NEW LIGHT INSTITUTE

THE FINEST INSTITUTE FOR MEDICAL ENTRANCE EXAMINATIONS

Reg. No. 2149

ALL INDIA SCORE BOOSTER TEST SERIES (2024-25)**

Sr. No.	Date	Day	Subject		
			Physics	Chemistry	Biology
1.	12-Aug-24	Monday	**Unit & Measurement** Need for measurement, Units of measurement, System of units, S.I. unit, Fundamental & derived unit, Accuracy & Precision of measuringinstruments, Errors in measurement, Significant figures, Dimension ofphysical quantities & Application. **Thermal properties of matter, Thermal expansion of solids &liquids.**	**Classification of Elements and Periodicity in Properties** Modern periodic law and present form of the periodic table. s, p. d and f block elements- periodic trends in properties of elements atomic and ionic radii. ionization enthalpy, electron gain enthalpy. valency. oxidation states. and chemical reactivity'	**The Living World (Botany)** What is living? Difference between living and non living, Diversity in the living world, Binomial nomenclature, Classification, Systematics, Concept of species and taxonomical hierarchy. **Biological Classification (Zoology)** Two kingdom system Five kingdom classification; salient features and classification of Monera; Protista and Fungi into major groups; lichens; Viruses and Viroids.
2.	26-Aug-24	Monday	**Vectors** Types of vectors, Unit vectors, Resolution of vectors in a plane rectangular components, Addition & Subtraction of vectors, Scalar & vector products of vectors, Direction Cosines, Area of triangle & parallelogram.	**Purification and Characterisation of Organic Compounds** Purification - Crystallization. Sublimation, distillation, differential extraction, andchromatography - principles and their applications. Qualitative analysis - Detection of nitrogen,	**Plant Kingdom (Botany)** What is algae ?Introduction of classification system, Classification of algae: Chlorophyceae, Pheophyceae, Rhodophyceae, Division of algae pigment and store food, General introduction of Bryophytes (liver warts, masses), General introduction of Pteridophytes,

			Calorimetry Specific heat capacity, Principle of Calorimetry, Latent heat of fusion and vaporization. **Experimental Skills** Specific heat capacity of a given (i) solid and (ii) liquid by method of mixtures	sulphur, phosphorus and halogens. Quantitative analysis (basic principles only) - Estimation of carbon. hydrogen. nitrogen halogens. sulphur. Phosphorus. Problems in organicQuantitative analysis **Some Basic Concepts In chemistry** Tetravalency of carbon: Shapes of simple molecules - hybridization (s and p): classification of organic compounds based on functional groups: and those containing halogens oxygen, nitrogen and sulphur, Homologous series: Isomerism - structural and stereoisomerism. Nomenclature (Trivial and IUPAC)	General introduction of Gymnosperms, **Animal Kingdom (Zoology)** Classification of Animals, Symmetry, Diploblastic and Triploblastic, Organisation,Coelom, Segmentation, Notochord, Classification of animals, Phylum – Porifera, Coelenterata (Cnidaria), Ctenophora, Platyhelminthes, Aschelminthes, Annelida, Arthropoda, Mollusca, Echinodermata, Hemichordata, Chordata
3.	**16-Sept-24**	**Monday**	**Kinematics-1** Frame of reference, Motion in straight line, Position-time graph, Speed & Velocity, Uniform & non-uniform motion, Average speed & instantaneous velocity, Uniform accelerated motion, Velocity time & position time graph for uniformly accelerated motion.	**Some Basic Concept in Chemistry** Matter and its nature, Dalton's atomic theory: Concept of atom, molecule, element. And compound:: Laws of chemical combination; Atomic and molecular masses, mole concept, molar mass, percentage composition, empirical and molecular formulae: Chemical equations and stoichiometry.	**Morphology of Plants:** Morphology and modifications; Tissues; Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence- cymose and recemose, flower, fruit and seed **(To be dealt along with the relevant practical ofthe Practical Syllabus) Family (Malvaceae, Cruciferae, Leguminoceae, Compositae, Graminae). Anatomy of Flowering**

			Thermal Conduction. Heat transfer, Conduction&thermal conductivity. **Thermal Radiation** Convection and radiation, Qualitative ideas of black body radiation, Wein'sdisplacementlaw,		**Plants** **What is the Tissues?** Tissue system, (simple tissue, compound tissue) Anatomy of Dicotyledonous and Monocotyledonous plants, (root,stem, leaf),
4.	**30-Sept-24**	**Monday**	**Motion in plane (Kinematics-2)** Relative velocity. Motion in plane, Cases of uniform velocity & projectile motion,Circular motion **Kinetic Theory of Gases** Perfect gas equation, Work done on compressing a gas, Kinetic theory of gases, Degree of freedom, Specific heat capacities, Mean free path	**Atomic Structure** Nature of electromagnetic radiation, photoelectric effect; Spectrum of the hydrogen atom. Bohr model of a hydrogen atom - its postulates, derivation of the relations for the energy of the electron and radii of the different orbits, limitations of Bohr's model; Dual nature of matter, de Broglie's relationship. Heisenberg uncertainty principle. Elementary ideas of quantum mechanics, quantum mechanics, the quantum mechanical model of the atom, its important features. Concept of atomic orbitals as one-electron wave functions: Variation of Ψ and Ψ^2 with r for 1s and 2s orbitals: various quantum numbers (principal, angular momentum, and magnetic quantum numbers) and their significance; shapes	**Structural Organisation in Animals:** **Animal tissues;** Morphology, anatomy and functions of different systems (circulatory, respiratory, nervous and reproductive) of an insect (Frog) (Brief account only)**Cockroach** **Cell : The Unit of Life (Botany)** Cell theory and cell as the basic unit of life;Structure of prokaryotic and eukaryotic cell; Plant celland animal cell; Cell envelope, cell membrane, cellwall; Cell organelles-structure and function;Endomembrane system-endoplasmic reticulum,Golgi bodies, lysosomes, vacuoles; mitochondria,ribosomes, plastids, micro bodies; Cytoskeleton, cilia, flagella, centrioles;Nucleus

				of s, p, and d - orbitals, electron spin and spin quantum number: Rules for filling electrons in orbitals - Aufbau principle. Pauli's exclusion principle and Hund's rule, electronic configuration of elements, extra stability of half-filled and completely filled orbitals' **Redox Reaction** Electronic concepts of oxidation and reduction , redox reactions, oxidation number, rules for assigning oxidation number, balancing of redox reaction.	
5.	**14-Oct-24**	**Monday**	**Laws of Motion** Intuitive concept of force, Inertia, Newton's first law of motion, Momentum & Newton's second law of motion, Impulse, Newton's third law of motionConservation of linear momentum & its application. Equilibrium of concurrent forces, Static & Kinetic friction, Laws of friction, Rolling friction, Lubrication. **Thermodynamics** Thermal equilibrium, Zeroth	**Chemical Bonding And Molecular Structure** Kossel - Lewis approach to chemical bond formation, the concept of ionic and covalent bonds' Ionic Bonding: Formation of ionic bonds, factors affecting the formation of ionic bonds; calculation of lattice enthalpy. covalent Bonding: concept of electronegativity. Fajan's rule, dipole moment: valence Shell Electron Pair Repulsion (VSEPR) theory and shapes of simple molecules. Quantum mechanical approach to covalent bonding: Valence bond theory - its important features. the	**Biomolecules (Zoology)** Biomolecules structureand function of proteins, carbohydrates, lipids, nucleic acids; Enzymes-types, properties, enzyme action. **Cell Cycle and Cell Division (Botany)** Cell cycle, mitosis, meiosis and their significance **Photosynthesis in Higher Plants (Botany)**

			law of thermodynamics Work& internal energy, First law of thermodynamics. Isothermal, Adiabatic process, Second law of thermodynamics	concept of hybridization involving s, p, and d orbitals; Resonance' Molecular orbital Theory - Its important features. LCAOs, 'types of molecular orbitals (bonding, antibonding), sigma and pi-bonds, molecular orbital electronic configurations of homonuclear diatomic molecules, the concept of bond order, bond length, and bond energy Elementary idea of metallic bonding. Hydrogen bonding and is applications.	Photosynthesis as a means of Autotrophic nutrition; Site of photosynthesis takeplace; pigments involved in PhotosynthesisPhotochemical and biosyntheticphases of photosynthesis; Cyclic and non cyclicandphotophosphorylation; Chemiosmotichypothesis;Photorespiration C3 and C4 pathways; Factorsaffecting photosynthesis
6.	**28-Oct-24**	**Monday**	**Work Power and Energy** Work done by a constant force, Work done by a variable force (one dimensional case), Graphical interpretation of work done, Conservative & Non conservative Forces, Non conservative forces, Power, Energy is different from power, Work-Energy Theorem, Conservative force as negative gradient of Potential Energy, Work Done in pulling the chain against gravity, Conservation of momentum (Explosion of bomb), Collision, Perfectly inelastic collision. **Wave-I** Progressive wave, Speed of mechanical wave	**Chemical Equilibrium** Meaning of equilibrium, the concept of dynamic equilibrium. Equilibria involving physical processes: Solid-liquid, liquid-gas and solid-gas equilibria, Henry's law. General characteristics of equilibria, involving physical processes. Equilibrium involving chemical processes: Law of chemical equilibrium, equilibrium constants (K_p and K_c) and their significance, the significance of ΔG and ΔG^0 in chemical equilibrium, factors affecting equilibrium concentration, pressure, temperature, the effect of catalyst; Le Chatelier's principle. **Reaction Mechanism** Covalent bond fission - Homolytic and heterolytic:	**Respiration in Plants (Botany)** Exchange gases; Cellularrespiration-glycolysisfermentation(anaerobic), TCAcycle and electron transport system (aerobic); EnergyrelationsNumber of ATP molecules generated;Amphibolic pathways; Respiratory quotient **Plant Growth and Development (Botany)** Seedgermination; Phases of Plant growth and plant growthrate; Conditions of growth; Differentiation, dedifferentiation and redifferentiation; Sequence ofdevelopmental process in a plant cell; Growthregulators-auxin,gibberellin, cytokinin, ethylene, ABA; **Breathing and Exchange of**

				free radicals. carbocations. andcarbanions: stability of carbocations and free radicals. Electrophiles and nucleophiles. **Electronic displacementin a covalent bond** Inductive eflect, electromericeflect. resonance. Andhyperconjugation. Common types of organic reactions- Substitution. addition. elimination, and rearrangement.	**Gases (Zoology)** Respiratory organs inanimalsRespiratory system in humans;Mechanism of breathing and its regulation in humans-Exchange of gases, transport of gases and regulationof respiration Respiratory volumes; Disorders related to respiration-Asthma, Emphysema, Occupational respiratory disorders.
7.	**11-Nov-24**	**MONDAY**	**MODEL-1** **T-1 TO T-6**		
8.	**25-Nov-24**	**Monday**	**Motion of System of Particles** Center of Mass of a two particle system, Momentum conservation & center of mass motion, Center of mass of a rigid body, Uniform rod. Moment of force, Torque, Angular momentum, Conservation of angular momentum. **Rigid Body** Equilibrium of rigid bodies, Rigid bodies rotation & equation of rotational motion,	**Ionic equilibrium** weak. and strong electrolytes, ionization of electrolytes, various concepts of acids and bases (Arrhenius Bronsted - Lowry and Lewis) and their ionization, acid-base equilibria (including multistage ionization) ionization constant ionization of water. pH scale, common ion effect, Hydrolysis of salts and pH of their solution, The solubility of sparingly soluble salts and solubility products, buffer solution	**Body Fluids and Circulation (Zoology)** Composition ofblood, blood groups, coagulation of blood;Composition of lymph and its function; Humancirculatory system-Structure of human heart and bloodvessels; Cardiac cycle, cardiac output, ECG, Doublecirculation; Regulation of cardiac activity; Disorders ofcirculatory systemHypertension, Coronary arterydisease,Angina pectoris, Heart failure

			Moment of inertia,Radius of gyration. **Wave-II** Principle of superposition, Reflection of wave, Beats. Interference, Standing wave in string, Organ pipe. **Experimental Skills** Metre Scale - the mass of a given object by the principle of moments'		**Excretory Products and their Elimination (Zoology)** Modes of excretion-Ammonotelism, ureotelism,uricotelism; Human excretory system-structure andfunction; Urine formation, Osmoregulation; Regulationof kidney function-Renin-angiotensin, AtrialNatriureticFactor,ADHand Diabetes insipidus; Role ofother organs in excretion; Disorders; Uraemia, Renalfailure, Renal calculi, Nephritis; Dialysis and artificialkidney
9.	**9-Dec-24**	**Monday**	**Gravitation** Kepler's laws of planetary motion, Universal law of gravitation, Acceleration due to gravity &variation with altitude & depth. Gravitational potential energy, Potential, Escape velocity, Orbital velocity of satellite, Geo-stationary satellites. **Dual Nature of Radiation and Matter** Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation- particle nature of light.	**Hydrocarbons** Classification' isomerism. IUPAC nomenclature, general methods of preparation, properties, and reactions. **Alkanes** - Conformations: Sawhorse and Newman halogenation of alkanes. projections (of ethane): Mechanism of halogenation of alkanes. **Alkenes** - Geometrical isomerism: Mechanism of electrophilic addition: addition of hydrogen. halogens, water. Hydrogenhalides	**Locomotion and Movement** Types of movementciliary, flagellar, muscular; Skeletal musclecontractileproteins and muscle contraction; Skeletalsystem and its functions; Joints; Disorders ofmuscular and skeletal systemMyastheniagravis,Tetany, Muscular dystrophy,Arthritis, Osteoporosis,Gout **Neural Control and Coordination (Zoology)** Neuron andnerves; Nervous system in humans- central

			Matter waves- wave nature of particles, de Broglie relation.	(Markownikoffs and peroxide effects) ozonolysis and polymerization. **Alkynes** - Acidic character: Addition of hydrogen. halogens. water. and hydrogen halides: Polymerization. **Aromatic hydrocarbons** - Nomenclature. benzene - structure and aromaticity,: Mechanism of electrophilic substitution: halogenation, nitration. Friedel - craft's alkylation and acylation, directive influence of the functional group in mono-substituted benzene	nervoussystem, peripheral nervous system and visceralnervous system; Generation and conduction of nerveimpulse;
10.	**23-Dec-24**	**Monday**	**Oscillation** Periodic motion, Frequency, Displacement, Simple harmonic motion, Equation, Oscillation of spring, Restoring force, Energy in S.H.M., Free oscillation **Atomic structure** Rutherford's atomic model Bohr's atomic model, Different spectral series Hydrogen spectrum. **Experimental Skills** Simple pendulum-dissipation of energy by plotting a graph between the square of amplitudeand time. Speed of sound in air at room temperature using a	**Chemical Thermodynamics** Fundamentals of thermodynamics: system and surroundings, extensive and intensive properties' state functions, types of processes. The first law of thermodynamics - concept of work, heat internal energy and enthalpy, heat capacity, molar heat. capacity; Hess's law of constant heat summation; Enthalpies of bond dissociation, combustion' formation, atomization. sublimation. phase ionization. and solution. transition, hydration. The second law of thermodynamics - Spontaneity of processes: ΔS of the universe and ΔG of the	**Chemical Coordination and Integration** Endocrine glands and hormones; Humanendocrinesystem-Hypothalamus, Pituitary, Pineal,Thyroid, Parathyroid, Adrenal, Pancreas, Gonads, Mechanism of hormone action Role of hormones as messengers and regulators, Hypo-and hyperactivity and related disorder.g. Dwarfism, Acromegaly,Cretinism, goiter, exophthalmic goiter, diabetes,Addison's disease **Sexual Reproduction in Flowering Plants (Botany)** Flower structure,Pre

			resonance tube	system as criteria for spontaneity. ΔG^0 (Standard' Gibbs energy change) and equilibrium constant.	fertilization , Structure and events, Stamen, Microsporangium and Pollen Grain, Microsporogenesis, The Megasporangium (Ovule), Megasporogenesis, Pollination-types, agencies and examples, Outbreeding devices, Pollen-Pistil interaction; Double fertilization, Post – fertilization : Structures and Events, (Endosperm , Embryo, Seed), Apomixis and polyembryony
11.	**06-Jan-25**	**Monday**	**Electrostatics** Electric charges & properties conductors, insulators, method of charging, coulomb's law between two point charges, principle of superposition, equilibrium of system of charges **Electric field** Electric field intensity for point charge & system of charges, electric field lines with properties, **Nuclei** (Composition & size of nucleus, Atomic masses, Mass energy relation, mass defect; Nuclear fission & fusion, Nuclear reactor, Nuclear Force & its	**Chemical Kinetics** Rate of a chemical reaction, factors affecting the rate of reactions: concentration, temperature. pressure' and catalyst: elementary and complex reactions, order and molecularity of reaction, rate law, rate constant and its units, differential and integral forms of zero and first-order reactions. their characteristics and half-lives, the effect of temperature on the rate of reactions. Arrhenius theory. activation energy and its calculation, collision theory of bimolecular gaseous reactions (no derivation). **Organic Compounds Containing Halogens** General methods of	**Human Reproduction (Zoology)** Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis, spermatogenesis &. Oogenesis; Menstrual cycle; Fertilisation, embryo development upto blastocyst formation, Implantation; Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); lactation (Elementary idea). **Reproductive Health(Zoology)** Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control-Need and

			properties.	preparation, properties, and reactions; Nature of C-X bond: Mechanisms of substitution reactions. Uses; Environmental effects of chloroform, iodoformfreons, and DDT	Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies – IVF, ZIFT, GIFT
12.	**20-Jan-25**	**Monday**	**Electric Potential & Gauss's Law** Electric flux & Gauss theorem with application, electric potential due to point charge & system of charges. Expansion of coulomb's law with application, electric dipole, torque, electric potential energy, work done in rotating a dipole, Electric potential. Electrostatic Potential, Potential Energy **Semiconductor and Electronic Materials** Classification of Metals, Conductors & Semi-conductors on the basis of (Conductivity, Energy bands in solids (qualitative ideas only), Intrinsic Semiconductor, Extrinsic Semi-conductor (n-type and p-type)..p-n Junction: p-n junction formation, Barrier potential, Semiconductor diode: I-V characteristics in	**Organic Compounds Containing Oxygen** General methods of preparation, properties, reactions, and uses. **Alcohol, Phenol, Ether** Alcohols: Identification of primary, secondary, and tertiary alcohols: mechanism of dehydration. Phenols: Acidic nature, electrophilic substitution reactions: halogenation. nitration and sulphonation. Reimer - Tiemann reaction. Ethers: Structure. **Solution** Different methods for expressing the concentration of solution - molarity, molality, more fraction. percentage (by volume and mass both), the vapour pressure of solutions and Raoult's law - Ideal and. non-ideal solutions, vapour pressure - composition, plots for ideal and non-ideal	**Principles of Inheritance and Variation (Botany)** Mende's laws of Inheritance Incomplete dominance, Co dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination-In humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance-Haemophilia, Colour blindness; Mendelian disorders in humans-Thalassemia; Chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes

			Forward & reverse bias. Application of Junction Diode as a Rectifier & Filter (only qualitative idea), Special purpose p-n junction diodes & their I-V characteristics (LED, Photodiode), Solar cell, logic gates & combination of logic gates **Experimental Skills** Characteristic curves of a p-n junction diode in forward and reverse bias. Characteristic curves of a Zener diode and finding reverse break down voltage. Identification of Diode. LED. Resistor. A capacitor from a mixed collection of such items	solutions: colligative properties of dilute solutions - a relative lowering of vapour pressure, depression or freezing point the elevation of boiling point and osmotic pressure; Determination of molecular mass using colligative properties; Abnormal value of molar mass, van't Hoff factor and its significance.	
13.	**10-Feb-25**	**Monday**	**Capacitors** Capacity, Capacitors & capacitance. Spherical Capacitor, Sharing of Charges, Capacitance of a parallel plate capacitor, Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics & electric polarization, Combination of capacitors in series & in parallel, Work done by Battery in charging of a capacitor. Energy stored, Charging and discharging of a Capacitor,	**Electrochemistry** Electrolytic and metallic conduction, conductance in electrolytic solutions, molar conductivities and their variation with concentration: Kohlrausch's law and its applications. Electrochemical cells - Electrolytic and Galvanic cells, different types of electrodes, electrode potentials including standard-electrode potential half cell reactions, emf of a Galvanic cell and its measurement: Nernst equation and its application. Relationship	**Molecular Basis of Inheritance (Botany)** Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, Genetic code, Translation; Gene expression and regulation Lac Operon; Genome and Human genome project; DNA finger printing.

			Ray Optics - I Reflection at plane and sphericalsurfaces,.	between cell potential and Gibbs' energy change: Dry cell accumulators: Fuel cell	
14.	**17-Feb-25**	**Monday**	**Current Electricity** Electric current in metallic conductor, drift velocity, mobility, relaxation time, current density, ohm's law, electrical resistance, voltage current characteristics. Conductivity, resistivity, combination of electric cells with application Kirchhoff's law. **Ray Optics - II** Introduction of refraction, Snell's law with application. Image formation, normal shift, real depth, apparent depth relation, criticalangle, TIR, polarizing angle. Refraction from prism, normal incidence, normal emergence, retracing path, **Simple Circuit** Wheatstone bridge circuit,	**Aldehyde and Ketones:** Nature of carbonyl group; Nucleophilic addition to >C=O group relative reactivities of aldehydes and ketones; Important reactions such as - Nucleophilic addition reactions (addition of HCN. NH.and its derivatives), Grignard reagent; oxidation: reduction (Wolf Kishner and Clemmensen); the acidity of alfa.-hydrogen. aldol condensation Cannizzaro reaction. Haloform reaction, Chemical tests to distinguish between aldehydes and Ketones' **Carboxylic Acids** Acidic strength and factors affecting it'	**Evolution (Zoology)** Origin of life; Biological evolution andevidences for biological evolution from Paleontology,comparative anatomy, embryology and molecularevidence); Darwin's contribution, **Modern Synthetictheory of Evolution;** Mechanism of evolution-Variation(Mutation and Recombination) and Natural Selectionwith examples, types of natural selection; Gene flowand genetic drift; Hardy-Weinberg's principle;Adaptive Radiation; Human evolution. **Human Health and Disease (Zoology)** Pathogens; parasites causing human diseases MalariaFilariasis, Ascariasis.Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic concepts of immunology-vaccines;Cancer, HIV and

			meter bridge circuit, conversion of ammeter & volt meter. Electrical energy &power **Experimental Skills** The resistivity of the material of a given wire using a metre bridge' The resistance of a given wire using Ohm's law'		AIDS; Adolescence, drug and alcoholabuse. **Chikanguniya and dengue**
15.	**24-Feb-25**	**Monday**	**Magnetic Effect of Current** Concept of magnetic field, Oersted experiment, BiotSavert law with application, Ampere's law with application, Motion of charge particle in uniform magnetic field (Lorentz force), Velocity selector, Magnetic force on current carrying wire, torque on current loop, magnetic moment, Bar magnet with properties. **Ray Optics & Optical Instruments** Lenses, lens maker formula, combination of lenses, silvering of lenses, chromatic & spherical aberration, displacement method. Human eye, defect of vision, Microscopes and astronomical telescopes	**d - & f- Block Elements** Transition Elements General introduction, electronic configuration, occurrence and characteristics, general trends in properties of the first low transition elements - physical properties, ionization enthalpy, oxidation states. atomic radii. colour. Catalyticbehaviour. magnetic properties, complex formation. Interstitial compounds. Alloy formation: Preparation, properties, and uses of $K_2Cr_2O_7$ and $KMnO_4$. Inner Transition Elements: Lanthanoids-Electronic configuration, oxidation states, and lanthanoid contraction. Actinoids - Electronic configuration and oxidation states' **Co-ordination Compound** Introduction to coordination compounds. Werner's theory;	**Microbes in Human Welfare (Botany)** In household food processing, Industrial production, Sewage treatment, Energy generation and as biocontrol agents andbiofertilizers. **Biotechnology : Principles and Processes** Principles of Biotechnology, Tools of Recombinant DNA technology, Processes of recombinant DNA technology

			(reflecting and refracting) and their magnifying power. **Experimental Skills** Resistance and figure of merit of a galvanometer by half deflection method **Experimental Skills** The focal length of; (i) Convex mirror (ii) Concave mirror, and (iii) Convex lens, using the parallax method. The plot of the angle of deviation vs angle of incidence for a triangular prism' Refractive index of a glass slab using a travelling microscope	ligands, coordination number. denticity. chelation; IUPAC nomenclature of mononuclear co-ordination compounds' isomerism: Bonding-Valence bond approach and basic ideas of Crystal field theory, colour and magnetic properties; Importance of co-ordination compounds (in qualitative analysis. extraction of metals and in biological systems)	
16.	**03-Mar-25**	**Monday**	**Magnetostatics** Para-, dia-and ferro-magnetic substances, with examples. Electromagnetic and factors affecting their strengths. Permanent magnets **Properties of Bulk Matter – I** Stress, Strain, Hook's law, Elastic constant. Surface tension & energy, Angle of contact, Excess of pressure, Capillary tube **Electromagnetic Induction**	**Organic Compound Containing Nitrogen** General methods of preparation. Properties, reactions, and uses' Amines: Nomenclature, classification structure, basic character, and identification of primary, secondary, and tertiary amines and their basic character' Diazonium Salts: Importance in synthetic organic chemistry' **Biomolecules** General introduction and importance of biomolecules CARBOHYDRATES -	**Biotechnology and its Applications** Human insulin and vaccine production,gene therapy; Genetically modified organisms-Bt-crops; Transgenic Animals; Biosafety issues-Biopiracy and patents. **Organisms and Populations (Botany)** Populationinteractions-mutualism, competition,

			Magnetic flux, Faraday's law, Induced e.m.f., Current, Lenz law with application. Static, dynamic & rotational emf, eddy currents. Self & mutual induction, Inductance, Coefficient of coupling, A.C. generator, Transformer.	classification; aldoses and ketoses: monosaccharides (glucose and fructose) and constituent monosaccharides of oligosaccharides (sucrose, lactose, and maltose)' Proteins. Elementary Idea of amino acids, peptide bond, polypeptides. Proteins: primary. secondary, tertiary, and quaternary structure (qualitative idea only), denaturation of proteins' enzymes. VITAMINS - Classification and functions. Nucleic acids - chemical constitution of DNA and RNA. Biological function of nucleic acids. Hormones (General Introducution)	predation,parasitism; Population attributes-growth, birth rate anddeath rate, age distribution. (Demography)
17.	**10-Mar.-25**	**Monday**	**Wave Optics** Interference, diffraction, polarization, Huygen's principle, Proof of laws of reflection and refraction using Huygen's Principle, Coherent & incoherent sources, Superposition of Light Waves: Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light,Diffraction due to a single slit. **Alternating Current** Alternating current, voltage, RMS & peak value, Alternating current circuit. R-	**p- Block Elements** Group -13 to Group 18 Elements General Introduction: Electronic configuration and general trends in physical and chemicalproperties of elements across the periods and down the groups; unique behaviour of the firstelement in each group. **Principles Related To Practical Chemistry** Detection of extra elements (Nitrogen, sulphur, halogens) inorganic compounds; Detection of the following functional group., hydroxyl (alcoholic and phenolic), carbonyl (aldehyde and ketones) carboxyl, and amino groups in organic	**Ecosystem (Botany)** Patterns, components; productivity anddecomposition; Energy flow; Pyramids of number,biomass, energy; **Biodiversity and Conservation (Botany)** Concept ofBiodiversity; Patterns of Biodiversity; Importance ofBiodiversity; Loss of Biodiversity; Biodiversityconservation; Hotspots, endangered organisms,extinction, **Red Data Book,** biosphere reserves,National parks and sanctuaries

			Circuit, C-Circuit, L-Circuit, Series LCR Circuit, Resonance, Quality factor, Band width, LC oscillation. Electromagnetic waves. **Properties of Bulk Matter-2** Viscosity, Stroke's law, Terminal velocity, Streamline & turbulent flow, Bernoulli's theorem with application **Experimental Skills** Young's modulus of elasticity of the material of a metallic wire' Type equation here.Surf ace tension of water by capillary rise and effect of detergents, Co-efficient of Viscosity of a given viscous liquid by measuring terminal velocity of a givenspherical body	compounds. The chemistry involved in the preparation of the following: Inorganic compounds: Mohr's salt. potash alum. Organic compounds: Acetanilide. p-nitro acetanilide' aniline yellow iodoform. The chemistry involved in the titrimetric exercises - Acids. bases and the use of indicators. Oxalic acid vs $KMnO_4$, Mohr's salt vs $KMnO_4$. Chemical principles involved in the qualitative salt analysis: Cations - Pb^{2+}. Cu^{2+}. Al^{3+}, Fe^{3+} Zn^{2+}, Ni^{2+}, Ca^{2+}, Ba^{2+}, Mg^{2+}. NH^{4+} Anions- CO_3^{2-}, S^{2-}, SO_4^{2-}, NO^{3-}, NO^{2-}, Cl^-, Br^-. I^- (Insoluble salts excluded). Chemical principles involved in the following experiments: 1. Enthalpy of solution of $CuSO_4$ 2. Enthalpy of neutralization of strong acid and strong base. 3. Preparation of lyophilic and lyophobic sols. 4. Kinetic study of the reaction of iodide ions with hydrogen peroxide at room at room temperature.	
18	**12-Mar-25**		**MODEL-2** **Full Syllabus (Online)** Additional Topic given in NTA not in NCET (PCB)		
19	**19-Mar-25**		**MODEL-3** **Full Syllabus**		

20	23-Mar-25		MODEL-4 Full Syllabus
21	26-Mar-25		MODEL-5 Full Syllabus
22	30-Mar-25		MODEL-6 Full Syllabus
23	1-April-25		MODEL-7 Full Syllabus
24	3-April-25		MODEL-8 Full Syllabus (200 Questions Physics)
25	6-April-25		MODEL-9 Full Syllabus
26	8-April-25		MODEL-10 Full Syllabus
27	10-April-25		MODEL-11 Full Syllabus (200 Questions Chemistry)
28	13-April-25		MODEL-12 Full Syllabus
29	15-April-25		MODEL-13 Full Syllabus

30	17-April-25		MODEL-14 Full Syllabus (200 Questions Botany)
31	20-April-25		MODEL-15 Full Syllabus
32	22-April-25		MODEL-16 Full Syllabus
33	24-April-25		MODEL-17 Full Syllabus (200 Questions Zoology)
34	27-April-25		MODEL-18 Full Syllabus
35	29-April-25		MODEL-19 Full Syllabus
36	30-April-25		MODEL-20 Full Syllabus
37	1-May-25		MODEL-21 Full Syllabus
38	2-May-25		MODEL-22 Full Syllabus