule** – Female gametophyte (megasporangium) where embryo sac develops. **3. Microsporogenesis and Male Gametophyte** ● **Microsporogenesis** – Formation of microspores (pollen grains) from microspore mother cells. ● **Pollen Grain** – The male gametophyte, carries sperm cells. ● **Pollen Tube** – Tube formed by pollen grain to deliver sperm to the ovule. **4. Megasporogenesis and Female Gametophyte** ● **Megasporogenesis** – Formation of megaspore from megaspore mother cell in ovule. ● **Embryo Sac** – The female gametophyte inside the ovule, contains egg cell. ● **Synergids** – Two cells near the egg cell, help guide the pollen tube.

			● **Antipodal Cells** – Three cells at the opposite end of the embryo sac. ● **Polar Nuclei** – Two nuclei in the central cell, fuse with sperm to form endosperm. **5. Pollination** ● **Pollination** – Transfer of pollen from anther to stigma. ● **Self-Pollination (Autogamy)** – Transfer of pollen within the same flower or plant. ● **Cross-Pollination (Allogamy)** – Transfer of pollen between different flowers. ● **Agents of Pollination** – Wind (Anemophily), Water (Hydrophily), Insects (Entomophily), Birds (Ornithophily). **6. Fertilization and Post-Fertilization Changes** ● **Double Fertilization** – Unique to angiosperms; one sperm fuses with egg to form zygote, another fuses with polar nuclei to form triploid endosperm. ● **Zygote** – Fertilized egg cell that develops into an embryo. ● **Endosperm** – Nutritive tissue supporting embryo development. **7. Seed and Fruit Formation** ● **Seed** – Developed ovule containing embryo and stored food. ● **Fruit** – Developed ovary that protects and disperses seeds. ● **Parthenocarpy** – Formation of fruit without fertilization (e.g., banana). **8. Seed Germination** ● **Dormancy** – Period of metabolic inactivity in seeds. ● **Germination** – Process where seed develops into a new plant.
		Chapter -2, "Reproduction in Humans"	**Human Reproductive System** **Testes** – Male gonads that produce sperm and testosterone. **Scrotum** – Sac that holds the testes and maintains a lower temperature for sperm production. **Epididymis** – Site of sperm maturation and storage. **Vas Deferens** – Tube that transports sperm from the epididymis to the urethra. **Seminal Vesicles** – Glands that secrete seminal fluid rich in fructose for sperm nourishment.

			Prostate Gland – Produces alkaline fluid that neutralizes vaginal acidity. **Bulbourethral Glands (Cowper's Glands)** – Secrete mucus to lubricate the urethra. **Ovaries** – Female gonads that produce ova (eggs) and hormones like estrogen and progesterone. **Fallopian Tubes (Oviducts)** – Tubes where fertilization occurs. **Uterus** – Site of embryo implantation and fetal development. **Endometrium** – Inner lining of the uterus that undergoes cyclic changes. **Cervix** – Lower part of the uterus that opens into the vagina. **Vagina** – Female copulatory organ and birth canal. 2. **Gametogenesis** Spermatogenesis – Formation of sperm in the testes. Spermatogonia – Diploid precursor cells that divide to form sperm. ● Primary Spermatocyte – Undergoes meiosis I to form two secondary spermatocytes. ● Secondary Spermatocyte – Undergoes meiosis II to form spermatids. ● Spermiogenesis – Transformation of spermatids into spermatozoa (sperm). ● Spermiation – Release of mature sperm from Sertoli cells. ● Oogenesis – Formation of ova (eggs) in the ovaries. ● Primary Oocyte – Diploid cell arrested in prophase I at birth. ● Secondary Oocyte – Haploid cell released during ovulation and arrested in metaphase II. 3. **Menstrual Cycle** ● Follicular Phase – Growth of follicles under FSH influence; estrogen secretion. ● Ovulation – Release of a secondary oocyte due to LH surge. ● Luteal Phase – Corpus luteum formation; secretion of progesterone. ● Menstruation – Shedding of the endometrial lining if fertilization does not occur. 4. **Fertilization and Implantation** ● Capacitation – Maturation of sperm in the female reproductive tract.

			● Acrosome Reaction – Release of enzymes from the sperm head to penetrate the egg. ● Zygote – Fertilized egg (diploid cell). ● Cleavage – Rapid mitotic divisions of the zygote. ● Blastocyst – Hollow structure that implants into the uterus. ● Implantation – Attachment of the blastocyst to the endometrium. 5. **Pregnancy and Embryonic Development** ● Gestation – Period of fetal development (9 months in humans). ● Placenta – Temporary organ for nutrient and gas exchange between mother and fetus. ● Amniotic Fluid – Fluid that protects the fetus. ● Chorionic Villi – Finger-like projections of the placenta for exchange of nutrients. 6. **Parturition and Lactation** ● Parturition – Process of childbirth. ● Oxytocin – Hormone that induces uterine contractions. ● Lactation – Production of milk by mammary glands. ● Colostrum – First milk rich in antibodies.
		CH- 3; Reproductive Health	1. Reproductive Health – A state of physical, emotional, behavioral, and social well-being in all aspects related to reproduction. 2. Reproductive Health Problems – Issues related to reproductive organs, fertility, sexually transmitted infections (STIs), maternal health, etc. 3. Family Planning – The practice of controlling the number and timing of childbirth through contraceptive methods. 4. Contraception – Methods used to prevent unwanted pregnancies. Types include: ● Natural Methods – Rhythm method, withdrawal method. ● Barrier Methods – Condoms, diaphragms, cervical caps. ● Hormonal Methods – Oral pills, injectables, implants. ● Intrauterine Devices (IUDs) – Copper-T, LNG-IUS. ● Surgical Methods – Vasectomy (males), Tubectomy (females).

			5. Medical Termination of Pregnancy (MTP) – The deliberate termination of pregnancy before the fetus becomes viable. 6. Infertility – The inability of a couple to conceive after one year of unprotected intercourse. 7. Assisted Reproductive Technologies (ART) – Techniques to help infertile couples conceive, such as: ● In Vitro Fertilization (IVF) – Fertilization outside the body (test tube baby). ● Gamete Intrafallopian Transfer (GIFT) – Transfer of gametes into the fallopian tube. ● Intracytoplasmic Sperm Injection (ICSI) – Direct injection of sperm into the egg. ● Surrogacy – A woman carries a child for another couple. 8. Sexually Transmitted Infections (STIs) – Diseases transmitted through sexual contact, such as: ● Gonorrhea ,Syphilis, Chlamydia, Genital herpes, HIV/AIDS 9. Amniocentesis – A prenatal diagnostic test that detects chromosomal abnormalities in the fetus by analyzing amniotic fluid. 10. Maternal and Child Health Care – Measures taken to ensure the health of mothers and newborns, including prenatal and postnatal care.
	May	**Chapter: 4; Principles of Inheritance and Variation**	**Inheritance & Variation** ● **Heredity** – Transmission of genetic traits from parents to offspring. ● **Variation** – Differences in traits among individuals of a species. ● **Genetics** – Study of inheritance and variation of traits. **2. Mendelian Inheritance** ● **Gene** – Basic unit of inheritance; a segment of DNA coding for a protein. ● **Allele** – Alternative forms of a gene (e.g., tall and dwarf for height in pea plants). ● **Dominant allele** – Expressed in heterozygous condition (e.g., T in Tt). ● **Recessive allele** – Expressed only in homozygous condition (e.g., tt). ● **Homozygous** – Having two identical alleles (TT or tt).

			● **Heterozygous** – Having two different alleles (Tt). ● **Genotype** – Genetic constitution of an organism (e.g., TT, Tt, tt). ● **Phenotype** – Physical appearance of an organism (e.g., tall or dwarf). ● **Monohybrid cross** – Cross involving a single trait (e.g., height in pea plants). ● **Dihybrid cross** – Cross involving two traits (e.g., seed color and seed shape). ● **Law of Dominance** – One allele masks the effect of another in a heterozygote. ● **Law of Segregation** – Alleles separate during gamete formation, each gamete gets one allele. ● **Law of Independent Assortment** – Different traits assort independently during gamete formation. **3. Deviations from Mendelian Ratios** ● **Incomplete Dominance** – Intermediate phenotype in heterozygotes (e.g., red, pink, and white flowers in Mirabilis). ● **Co-dominance** – Both alleles are equally expressed (e.g., ABO blood group system). ● **Multiple Allelism** – More than two alleles exist for a trait (e.g., ABO blood group). ● **Pleiotropy** – A single gene influences multiple traits (e.g., sickle cell anemia). **4. Chromosomal Theory of Inheritance** ● **Chromosome** – Thread-like structures in the nucleus carrying genes. ● **Linkage** – Genes located close together on the same chromosome are inherited together. ● **Recombination** – Exchange of genetic material between homologous chromosomes during meiosis. ● **Crossing Over** – Process in meiosis where homologous chromosomes exchange genetic material. **5. Sex Determination & Sex-Linked Inheritance** ● **Sex Chromosomes** – Chromosomes that determine sex (XX in females, XY in males). ● **Autosomes** – Non-sex chromosomes.

			● **Sex-Linked Traits** – Traits controlled by genes on sex chromosomes (e.g., color blindness, hemophilia). ● **X-linked Inheritance** – Genes present on the X chromosome (e.g., hemophilia, Duchenne muscular dystrophy). **6. Genetic Disorders** ● **Mendelian Disorders** – Caused by mutations in a single gene (e.g., sickle cell anemia, cystic fibrosis, hemophilia). ● **Chromosomal Disorders** – Caused by abnormalities in chromosome number or structure (e.g., Down syndrome, Turner syndrome, Klinefelter syndrome). ● **Aneuploidy** – Abnormal number of chromosomes (e.g., trisomy 21 in Down syndrome). ● **Polyploidy** – Presence of extra sets of chromosomes (common in plants).
		U.T.1 **(11th May)**	CH-1,CH-2
	June	**Summer Break**	
	July	**Chapter -5 ;"Molecular Basis of Inheritance"**	**1. DNA and RNA Structure** ● **Nucleotide** – The basic unit of nucleic acids (DNA & RNA), consisting of a sugar, phosphate, and nitrogenous base. ● **Nitrogenous Bases** – Adenine (A), Thymine (T), Cytosine (C), Guanine (G) in DNA; Uracil (U) replaces Thymine in RNA. ● **Deoxyribonucleic Acid (DNA)** – A double-stranded genetic material that carries hereditary information. ● **Ribonucleic Acid (RNA)** – A single-stranded nucleic acid involved in protein synthesis. ● **Complementary Base Pairing** – Adenine pairs with Thymine (A=T), Cytosine pairs with Guanine (C≡G) in DNA. **2. DNA Replication** ● **Semi-conservative Replication** – Each new DNA molecule consists of one old strand and one new strand.

			● **DNA Polymerase** – An enzyme that synthesizes new DNA strands by adding nucleotides. ● **Helicase** – Enzyme that unwinds the DNA helix. ● **Ligase** – Enzyme that joins Okazaki fragments in the lagging strand. ● **Leading and Lagging Strand** – The leading strand is synthesized continuously, while the lagging strand is synthesized in fragments (Okazaki fragments). **3. Central Dogma of Molecular Biology** ● **Replication** – Copying of DNA to form new DNA molecules. ● **Transcription** – Formation of RNA from a DNA template. ● **Translation** – Synthesis of proteins from mRNA. **4. Types of RNA** ● **mRNA (Messenger RNA)** – Carries genetic code from DNA to ribosomes. ● **tRNA (Transfer RNA)** – Brings amino acids to ribosomes during translation. ● **rRNA (Ribosomal RNA)** – Forms part of ribosomes and helps in protein synthesis. **5. Gene Expression and Regulation** ● **Operon Model** – A gene regulation system in prokaryotes, e.g., Lac Operon. ● **Promoter** – A DNA sequence where RNA polymerase binds to initiate transcription. ● **Operator** – A regulatory sequence that controls gene expression. ● **Repressor** – A protein that inhibits gene transcription. **6. Genetic Code** ● **Codon** – A sequence of three nucleotides that codes for an amino acid. ● **Start Codon** – AUG (Methionine) initiates protein synthesis. ● **Stop Codons** – UAA, UAG, UGA terminate translation. ● **Degeneracy** – More than one codon can code for the same amino acid. **7. Mutations and Genetic Disorders** ● **Mutation** – A change in DNA sequence.

			● **Point Mutation** – Change in a single nucleotide (e.g., Sickle Cell Anemia). ● **Frameshift Mutation** – Insertion or deletion of nucleotides that shifts the reading frame. **8. DNA Fingerprinting and Biotechnology** ● **Restriction Enzymes** – Enzymes that cut DNA at specific sequences. ● **Gel Electrophoresis** – A technique to separate DNA fragments based on size. ● **Polymerase Chain Reaction (PCR)** – A technique to amplify DNA.
		Chapter: 6 Evolution	Evolution – The gradual change in inherited traits of a population over generations. 2. Lamarckism – Theory of inheritance of acquired characteristics proposed by Jean-Baptiste Lamarck. 3. Darwinism – Theory of natural selection proposed by Charles Darwin, explaining survival of the fittest. 4. Natural Selection – The process where individuals with favorable traits survive and reproduce. 5. Speciation – The formation of new species from existing ones due to genetic variations and isolation. 6. Adaptive Radiation – Evolution of different species from a common ancestor due to adaptation to different environments (e.g., Darwin's finches). 7. Genetic Drift – Random changes in allele frequencies in small populations, leading to evolutionary changes. 8. Founder Effect – Genetic variation in a new population formed by a few individuals from a larger population. 9. Bottleneck Effect – Sharp reduction in population size due to natural disasters or other factors, reducing genetic diversity. 10. Hardy-Weinberg Principle – Mathematical model stating that allele frequencies remain constant in a population unless disturbed by evolutionary forces. 11. Mutation – Sudden heritable change in the DNA sequence, contributing to evolution. 12. Gene Flow – Movement of genes between populations through migration. 13. Fossil – Preserved remains or traces of organisms from the past, providing evidence for evolution.

			14. Transitional Fossils – Fossils showing intermediate characteristics between ancestral and derived species (e.g., Archaeopteryx). 15. Comparative Anatomy – Study of structural similarities and differences among organisms to understand evolutionary relationships. 16. Homologous Structures – Structures with similar origin but different functions, indicating divergent evolution (e.g., forelimbs of vertebrates). 17. Analogous Structures – Structures with different origins but similar functions, indicating convergent evolution (e.g., wings of birds and insects). 18. Vestigial Organs – Functionless or reduced structures that were functional in ancestors (e.g., human appendix). 19. Embryological Evidence – Similarities in embryonic development across species, indicating common ancestry. 20. Molecular Evolution – Study of evolutionary changes at the genetic and protein levels to determine relationships among species.
		U.T. 2 **(10thJuly)**	CH-3, CH-4
	August	**Chapter -7; "Human Health and Diseases"**	1. Health and Disease ● Health – A state of complete physical, mental, and social well-being. ● Disease – Any deviation from the normal physiological state that affects the body's functions. ● Pathogen – Disease-causing microorganisms like bacteria, viruses, fungi, and protozoa. ● Infectious Disease – Diseases caused by pathogens and can spread from one person to another. ● Non-infectious Disease – Diseases that are not caused by pathogens and do not spread (e.g., cancer, diabetes). 2. Common Diseases in Humans ● Bacterial Diseases – Tuberculosis (TB), Typhoid, Pneumonia, Cholera ● Viral Diseases – Common cold, Dengue, Chikungunya, Hepatitis, AIDS ● Protozoan Diseases – Malaria (Plasmodium), Amoebiasis

			● Fungal Diseases – Ringworm ● Helminthic Disease – Ascariasis, Filariasis 3. Immunity and Immune System ● Immunity – The body's ability to resist diseases. ● Innate Immunity – Non-specific defense present from birth. ● Acquired Immunity – Immunity developed during life, specific to pathogens. ● Active Immunity – Immunity developed after infection or vaccination. ● Passive Immunity – Immunity obtained through ready-made antibodies (e.g., mother's milk, anti-toxin injections). ● Antigen – Foreign substances that trigger an immune response. ● Antibody – Proteins produced by B-cells to neutralize antigens. ● Lymphoid Organs – Primary (Bone marrow, Thymus) and Secondary (Lymph nodes, Spleen, Tonsils). ● Vaccination – Introduction of a weakened or dead pathogen to stimulate immunity. 4. AIDS (Acquired Immunodeficiency Syndrome) ● HIV (Human Immunodeficiency Virus) – The virus causing AIDS. ● Transmission – Sexual contact, blood transfusion, shared needles, mother to child. ● Symptoms – Weak immune system, weight loss, fever, infections. ● Prevention – Safe sex, sterile needles, screened blood transfusion. 5. Cancer ● Tumor – Abnormal mass of cells; can be benign (non-cancerous) or malignant (cancerous). ● Oncogenes – Genes that cause cancer. ● Carcinogens – Cancer-causing agents (chemicals, radiation, viruses). ● Metastasis – The spread of cancer cells from one part of the body to another. ● Treatment – Surgery, Chemotherapy, Radiation therapy. 6. Drug Abuse

			● Addiction – Physical or psychological dependence on drugs. ● Depressants – Drugs that slow down brain function (e.g., alcohol, sleeping pills). ● Stimulants – Drugs that increase alertness and energy (e.g., cocaine, amphetamines). ● Hallucinogens – Drugs that alter perception and mood (e.g., LSD, marijuana). ● Opioids – Pain-relieving drugs that can be addictive (e.g., morphine, heroin). ● Rehabilitation – Treatment and recovery from drug addiction.
		Chapter- 8; Microbes in Human Welfare	Microbes and Their Roles ● Microorganisms – Tiny living organisms like bacteria, fungi, protozoa, and viruses. ● Fermentation – The process by which microbes convert sugars into alcohol, acids, or gases. ● Antibiotics – Chemicals produced by microbes to kill or inhibit the growth of other microbes (e.g., Penicillin from *Penicillium notatum*). 2. Microbes in Household Products ● Lactic Acid Bacteria (LAB) – Bacteria like *Lactobacillus* used in curd production. ● Fermenting Yeast – *Saccharomyces cerevisiae* used in baking and alcohol production. 3. Microbes in Industrial Products ● Fermentors – Large vessels used for large-scale microbial cultures. ● Citric Acid – Produced by *Aspergillus niger*. ● Ethanol – Produced by *Saccharomyces cerevisiae*. ● Lipases & Proteases – Used in detergents and leather industries. 4. Microbes in Sewage Treatment ● Primary Treatment – Physical removal of solids. ● Secondary Treatment – Biological degradation of organic matter using microbes. ● Activated Sludge – Microbial-rich sludge used to break down organic waste.

			● Biogas – Methane-rich gas produced by anaerobic microbes like *Methanobacterium*. 5. Microbes in Biogas Production ● Anaerobic Digestion – Breakdown of organic waste in the absence of oxygen. ● Methanogens – Bacteria like *Methanobacterium* that produce methane. 6. Microbes as Biocontrol Agents ● Biopesticides – Microbial-based pest control agents. ● Bacillus thuringiensis (Bt) – Produces Bt toxin to kill insect larvae. ● Trichoderma – A fungus used for controlling plant pathogens. 7. Microbes in Biofertilizers ● Rhizobium – Nitrogen-fixing bacteria in legume root nodules. ● Azotobacter & Azospirillum – Free-living nitrogen-fixing bacteria. ● Cyanobacteria (Blue-Green Algae) – *Anabaena* and *Nostoc* fix atmospheric nitrogen.
		Half Yearly Syllabus	**CH-1 To CH-8**
	September	**Half Yearly Exam** **8th September**	Revision & Half Yearly Exams
	October	Chapter – 9; "Biotechnology – Principles and Processes"	1. Biotechnology – The use of living organisms, cells, or enzymes for industrial or commercial purposes, such as genetic engineering and fermentation. 2. Genetic Engineering – A branch of biotechnology that involves the direct manipulation of an organism's DNA to introduce desirable traits. 3. Recombinant DNA (rDNA) Technology – A method of combining DNA from two different sources to create new genetic combinations.

			4. Cloning – The process of producing identical copies of DNA, cells, or organisms. 5. Restriction Enzymes (Restriction Endonucleases) – Molecular scissors that cut DNA at specific sequences. Examples: EcoRI, HindIII, BamHI. 6. DNA Ligase – An enzyme that joins broken DNA fragments by forming phosphodiester bonds. 7. Vector – A DNA molecule used to transfer foreign genetic material into a host cell. Example: Plasmids, Bacteriophages. 8. Plasmid – A small, circular, double-stranded DNA molecule found in bacteria, often used as a vector in genetic engineering. 9. Host Organism – The cell or organism into which foreign DNA is introduced. Example: E. coli (a commonly used bacterial host). 10. Competent Cells – Bacterial cells that can take up foreign DNA through transformation. 11. Transformation – The process of introducing foreign DNA into a bacterial cell. 12. Polymerase Chain Reaction (PCR) – A technique used to amplify (make multiple copies of) a specific DNA segment. 13. Taq Polymerase – A heat-stable DNA polymerase enzyme used in PCR, derived from the bacterium *Thermus aquaticus*. 14. DNA Probe – A labeled DNA or RNA fragment used to detect the presence of complementary DNA sequences. 15. Gel Electrophoresis – A technique used to separate DNA fragments based on size using an electric field. 16. Agarose Gel – A gel-like substance used as a medium in gel electrophoresis.

			17. Autoradiography – A technique used to visualize DNA or RNA fragments using radioactive or fluorescent probes. 18. Genomic Library – A collection of DNA fragments representing the entire genome of an organism. 19. cDNA (Complementary DNA) – DNA synthesized from an mRNA template using the enzyme reverse transcriptase. 20. Bioreactors – Large vessels used for growing microorganisms or cells under controlled conditions to produce useful products.
		Chapter – 10 ; "Biotechnology and Its Applications"	**1.Biotechnology** The use of living organisms or their components to develop useful products for human welfare. **2. Transgenic Organisms** Organisms that have been genetically modified to contain genes from another species. **3. Recombinant DNA Technology (rDNA Technology)** A technique used to introduce foreign DNA into an organism to alter its genetic makeup. **4. Genetically Modified Organisms (GMOs)** Organisms whose genetic material has been altered using genetic engineering techniques. **5. Bt Crops** Genetically modified crops (e.g., Bt cotton, Bt brinjal) that contain genes from *Bacillus thuringiensis* to produce insecticidal proteins. **6. RNA Interference (RNAi)** A gene-silencing technique used to prevent the expression of specific genes, often used in pest-resistant crops. **7. Gene Therapy** A medical technique that involves correcting defective genes responsible for disease development. **8. Molecular Diagnosis** Advanced diagnostic techniques like PCR, ELISA, and DNA probes used to detect diseases at the molecular level. **9. Biopharmaceuticals** Medical drugs produced using biotechnology, such as insulin, growth hormones, and monoclonal antibodies.

			10. Cloning Vectors DNA molecules (e.g., plasmids, bacteriophages) used to transfer foreign genes into host cells. **11. Biopiracy** Unauthorized use of biological resources and traditional knowledge by organizations or countries without compensating the indigenous communities. **12. Bioethics** Ethical considerations related to biotechnology, including concerns about GMOs, cloning, and genetic modifications. **13. Stem Cell Therapy** A technique that uses stem cells to repair or replace damaged tissues or organs. **14. Somatic Gene Therapy** A form of gene therapy that targets non-reproductive (somatic) cells to treat genetic disorders. **15. Golden Rice** A genetically modified rice variety enriched with beta-carotene (a precursor of vitamin A) to combat vitamin A deficiency.
		Chapter:11; Organisms and Populations	**1.Organism and Its Environment:** ● **Ecology** – The study of interactions among organisms and their environment. ● **Habitat** – The place where an organism lives. ● **Niche** – The functional role of an organism in its ecosystem. ● **Biotic Factors** – The living components of an ecosystem (e.g., predators, competitors). ● **Abiotic Factors** – The non-living components of an ecosystem (e.g., temperature, light, humidity). **2. Responses to Environmental Factors:** ● **Conformers** – Organisms that cannot regulate their internal environment (e.g., amphibians, reptiles). ● **Regulators** – Organisms that maintain a constant internal environment (e.g., mammals, birds). ● **Partial Regulators** – Organisms that regulate to some extent but also conform when limits exceed. ● **Acclimatization** – Gradual physiological adjustments to environmental changes.

			● **Hibernation** – Winter dormancy in some animals (e.g., bears). ● **Aestivation** – Summer dormancy (e.g., frogs, snails). **3. Adaptations:** ● **Morphological Adaptations** – Structural changes in organisms (e.g., thick fur in polar bears). ● **Physiological Adaptations** – Functional changes (e.g., high hemoglobin levels in high-altitude animals). ● **Behavioral Adaptations** – Behavioral changes to survive (e.g., migration of birds). **4. Population Ecology:** ● **Population** – A group of individuals of the same species in a particular area. ● **Population Density** – Number of individuals per unit area. ● **Natality (Birth Rate)** – The rate of birth in a population. ● **Mortality (Death Rate)** – The rate of death in a population. ● **Immigration** – Entry of individuals into a population from another area. ● **Emigration** – Exit of individuals from a population to another area. **5. Population Growth Models:** ● **Exponential Growth** – Growth without environmental resistance, represented by **J-shaped curve**. ● **Logistic Growth** – Growth with environmental limits, represented by **S-shaped (Sigmoid) curve**. ● **Carrying Capacity (K)** – Maximum population size that the environment can support sustainably. **6. Population Interactions:** ● **Mutualism (+/+)** – Both species benefit (e.g., pollination by bees). ● **Commensalism (+/0)** – One species benefits, the other is unaffected (e.g., barnacles on whales). ● **Parasitism (+/-)** – One species benefits, the other is harmed (e.g., ticks on dogs). ● **Predation (+/-)** – One species (predator) kills and eats another (prey) (e.g., lion hunting deer).

			● **Competition (-/-)** – Both species suffer due to resource competition (e.g., lions and hyenas). ● **Amensalism (-/0)** – One species is harmed, and the other is unaffected (e.g., penicillium fungus releasing penicillin that kills bacteria).
	November	**Chapter:12; Ecosystem**	1. **Ecosystem** – A functional unit of nature where living organisms interact with each other and their physical environment. 2. **Biotic Components** – The living components of an ecosystem, including producers, consumers, and decomposers. 3. **Abiotic Components** – The non-living factors in an ecosystem, such as temperature, light, water, and soil. 4. **Producers (Autotrophs)** – Organisms that synthesize their own food through photosynthesis or chemosynthesis (e.g., plants, algae). 5. **Consumers (Heterotrophs)** – Organisms that depend on others for food, including herbivores, carnivores, and omnivores. 6. **Primary Consumers** – Herbivores that feed directly on producers (e.g., deer, grasshoppers). 7. **Secondary Consumers** – Carnivores that eat herbivores (e.g., frogs, small fish). 8. **Tertiary Consumers** – Carnivores that eat secondary consumers (e.g., snakes, large fish). 9. **Decomposers (Detritivores)** – Organisms such as bacteria and fungi that break down dead organic matter, recycling nutrients back into the ecosystem. 10. **Food Chain** – A linear sequence of organisms where each is eaten by the next in the chain. 11. **Food Web** – A complex network of interconnected food chains in an ecosystem. 12. **Trophic Levels** – The levels in a food chain representing the flow of energy from producers to top consumers. 13. **Ecological Pyramids** – Graphical representations of trophic levels in terms of number, biomass, or energy. 14. **Pyramid of Numbers** – Represents the number of organisms at each trophic level.

			15. **Pyramid of Biomass** – Represents the total mass of living organisms at each trophic level. 16. **Pyramid of Energy** – Represents the flow of energy at different trophic levels; always upright. 17. **10% Law of Energy Transfer** – Only 10% of energy is transferred from one trophic level to the next, while the rest is lost as heat. 18. **Primary Productivity** – The rate of biomass production by producers; includes **Gross Primary Productivity (GPP)** and **Net Primary Productivity (NPP)**. 19. **Secondary Productivity** – The rate of biomass production by consumers. 20. **Biogeochemical Cycles** – The cycling of nutrients like carbon, nitrogen, phosphorus, and water through ecosystems. 21. **Carbon Cycle** – Movement of carbon through the atmosphere, biosphere, and geosphere. 22. **Nitrogen Cycle** – Circulation of nitrogen through fixation, ammonification, nitrification, and denitrification. 23. **Phosphorus Cycle** – The movement of phosphorus through rocks, soil, and living organisms. 24. **Decomposition** – The breakdown of organic matter by decomposers; involves fragmentation, leaching, catabolism, and humification. 25. **Humus** – Dark, organic material formed from decayed plant and animal matter. 26. **Ecological Succession** – The gradual change in species composition in an ecosystem over time. 27. **Primary Succession** – Succession occurring in an area with no previous life (e.g., volcanic land). 28. **Secondary Succession** – Succession occurring in areas where life existed but was disturbed (e.g., after a fire). 29. **Climax Community** – A stable and mature ecological community at the end of succession. 30. **Homeostasis** – The ability of an ecosystem to maintain stability despite disturbances.

		Chapter: 13; Biodiversity and Its Conservation	**1. Biodiversity** ● **Genetic Diversity** – Variation in genes within a species (e.g., different varieties of rice). ● **Species Diversity** – Variety of species in an ecosystem (e.g., different bird species in a forest). ● **Ecosystem Diversity** – Variety of ecosystems in a region (e.g., forests, deserts, wetlands). **2. Patterns of Biodiversity** ● **Latitudinal Gradient** – Biodiversity increases from poles to the tropics. ● **Species-Area Relationship** – Larger areas have more species (proposed by Alexander von Humboldt). **3. Importance of Biodiversity** ● **Ecosystem Services** – Benefits like oxygen production, climate regulation, and pollination. ● **Ecological Stability** – Diverse ecosystems are more stable and resilient. ● **Economic Value** – Medicines, food, fiber, and industrial products. **4. Biodiversity Loss** ● **Habitat Loss & Fragmentation** – Deforestation and human activities destroy habitats. ● **Over-exploitation** – Excessive hunting, fishing, and resource use. ● **Invasive Species** – Non-native species harm native biodiversity (e.g., Parthenium, Lantana). ● **Climate Change** – Global warming and environmental changes impact species survival. **5. Conservation Strategies** ● **In-situ Conservation** – Protecting species in their natural habitats (e.g., National Parks, Wildlife Sanctuaries, Biosphere Reserves). ● **Ex-situ Conservation** – Conserving species outside their natural habitats (e.g., Zoos, Botanical Gardens, Seed Banks). ● **Hotspots of Biodiversity** – Areas with high species richness and high threat levels (India has 4: Himalayas, Indo-Burma, Western Ghats, and Sundaland).

			● **Sacred Groves** – Community-protected forests with cultural significance. **6. International Conservation Efforts** ● **IUCN Red List** – Lists species based on extinction risk (e.g., Critically Endangered, Endangered, Vulnerable). ● **CITES (Convention on International Trade in Endangered Species)** – Regulates wildlife trade. ● **Ramsar Convention** – Protects wetlands of international importance. ● **CBD (Convention on Biological Diversity)** – A global agreement for biodiversity conservation.
		U.T.- 3 **(21st October)**	**CH-11, CH- 12**
	December	**Revision & Preboard-1** **(1st December)**	Revision of full syllabus
	January	**Revision & Preboard-2** **(2nd January,2027)**	CH-1 TO CH-13 REVISION
	February	Final Exam	REVISION
	March	Final Exam	
Maths	**April**	Chapter No.1 Relations and Functions	Domain,range,cartesian product,ordered pair,reflexive,symmetric,transitive,equivalence relation
		Chapter No.2 Inverse Trigonometric Function	Inverse relation,function,one-one,onto function,arcsine,arc cosine, arc tangent

		Chapter No.3 Matrices	Matrix,square matrix,identity matrix,symmetric matrix,skew symmetric matrix,transpose of a matrix
		Chapter No.4 Determinants	Determinant,cofactor,minors,adjoint,singular matrix,non singular matrix,consistent solution,inconsistent solution
	May	Chapter No.5 Continuity and Differentiability	Derivative,continuity,limit,difference quotient,smoothness,cusp,chain rule,implicit differentiation,high order derivative
		U.T.1 **(11th May)**	Chapter No.1 and 2
	June	**Summer Break**	
		Chapter No.6 Application of Derivatives	Rate of change,slope,increasing,decreasing,acceleration,normal,velocity,local maximum,local minimum
	July	Chapter No.7 Integrals	Antiderivative,primitive,indefinite integral,partial fractions,rational fractions
		U.T. 2 **(10thJuly)**	Chapter No.4 and 5
	August	Chapter No.8 Application of Integrals	Curve,bound,gradient,area,fundamental theorem of calculus,area above x-axis,area below x- axis

		Chapter No.9 Differential Equations	Order,degree,differential equation,linear differential equations, homogenous particular equation,integral factor
		Half Yearly Syllabus	**Ch no1 to 8**
	September	**Half Yearly Exam** **8th September**	
	October	Chapter No.10 Vector Algebra	Vector,magnitude,direction,unit vector,zero vector,dot product,vector product,position vector,ortogonal vectors,scalar
		Chapter No.11 Three dimensional Geometry	3D space,coordinate system, equation of a line,distance between two points,angle between two lines,direction cosine,direction ratios
	November	Chapter No.12 Linear Programming	Objective function,decision variables,constraints,feasible region,bounded region,unbounded region,optimal solution,non negative constraints,linearity
		Chapter No.13 Probability	Experiment,sample space,event,probability,outcome,random variable,union,mutually exclusive events,expected values
		U.T.3 **(21st October)**	Chapter no.11
	December	**Revision & Preboard-1** **(1st December)**	

	January	**Preboard-2** **(2nd January,2027)**	
	February	Final Exam	
	March	Final Exam	
Typography	**April**	Chapter No. 1 (Main Book) Name of the Chapter Business Correspondence	Letterhead, Salutation, Subject Line, Body Text, Signature, Format, Recipient, Enclosure, Closing Statement, Reference Number
		Chapter No.1 Name of the Chapter (Employability Skills) Communication Skills	Listening, Speaking, Writing, Nonverbal, Clarity, Feedback, Confidence, Tone, Persuasion, Active Listening
		Chapter No.2 Name of the Chapter (Employability Skills) Self management skills	Time management, Goal setting, Organization, Discipline, Motivation, Responsibility, Adaptability, Decision-making, Stress management, Self-awareness
		Chapter No. 2 (Main Book)	

	May	Name of the Chapter Manuscripts	Handwritten, Draft, Editing, Formatting, Typography, Proofreading, Layout, Script, Illustration, Publishing
		Chapter No. 3 (Main Book) Name of the Chapter Excel	Spreadsheet, Cells, Formulas, Functions, Formatting, Charts, Pivot Table, Data Analysis, Workbook, Macros
		U.T.1 **(11th May)**	Ch 1: Business Correspondence (Main Book) Ch 2: Manuscripts (Main Book) Ch 3: Excel (Main Book)
	June	**Summer Break**	
	July	Chapter No. 4 (Main Book) Name of the Chapter Powerpoint	Slides, Templates, Transitions, Animations, Design, Layout, Themes, SmartArt, Presentations, Speaker Notes
		Chapter No. 5 (Main Book) Name of the Chapter E-Mail	Inbox, Subject, Attachment, CC, BCC, Signature, Spam, Draft, Forward, Reply
		Chapter No 3 Name of the Chapter (Employability Skills)	Hardware, Software, Networking, Internet, Cybersecurity, Database, Cloud Computing, Programming, Multimedia, Digital Literacy

		ICT Skills	
		U.T. 2 **(10thJuly)**	Ch 4: Powerpoint (Main Book) Ch 1: Communication Skills (Employability Skills) Ch 2: Self management skills (Employability Skills) Ch 3: ICT Skills (Employability Skills)
	August	Chapter No. 4 Name of the Chapter (Employability Skills) Entrepreneur Skills	Innovation, Leadership, Risk-taking, Decision-making, Communication, Problem-solving, Time management, Financial management, Networking, Adaptability
		Chapter No. 5 Name of the Chapter (Employability Skills) Green Skills	Sustainability, Renewable Energy, Eco-friendly, Conservation, Recycling, Carbon Footprint, Climate Change, Biodiversity, Waste Management, Green Technology
		Half Yearly Syllabus	Ch 1: Business Correspondence (Main Book) Ch 2: Manuscripts (Main Book) Ch 3: Excel (Main Book) Ch 4: Powerpoint (Main Book) Ch 5 : E-Mail (Main Book) Ch 1: Communication Skills (Employability Skills) Ch 2: Self management skills (Employability Skills) Ch 3: ICT Skills (Employability Skills) Ch 4: Entrepreneur Skills (Employability Skills) Ch 5: Green Skills (Employability Skills)
	September	**Half Yearly Exam**	

		8th September	
	October	Chapter No. 6 (Main Book) Name of the Chapter Internet Search	Search Engine, Keywords, Browser, URL, Hyperlink, Webpage, Filters, Incognito Mode, Indexing, Algorithm
		Chapter No.7 (Main Book) Name of the Chapter Virus	Malware, Trojan, Worm, Ransomware, Spyware, Phishing, Antivirus, Cybersecurity, Infection, Firewall
	November	Revision	
		U.T.3 **(21st October)**	Ch 6: Internet Search Ch 7: Virus
	December	**Revision &** **Preboard-I** **(1st December)**	
	January	**Revision & Preboard-2** **(2nd January,2027)**	
	February	Final Exam	
	March	Final Exam	

Physical Education	**April**	Unit. 1 **Management of sporting events**	Planning, Organizing, Staffing, Directing, Controlling, Committees, Knockout, League, Intramural, Extramural
	May	Unit. 2 **Children and Women in sports**	Exercise Guidelines, Postural Deformities, Knock Knees, Lordosis, Kyphosis, Scoliosis, Women Participation, Menstrual Dysfunction, Female Athlete Triad, Osteoporosis
		U.T.1 **(11th May)**	Unit 1 & 2
	June	**Summer Break**	
	July	Unit 3 **Yoga as Preventive measure for lifestyle disease**	Obesity, Diabetes, Asthma, Hypertension, Arthritis, Tadasana, Bhujangasana, Dhanurasana, Kapalabhati, Anuloma-Viloma
		Unit 4 **Physical education & Sports for(CWSN)**	Special Olympics, Paralympics, Deaflympics, Classification, Divisioning, Inclusion, Accessibility, Physical Activities, Strategies, Implementation
		U.T. 2 **(10thJuly)**	Unit 3 & 4
	August	Unit 5 **Sports & Nutrition**	Balanced Diet, Nutrition, Macronutrients, Micronutrients, Nutritive , Components, Non-Nutritive Components, Weight Control, Food Myths, Pre-Competition Diet, Post-Competition Diet

		Unit 6 **Test & measurement in sports**	Fitness Test, BMI, Speed Test, Strength Test, Flexibility Test, Agility Test, Endurance Test, Harvard Step Test, BMR Calculation, Motor Educability
		Half Yearly Syllabus	
	September	**Half Yearly Exam** **8th September**	
		Unit 7 **Physiology & injuries in sports**	Muscular System, Cardio-Respiratory System, Aging, Sports Injuries, Soft Tissue Injuries, Fractures, Dislocation, Contusion, Sprain, Strain
	October	Chapter No. 8 **Biomechanics and Sports**	Newton's Laws, Levers, Equilibrium, Centre of Gravity, Friction, Projectile Motion, Static Equilibrium, Dynamic Equilibrium, Biomechanics, Application
	November	Chapter No 9 **Psychology And sports**	Personality, Motivation, Exercise Adherence, Aggression, Self-Esteem, Mental Imagery, Self-Talk, Goal Setting, Psychological Attributes, Strategies
		Chapter No 10 **Training in sports**	Talent Identification, Training Cycle, Micro Cycle, Meso Cycle, Macro Cycle, Strength, Endurance, Speed, Circuit Training, Flexibility
		U.T.3 **(21st October)**	Unit 7& 8

	December	**Revision & Preboard-1** **(1st December)**	
	January	**Revision & Preboard-2** **(2nd January,2027)**	
	February	Final Exam	
	March	Final Exam	
Painting	**April**	**Theory:** Unit- 1 A) Six Limbs of Indian Painting & Fundamentals of Visual Arts (B) A brief introduction to Indian Miniature Schools: (C) Rajasthani School of Miniature Paintings **Practical: (Water, Acrylic & Oil Pastel colours)** Nature & Object Study-1 Composition on Sports-1 Flower Composition-1 Mosaic art-1	Rupabheda, Pramanam, Bhava, Lavanya Yojanam, Sadrishyam, Varnikabhang, Realism, Impressionism. Expressionism, Abstract, Limbs, Intensity, Vanishing point, Aesthetics, Stylization Mural, Miniature Painting, Tempera, Manuscript, Profile, Ragini, Foreground, Indigenous, Kalam, Wasli, Protruding, Burnish
		Theory: Unit- 1 & 2	Secular, Delicate, Naturalistic, Lyricism, Intimacy, Krishan Leela, Barahmasa, Shringara,Folio, Patron, Foliage, Illumination, Mineral Pigment, Mandi, Atelier, Halo

	May	(A) Pahari School of Miniature Paintings (B) The Mughal School of Miniature Paintings **Practical:** Nature & Object Study-2 Composition on Seasons with Rajasthsani and Pahari Miniature School elements -2	Persia, Tradition, Patronize, Realistic, Portraiture, zenith, Decline, Pigment, Tempera, Contrast, Drapery, Provincial, Emphasis, Calligraphy, Hybrid Style
		U.T.1 **(11th May)**	**A brief introduction to Indian Miniature Schools**
	June	**Summer Break**	**Still Life-2** **Composition-2** **Folk Art-2** **Collage-1**
	July	**Theory:** Unit- 2 The Deccan School of Miniature School **Practical:** Nature and Object Study-2 Composition on Family Professionals-1 Mural with Mughal Miniature School elements Landscape-2 (Pencil & Water colour)	Sufi mysticism, Embellishment, Motifs, Dravida, Fresco, Vibrant, Intricate, Arabesque,Gliding, Sufism, Erotic, Delicacy, Sensuality

		U.T. 2 **(10thJuly)**	**Rajasthani & Pahari School of Miniature Paintings**
	August	**Theory:** Unit- 3 (A) (A) Evolution of the Indian National (B) (B) Flag of India and the Symbolic significance of its forms and the colours. (C) (C) Introduction to the Bengal School of Painting (D) (D)Contribution of Indian artists in the struggle for the National Freedom Movement. (E) **Practical:** (F) Nature and Object study-2 (G) Composition on daily life with Bengal school elements -1 Sunset Composition -1	Renaissance, synthesized, Intensify, diffused, Poetic deliberation, Monochromatic, Thatched, Yearning, Tresses, Evoked, Insignia
		Half Yearly Syllabus	**Miniature School, Rajasthani and Pahari Miniature School, Mughal and Deccan**
	September	**Half Yearly Exam** **8th September**	
	October	Unit- 3 **Modern Trends in Indian Art** Painting, Print and Sculpture **Practical:**	Modernism, Installation, Mixmedia, Printmaking, Contemporary, Metaphysical, Twisted Topsy-Turvy forms, Turbulence, Stormy atmosphere, Placidity, Etching and Aquatint, Malnourished, Siddhas, Awakening, Serpentine, Lithograph, Intrinsic, body-clinging,

		Nature and Object Study- 1 Composition on Festival-1 Poster on Nationalism-1	anguish, Distorted, Elongated limbs, Crudeness
	November	Revision **Practical:** 1 Nature and Object Study 2 Painting on emotions 3 Print 4 Abstract Painting	
		U.T.3 **(21st October)**	**Bengal School**
	December	**Revision & Preboard-1** **(1st December)**	**Unit-1, 2, 3**
	January	**Revision & Preboard-2** **(2nd January,2027**	**Unit 1,2,3**
	February	Final Exam	
	March	Final Exam	
Psychology		Chapter No. 1	Intelligence, Aptitude, Creativity, Emotional intelligence, Personality, Standardization, Norms, Assessment, Individual differences, Mental age

	April	Variations in Psychological attributes Name of the Chapter	
		Chapter No. 2 Name of the Chapter Self and Personality	Self-concept, Self-esteem, Personality, Traits, Freud, Defense mechanisms, Big Five, Identity, Self-efficacy, Social roles
	May	Chapter No. 2 Name of the Chapter Self and Personality(cont.)	Self-concept, Self-esteem, Personality, Traits, Freud, Defense mechanisms, Big Five, Identity, Self-efficacy, Social roles
		Chapter No. 3 Name of the Chapter Meeting life challenges	Stress, Coping, Resilience, Burnout, Adjustment, Anxiety, Emotion-focused, Problem-focused, social support, Frustration
		U.T.1 **(11th May)**	Chapter 1- Variations in Psychological Attributes Chapter 2- Self and Personality
	June	**Summer Break**	
	July	Chapter No. 3 Name of the Chapter Meeting life challenges (cont.)	Stress, Coping, Resilience, Burnout, Adjustment, Anxiety, Emotion-focused, Problem-focused, social support, Frustration

		Chapter No 4 Name of the Chapter Psychological disorders	Abnormality, Anxiety disorders, Mood disorders, Schizophrenia, OCD, Depression, PTSD, Diagnosis, Therapy, DSM
		U.T. 2 **(10thJuly)**	Chapter 2- Self and Personality Chapter 3- Meeting life challenges.
	August	Chapter No. 4 Name of the Chapter Psychological disorders (cont.)	Abnormality, Anxiety disorders, Mood disorders, Schizophrenia, OCD, Depression, PTSD, Diagnosis, Therapy, DSM
		Chapter No 5 Name of the Chapter Therapeutic Approaches	Psychotherapy, CBT, Psychoanalysis, Humanistic therapy, Client-centered therapy, Behaviour therapy, Unconscious, Free association, Systematic desensitization, Reinforcement
		Half Yearly Syllabus	Chapter 1- Variations in Psychological Attributes Chapter 2- Self and Personality Chapter 3- Meeting life challenges Chapter 4- Psychological disorders
	September	**Half Yearly Exam** **8th September**	

	October	Chapter No. 5 Name of the Chapter Therapeutic Approaches (cont.)	Psychotherapy, CBT, Psychoanalysis, Humanistic therapy, Client-centered therapy, Behaviour therapy, Unconscious, Free association, Systematic desensitization, Reinforcement
		Chapter No. 6 Name of the Chapter Attitude and Social cognition	Attitude, Stereotypes, Prejudice, Persuasion, Social norms, Attribution, Impression formation, Cognitive dissonance, Groupthink, Discrimination, Beliefs.
	November	Chapter No 7 Name of the Chapter Social Influence and group processes.	Leadership, Group behaviour, Group formation, Social Influence, Norms, Cooperation, Competition, Roles, Group dynamics, Conflict.
		U.T.3 **(21st October)**	Chapter 5- Therapeutic approaches Chapter 6- Attitude and social cognition
	December	**Revision & Preboard-1** **(1st December)**	
	January	**Revision & Preboard-2** **(2nd January,2027)**	
	February	Final Exam	

	March	Final Exam	
Informatics Practices		Chapter 5 Internet and Web	LAN, WAN, Router, Switch, Topology, Modem, URL, IP Address, Web Server, HTTP
	April	Chapter 1 Querying and SQL Functions	SQL, Aggregate, COUNT, SUBSTRING, DATE, GROUP BY, HAVING, JOIN,ORDER BY, ROUND
	May	Chapter 1 Querying and SQL Functions (Contd)	SQL, Aggregate, COUNT, SUBSTRING, DATE, GROUP BY, HAVING, JOIN,ORDER BY, ROUND
		U.T.1 **(11th May)**	Chapter 5 Internet and Web
	June	**Summer Break**	
	July	Chapter 2: Data Handling using Pandas - I	Keywords: Pandas, Series, Data Frame, Indexing, Slicing, CSV, Matplotlib, Histogram, Legend,Boolean Indexing
		U.T. 2 **(10th July)**	Chapter 1: Querying and SQL Functions
	August	Chapter 3: Data Handling using Pandas - II	Pandas, Series, Data Frame, Indexing, Slicing, CSV, Matplotlib, Histogram, Legend,Boolean Indexing

	September	**Half Yearly Exam** **8th September**	Ch-1 ,2,3 &5
	October	Chapter 4: Plotting Data using MATPLOTLIB	Pandas Plot, Bar and hist Function
		Unit 4: Societal Impacts	Digital Footprint, Cybercrime, Plagiarism, Copyright, Phishing, Hacking, E-Waste, FOSS, IT Act, Cyberbullying
		U.T.3 **(21st October)**	Unit 1: Data Handling using Pandas - I &II
	November	Revision	Practical Questions of PANDAS-I
	December	**Revision & Preboard-1** **(1st December)**	Revision
	January	**Revision & Preboard-2** **(2nd January,2027)**	
	February	Final Exam	
	March	Final Exam	

Note Exam date are tentative