JEE : 2022 – 2024

Months	Math	Physics	Chemistry
August	**1. Sets, Relations, and Functions**	**1. Basic Mathematics used in physics & vectors (Physics-1)**	**1. Mole Concept (Physical)**
	1) Sets and their representation.	1) Trigonometry	1) Classification of Universe
	2) Union, intersection, and complement of sets and their algebraic properties.	2) Co-ordinate geometry	2) Dalton`s Atomic Theory
		3) Differentiation	3) Significant Figure
		4) Integration	4) The Law of Chemical Combination
		5) Some standard graphs and their equations	5) Percentage Composition and Molecular Formula, Empirical and Molecular Formula, Density, Relation Between Molar Mass & Volume, Limiting Reagent, Stoichiometry Based Concept, Percentage Yield, Average/Mean Atomic Mass, Mean Molar Mass or Molecular Mass, Equivalent Weight, Concentration Terms, Eudiometry or Gas Analysis
		6) Algebra	6) Exercise -I
		7) Geometry	7) Exercise - II
			8) Exercise - III
			9) Exercise - IV
			10) Exercise - V
	P.T. – 1, 14/ 08/2022, Sunday		
	3) Power set.	**2. Physical World, Unit And Dimensions & Error In Measurement (Physics-2)**	**2. Atomic Structure (Physical)**
	4) Relation, Types of relations, equivalence relations.	1) Physical world	1) Atomic Models
	5) Functions; one-one, into and onto functions, the composition of functions.	2) Physical quantities	i- Thomson's Model of Atom
	6) Exercise – I	3) Units of Physical Quantities	ii- Rutherford`s α- Scattering Experiment
	7) Exercise – II	4) Classification of Units	2) Planck`s Quantum Theory
	8) Exercise – III	5) Dimensions	3) Black Body Radiations
	9) Exercise – IV	6) Application of dimensional analysis	4) Quantum Theory of Light
	10) Exercise – V		5) Photoelectric Effect (P.E.E.)
			6) Bohr`s Atomic Model
			7) Energy Level Diagram
			8) Spectrum
			9) Hydrogen Spectrum
			10) Sommerfeld Extension of the Bohr Model
			11) 20) Wave Mechanical Model of an Atom

			12) Orbit and Orbitals, Quantum Numbers,
			13) Aufbau Principle, Pauli`s Exclusion Principle, Hund`s maximum multiplicity, Spin Multiplicity, Electronic Configuration of Elements, Wave Mechanical Model of Atom
			14) Exercise - I
			15) Exercise - II
			16) Exercise - III
			17) Exercise - IV
			18) Exercise - V
	P.T. – 2, 28/08/2022, Sunday		
Sept	**2. Complex Numbers and Quadratic Equations**	**1. Basic Mathematics used in physics & vectors (Physics-1)**	**3. Classification of Elementsand Periodicity in Properties (Physical)**
	1) Complex numbers as ordered pairs of real.	8) Types of vectors	1) Modern Periodic law and Long form of periodic table
	2) Representation of complex numbers in the form (a+ib) and their representation in a plane, Argand diagram.	9) Addition of two vectors	2) Periodic trends in properties of elements
	3) Algebra of complex numbers, modulus and argument (or amplitude) of a complex number, square root of a complex number.	10) Addition of more than two vectors	i- Atomic Radii
		11) Subtraction of two vectors	ii- Ionic Radii
		12) Resolution of two vectors	iii- Ionization Enthalpy
		13) Multiplication and Division of a Vector by a Scalar	iv- Electron gain enthalpy
		14) Scalar products of two vectors	v- Electronegativity
		15) Vector products of two vectors	vi- Valency
		16) Exercise-I (Conceptual Question)	4) Exercise -I
		17) Exercise-II (Previous Years Questions)	5) Exercise - II
		18) Exercise-III (Analytical Questions)	6) Exercise - III
			7) Exercise - IV
			8) Exercise - V
	C.T.- 1, 11/09/2022, Sunday		
	4) Triangle inequality.	**2. Physical World, Unit And Dimensions & Error In Measurement (Physics-2)**	**4. Chemical Bonding(Inorganic)**
	5) Quadratic equations in real and complex number system and their solutions.	7) Dimensions of Mathematical Function	1) Cause of Chemical Bonding
	6) The relation between roots and coefficients, nature of roots, the formation of quadratic equations with given roots.	8) Limitation of dimensional analysis	2) Wave Mechanical Concept of Covalent Bonding
	7) Exercise – I	9) Significant Figures	3) Characteristic of covalent bond

	Mathematics	Physics	Chemistry
	8) Exercise – II	10) Rounding off	4) Valence Bond Theory (VBT)
	9) Exercise – III	11) Order of Magnitude	5) Hybridization Theory
	10) Exercise – IV	12) Accuracy and Precision	6) Types of Hybridization, - sp Hybridization, sp^2 Hybridization, sp^3 Hybridization, - sp^3d Hybridization, sp^3d^2 Hybridization, sp^3d^3 Hybridization
	11)Exercise – V	13) Errors	7) Valence Shell Electron Pair Repulsion Theory(VSEPR)
		14) Representation of Errors	8) Determination of Hybridization State
		15) Propagation of Errors	9) Bond Parameters, Bond Length, Bond Angle, Bond Energy
		16) Least count	10) Molecular Orbital Theory (MOT)
		17) Zero error	11) Dipole Moment & Molecular Polarity
		18) Exercise-I (Conceptual Question)	12) Electrovalent or Ionic Bond, Factors Favoring Ionic Bonding
		19) Exercise-II (Previous Years Questions)	13) Factors Affecting Lattice Energy
		20) Exercise-III (Analytical Questions)	14) Factors Affecting Solubility
			15) Transition from Ionic to Covalent Bond - Fajan`s Rule
			16) Resonance, Formal Charge, Hydrogen Bond, Van Der Waal`s Forces, Metallic Bond, Bond Length & pπ - dπ Bonding
			17) Exercise - I
			18) Exercise - II
			19) Exercise - III
			20) Exercise - IV
			21) Exercise - V
	P.T. – 3, 25/09/2022, Sunday		
Oct	**3. Permutations and Combinations**	**3. Kinematics (Motion along straight line and motion in a plane) (Physics-1)**	**5. States of Matter : Gasesand Liquids(Physical)**
	1) The fundamental principle of counting.	1) Frame of Reference	1) Three States of Matter
	2) Permutation as an arrangement and combination as a selection.	2) Motion & Rest	2) Intermolecular Interactions
		3) Distance & Displacement	3) Role of Gas laws elucidating the concept of themolecule: Boyle`s law, Charle's law, Gay Lussac's Law, Avogadro`s law, Ideal Behavior of Gases
		4) Speed & Velocity	4) Empirical derivation of gas equation
		5) Acceleration	5) Avogadro Number
		6) Equation of Motion	6) Ideal Gas Equation, Deviation from Ideal Behavior
		7) Graphical Section	7) Kinetic Energy and Molecular Speed
		8) Motion Under Gravity (Free Fall)	8) Liquification of Gases, Critical Temperature,
		9) Projectile Motion : Introduction	9) Liquid State - Vapor Pressure
		10) Ground to Ground Projection	10) Viscosity and Surface Tension (Qualitative idea
			11) only)
		11) Horizontal Projection From Height	12) Exercise -I
		12) Oblique Projection From Height	13) Exercise - II

			14) Exercise - III
			15) Exercise - IV
			16) Exercise - V

P.T. – 4, 09/10/2022, Sunday		
	3) The meaning of P (n,r) and C (n,r). Simple applications.	**4. Newton's laws of motion & friction (Physics-2)**	**6. Equilibrium (Physical)**
	4) Exercise – I	1) Newton's first laws of motion	1) Equilibrium in physical and chemical processes, Dynamic nature of equilibrium, Law of chemical equilibrium, Equilibrium constant
	5) Exercise – II	2) Force	2) Factors affecting equilibrium- Le Chatelier`s principle
	6) Exercise – III	3) Inertia	3) Ionic equilibrium - Ionization of acids and bases
	7) Exercise – IV	4) Momentum	4) 7) Strong and weak electrolytes, Degree of ionization, Ionization of polybasic acids, Acid strength, Concept of pH,
	8) Exercise – V	5) Newton's Second Laws of Motion	5) Hydrolysis of salts
		6) Impulse	6) Buffer solutions
		7) Rocket Propulsion	7) Hinderson equation
		8) Newton's third law of motion	8) Solubility product
		9) Free body diagram	9) Common ion effect
		10) Normal reaction	10) Exercise - I
			11) Exercise - II
			12) Exercise - III
			13) Exercise - IV
			14) Exercise - V

	C.T. – 2, 23/10/2022, Sunday		
Nov	**4. Mathematical Induction**	**3. Kinematics (Motion along straight line and motion in a plane) (Physics-1)**	**7. Redox Reaction and Electrochemistry(Physical)**
	1) The principle of Mathematical Induction and its simple applications.	1) Relative Velocity in One Dimension	1) Concept of Oxidation and Reduction
		2) Relative Velocity in a plane	2) Oxidation Number
		3) Rain- Man Problem	3) Balancing redox reactions in terms of loss and
			4) gain of electron and change in oxidation numbers
		4) River-Boat(or Man) Problem	5) Conductance in electrolytic solutions, Specific and Molar conductivity, Variation of conductivity with concentration
		5) Exercise-I (Conceptual Question)	6) Kohlrausch`s law
		6) Exercise-II (Previous Years Questions)	7) Electrolysis and laws of electrolysis (elementary idea)
		7) Exercise-III (Analytical Questions)	8) Dry cell, Electrolytic cells, Galvanic cells
			9) Lead accumulator, EMF of a cell, Standard Electrode Potential, Nernst equation, Relation between Gibbs energy change and EMF of a cell, Corrosion
			10) Exercise - I
			11) Exercise - II
			12) Exercise - III

			13) Exercise - IV	
			14) Exercise - V	

		P.T. – 5, 06/11/2022, Sunday	
	2) Exercise – I	**4. Newton's laws of motion & friction (Physics-2)**	**8. s- Block Elements(Inorganic)**
	3) Exercise – II	1) System of masses tied by strings	1) General Introduction, Electronic Configuration, Occurrence,
	4) Exercise – III	2) Pulley System	2) Anomalous properties of the first element of each
			3) Group, Diagonal relationship, Trends in the variation of properties
	5) Exercise – IV	3) Spring Force	4) Trends in chemical reactivity with oxygen, water, hydrogen and halogens
	6) Exercise – V	4) Frame of reference	5) Uses
		5) Pseudo Force	6) Preparation and properties of some important Compounds: i- Sodium carbonate, ii- Sodium chloride, iii- Sodium Hydroxide and sodium hydrogen carbonate
		6) Mechanical Advantage	7) Biological importance of sodium and potassium
		7) Translational Equilibrium	8) Industrial use of lime and limestone
		8) Friction : Introduction	9) Biological importance of Mg and Ca
		9) Types of Friction	10) Exercise - I
		10) Laws of Limiting Friction	11) Exercise - II
		11) Laws of Kinetic Friction	12) Exercise - III
		12) Two Blocks System In Friction	13) Exercise - IV
		13) Methods of reducing friction	14) Exercise - V
		14) Advantages & Disadvantages of friction	
		15) Exercise-I (Conceptual Question)	
		16) Exercise-II (Previous Years Questions)	
		17) Exercise-III (Analytical Questions)	

		P.T. – 6, 20/11/2022, Sunday	
Dec	**5. Sequence and Series**	**5. Work, Energy & Power (Physics-1)**	**9. Organic Chemistry - Some Basic Principles and Techniques**
	1) Arithmetic and Geometric progressions, insertion of arithmetic.	1) Work	1) General Introduction, Methods of Purification qualitative and quantitative analysis
	2) Geometric means between two given numbers.	2) Energy	2) Classification and IUPAC nomenclature of Organic Compounds
	3) The relation between A.M. and G.M.	3) Conservative force, Non Conservative force and Central force	3) Electronic displacement in Covalent Bond: Inductive Effect, Electromeric Effect, Resonance, Hyper conjugation,
		4) Potential energy	4) Homolytic and Heterolytic Fission of Covalent Bond: Free Radical, Carbocation, Carbanions
		5) Laws of conservation of mechanical energy	5) Electrophiles and Nucleophiles, Types of Organic Reactions
		6) Spring potential energy and spring - block system	6) Exercise – I
		7) Power	7) Exercise – II
		8) Exercise-I (Conceptual Question)	8) Exercise – III

		9) Exercise-II (Previous Years Questions)	9) Exercise - IV
		10) Exercise-III (Analytical Questions)	10) Exercise – V
	C.T. – 3, 04/12/2022, Sunday		
	4) Sum up to n terms of special series: Sn, Sn2, Sn3.	**6. Circular motion (Physics-2)**	**10. Hydrocarbons (Organic)**
	5) Arithmetic Geometric progression.	1) Kinematics of Circular motion	1) Alkanes: Nomenclature, Isomerism, Conformations, Physical Properties, - Chemical Reactions Including free radical 2) mechanism of Halogenation, Combustion and Pyrolysis
	6) Exercise – I	2) Uniform circular motion and Non-uniform circular motion	3) Alkenes: Nomenclature, Structure of Double Bond, Geometrical Isomerism, Geometrical Isomerism, Methods of Preparation, Chemical Reactions, Addition of Hydrogen, halogen, water, hydrogenhalide (Markonikov`s addition and Peroxide effect), Ozonolysis, Oxidation, Mechanism of Electrophilic addition.
	7) Exercise – II	3) Dynamics of circular motion (Circular turning on roads, conical pendulum, death wall or Rotor)	4) Alkynes: Nomenclature, Structure of Triple Bond, Physical Properties, Methods of Preparation, Chemical Reactions: Acidic Character of Alkynes, - Addition reaction of hydrogen, halogen, hydrogen halide and water
	8) Exercise – III	4) Vertical Circular Motion	5) Aromatic Hydrocarbons: Introduction, IUPAC Nomenclature, Benzene, Resonance, Aromaticity, Chemical Properties, Mechanism of Electrophilic Substitution -Nitration and Sulphonation, Halogenation, Friedel Craft`s Alkylation and acylation, Directive Influence of Functional Group in Mono substituted Benzene, Carcinogenicity and Toxicity
	9) Exercise – IV	5) Exercise-I (Conceptual Question)	6) Exercise -I
	10) Exercise – V	6) Exercise-II (Previous Years Questions)	7) Exercise - II
		7) Exercise-III (Analytical Questions)	8) Exercise - III
			9) Exercise - IV
			10) Exercise - V
	P.T. – 7, 18/12/2022, Sunday		
Jan	**6. Matrices and Determinants**	**7. Centre of mass & Collisions (Physics-1)**	**11. Environmental Chemistry**
	1) **Matrices:** Algebra of matrices, types of matrices, and matrices of order two and three.	1) Centre of mass	1) Environmental pollution : Air, water and soil pollution
	2) **Determinants:** Properties of determinants, evaluation of determinants, the area of triangles using determinants.	2) Motion of Centre of Mass	2) Chemical reactions in atmosphere

		3) Application of methods of impulse and momentum to a system of particles	3) Smog
		4) Collision	4) Major atmospheric pollutants: i- Acid rain, ii - Ozone and its reactions, iii- Effects of depletion of ozone layer, iv- Greenhouse effect and global warming
		5) Exercise-I (Conceptual Question)	5) Pollution due to industrial wastes
		6) Exercise-II (Previous Years Questions)	6) Green chemistry as an alternating tool for reducing pollution
		7) Exercise-III (Analytical Questions)	7) Strategy for control of environmental pollution
			8) Exercise - I
			9) Exercise - II
			10) Exercise - III
			11) Exercise - IV
			12) Exercise - V
P.T. – 8, 08/01/2023, Sunday		
	3) Adjoint and evaluation of inverse of a square matrix using determinants and elementary transformations.	**8. Rotational motion (Physics-2)**	**12. Solid State**
	4) Test of consistency and solution of simultaneous linear equations in two or three variables using determinants and matrices.	1) Rigid body	1) Classification of solids based on different binding forces
	5) Exercise – I	2) Rotational motion of rigid body	2) Amorphous and crystalline solids
	6) Exercise – II	3) Kinematics of rotational motion	3) Unit cell in two dimensional lattices, Unit cell in three dimensional lattices
	7) Exercise – III	4) Moment of inertia	4) Calculation of density of unit cell, Packing in solids, Packing efficiency, Number of atoms in a cubic unit cell, Voids
	8) Exercise – IV	5) Radius of gyration	5) Point defects
	9) Exercise – V	6) Theorems of moment of inertia moment of inertia of some regular bodies	6) Electrical and magnetic properties
		7) Torque	7) Band theory of metals: i- Conductors, ii- Semiconductors, iii- Insulators
		8) Rotational equilibrium	8) Exercise - I
		9) Bending of cyclist on a horizontal turn	9) Exercise - II
		10) Angular momentum	10) Exercise - III
		11) Conservation of angular momentum	11) Exercise - IV
		12) Kinetic energy of rotation	12) Exercise - V
C.T. -4, 22/01/2023, Sunday		
Feb	**7. Binomial Theorem**	**9. Gravitation (Physics-1)**	**13. Chemical Kinetics(Physical)**
	1) Binomial theorem for a positive integral index.	1) Gravitational field and its intensity	1) Rate of reaction (Average and Instantaneous)
	2) General term and middle term.	2) Acceleration due to gravity	2) Factors affecting rate of reaction: i- Concentration, ii- Temperature, iii- Catalyst
		3) Gravitational potential energy	3) Order and Molecularity of a reaction
		4) Gravitational potential	4) Rate law and specific rate constant
		5) Escape velocity and escape energy	5) Integrated rate equation

Mathematics	Physics	Chemistry
	6) Kepler's laws of planetary motion	6) Half-life of zero and first order reactions
	7) Satellite motion	7) Concepts of collision theory
	8) Geo-stationary satellite & polar satellite	8) Activation energy
	9) Weightlessness	9) Arrhenius equation
	10) Exercise-I (Conceptual Question)	10) Exercise - I
	11) Exercise-II (Previous Years Questions)	11) Exercise - II
	12) Exercise-III (Analytical Questions)	12) Exercise - III
	8. Rotational motion (Physics-2)	13) Exercise - IV
	13) Rolling motion	14) Exercise - V
P.T. – 9, 05/02/2023, Sunday		
3) Properties of Binomial coefficients and simple applications.	14) Rolling motion on inclined plane	**14. p - Block Elements(Inorganic)**
4) Exercise – I	15) Exercise-I (Conceptual Question)	1) General Introduction
5) Exercise – II	16) Exercise-II (Previous Years Questions)	2) Group 13 elements: General introduction, i- Electronic configuration, ii- Occurrence, iii-Variation of properties, iv- Oxidation state, v- Trends in chemical reactivity, vi- Anomalous behavior of first element of the 3) Group.
6) Exercise – III	17) Exercise-III (Analytical Questions)	4) Some important compounds: borax, boric acid, 5) boron hydrides
7) Exercise – IV	**10. Properties of matter & Fluid mechanics (Physics-2)**	6) Aluminum: uses, reaction with acids and alkalis
8) Exercise – V	1) Elasticity	7) Group 14 elements: i- Electronic configuration, ii- Occurrence, iii-Variation of properties, iv- Oxidation state, v- Trends in chemical reactivity, vi- Anomalous behavior of first element of the 8) Group. viii- Carbon : allotropic forms, ix- Physical and chemical properties, x- Uses of some important compounds : Oxides
	2) Hydro-statics	9) Important compounds of silicon and uses: i- Silicon tetrachloride, silicones, silicates and 10) Zeolite, ii- Uses
	3) Hydro-dynamics	11) Group 15 elements: i- Electronic configuration, ii- Occurrence, iii-Variation of properties, iv- Oxidation state, v- Trends in chemical reactivity, vi- Anomalous behavior of first element of the, vii - Preparation and properties of ammonia and nitric acid, viii - Oxides of nitrogen, ix - Phosphorous; allotropic forms
	4) Viscosity	12) Compounds of phosphorous: preparation and properties of phosphine
		13) Halides (PCl_3, PCl_5) and oxoacids
P.T. – 10, 19/02/2023, Sunday		

Month	8. Limit, Continuity and Differentiability	11. Thermal physics (Physics-1)	14. p - Block Elements(Inorganic)
March	1) Real-valued functions, algebra of functions, polynomials, rational, trigonometric, logarithmic and exponential functions, inverse functions.	1) Temperature and thermal expansion	14) Group 16 elements: General introduction, i- Electronic configuration, ii- Occurrence, iii- Variation of properties, iv- Oxidation state, v- Trends in chemical reactivity, vi- Anomalous behavior of first element of the Group.
	2) Graphs of simple functions.	i. temperature and thermal expansion	15) Dioxygen : preparation, properties and uses
		ii. Thermal expansion	16) Classification of oxides; ozone
		2) Heat	
		i. specific heat (S or C)	
		ii. Latent heat	
		iii. Change of state	
		iv. Phase of substance and phase diagram	

<div align="center">C.T.- 5, 05/03/2023, Sunday</div>

Month	8. Limit, Continuity and Differentiability	10. Properties of matter & Fluid mechanics (Physics-2)	14. p - Block Elements(Inorganic)
	3) Limits, continuity, and differentiability.	10. Properties of matter & Fluid mechanics (Physics-2)	17) Sulphur - allotropic forms
	4) Differentiation of the sum, difference, product, and quotient of two functions.	3) Surface tension	18) Compounds of Sulphur: preparation, properties and uses of Sulphur dioxide
	5) Exercise – I	4) Exercise-I (Conceptual Question)	19) Sulphuric acid: industrial process of manufacture, properties and uses
	6) Exercise – II	5) Exercise-II (Previous Years Questions)	20) Oxoacids of Sulphur
	7) Exercise – III	6) Exercise-III (Analytical Questions)	21) Exercise – I
	8) Exercise – IV	**12. Oscillation (Physics-2)**	22) Exercise – II
	9) Exercise – V	1) Periodic motion and its characteristics and types of SHM	23) Exercise – III
		2) Simple harmonic motion(SHM) and its equation; Velocity, Acceleration and Phase	24) Exercise – IV
		3) Energy in SHM - Potential and K.E.	25) Exercise – V
		4) Oscillation of spring block system	

<div align="center">P.T. – 11, 19/03/2023, Sunday</div>

Month	8. Limit, Continuity and Differentiability	11. Thermal physics (Physics-1)	15. d and f Block elements(Inorganic)
April	10) Differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite and implicit functions; derivatives of order up to two.	v. Heating curve 3) Laws of mixtures	1) General introduction: Electronic Configuration, Characteristics of transition metals, General trends in properties of first row transition Metals
	11) Rolle's and Lagrange's Mean Value Theorems.	26) Mode of heat transfer	2) Metallic character
		i. Thermal conduction	3) Ionization enthalpy, Oxidation state, Ionic radii, color, Catalytic property, magnetic property
		ii. Convention	4) Interstitial compounds
		iii. Thermal radiation	5) Alloy formation
		iv. Kirchhoff's law	6) Preparation and properties of $K_2Cr_2O_7$ and

				7)	$KMnO_4$

		v. Stefan's law	8)	Lanthanides - Electronic configuration,
			9)	oxidation state, Chemical reactivity, Lanthanide contraction and its consequences
		vi. Newton's law of cooling	10)	Actinides - Electronic configuration, oxidation state and comparison with lanthanides
		vii. Wien's displacement law	11)	Exercise - I
			12)	Exercise - II
			13)	Exercise - III
			14)	Exercise - IV
			15)	Exercise - V

12) Applications of derivatives: Rate of change of quantities, monotonic increasing and decreasing functions, Maxima, and minima of functions of one variable, tangents, and normal	**12. Oscillation (Physics-2)**	**14. p - Block Elements(Inorganic)**
13) Exercise – I	27) Simple pendulum	26) Group 17 elements: General introduction, i- Electronic configuration, ii- Occurrence, iii- Variation of properties, iv- Oxidation state, v- Trends in chemical reactivity, vi- Anomalous behavior of first element of the Group.
14) Exercise – II	28) Different types of oscillations (Free, Damped, Forced Oscillation & Resonance)	27) Compounds of halogens: i- Preparation, properties and uses of chlorine and hydrochloric acid, ii- Interhalogen compounds, iii- Oxoacids of halogen
15) Exercise – III	29) Exercise-I (Conceptual Question)	28) Group 18 elements: General introduction, i- Electronic configuration, ii- Occurrence, iii- Variation of properties, iv- Oxidation state, v- Trends in chemical reactivity, vi - Compounds of Xenon
16) Exercise – IV	30) Exercise-II (Previous Years Questions)	29) Exercise - I
17) Exercise – V	31) Exercise-III (Analytical Questions)	30) Exercise - II
	13. Wave motion & Doppler's Effect (Physics-2)	31) Exercise - III
	1) Wave and its characteristics	32) Exercise - IV
	2) Progressive wave on string	33) Exercise - V
	3) Sound Waves & its characteristics	
	4) Principle of superposition of waves	

May	**9. Integral Calculus**	**11. Thermal physics (Physics-1)**	**16. Thermodynamics(Physical)**
	1) Integral as an antiderivative.	5) Kinetic theory of gases	1) First law of thermodynamics: i- Internal energy, ii- Enthalpy, iii- Heat capacity and specific heat, iv- Measurement of ΔU and ΔH, v- Hess`s law of constant heat summation

2) Fundamental integrals involving algebraic, trigonometric, exponential and logarithmic functions.	i. Ideal gas concept	2) Enthalpy of: bond dissociation, combustion,formation, atomization, sublimation, phase transition, ionization, solution and dilution
3) Integration by substitution, by parts, and by partial fractions.	ii. Gas law	3) introduction of entropy as state function
	iii. Different speeds of gas molecules	
	iv. Expression for pressure of an ideal gas	
	v. Degree of freedom (f)	
	vi. Maxwell's law of equipartition energy	
	vii. Mean free path	
P.T. – 14, 14/05/2023, Sunday		
4) Integration using trigonometric identities.	**13. Wave motion & Doppler's Effect (Physics-2)**	4) Second law of thermodynamics
5) Integral as limit of a sum.	6) Reflection of waves, standing waves in strings	5) Gibbs energy change for spontaneous and non -spontaneous process
6) Exercise solving	7) Stationary waves in organ pipe	6) Criteria for equilibrium and spontaneity
	8) Doppler effect in sound waves and light waves	7) Third law of thermodynamics
	9) Exercise-I (Conceptual Question)	8) Exercise - I
	10) Exercise-II (Previous Years Questions)	9) Exercise - II
	11) Exercise-III (Analytical Questions)	10) Exercise - III
	12) Thermodynamics	11) Exercise - IV
		12) Exercise - V
C.T.- 7, 28/05/2023, Sunday		
June **9. Integral Calculus**	**11. Thermal physics (Physics-1)**	**17. Polymers**
7) Evaluation of simple integrals:	i. Thermodynamic system and internal energy	1) Classification - Natural and Synthetic
8) Fundamental Theorem of Calculus.	ii. Work done by thermodynamic system	2) Methods of polymerization
	iii. First law of thermodynamics	3) Copolymerization
	iv. Different processes	4) Some important polymers
	v. Relation between degree of freedom and specific heat of gas	5) i- Natural and Synthetic like Polyesters, Bakelite, ii- Rubber
	vi. Second law of thermodynamics	6) Biodegradable and non - biodegradable polymers
	vii. Carnot cycle	7) Exercise - I
	13) Exercise-I (Conceptual Question)	8) Exercise - II
	14) Exercise-II (Previous Years Questions)	9) Exercise - III
	15) Exercise-III (Analytical Questions)	10)Exercise - IV
		11)Exercise - V
P.T. – 15, 04/06/2023, Sunday		
9) Properties of definite integrals, evaluation of definite integrals, determining areas of the regions bounded by simple curves in standard form.	**14. Electrostatics (Physics-2)**	**18. Haloalkanes and Haloarenes (Organic)**

	10) Exercise – I	1) Electric charge	1) Haloalkanes : Nomenclature, Nature of C-X bond, Physical and chemical properties, Mechanism of substitution reactions, Optical rotation
	11) Exercise – II	2) Coulomb's law	2) Haloarens: Nature of C-X bond, Substitution reactions
	12) Exercise – III	3) Electric field	3) Environement effect of - Dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT
	13) Exercise – IV	4) Electric field lines & electric flux	4) Exercise - I
	14) Exercise – V		5) Exercise - II
			6) Exercise - III
			7) Exercise – IV
			8) Exercise – V
	P.T. – 16, 18/06/2023, Sunday		
July	**C.T. – 8, 02/07/2023, Sunday**		
	10. Coordinate Geometry	**15. Current Electricity (Physics-1)**	**19. Biomolecules**
	1) Cartesian system of rectangular coordinates in a plane, distance formula, section formula, locus, and its equation, translation of axes, the slope of a line, parallel and perpendicular lines, intercepts of a line on the coordinate axes.	1) Electric current & drift velocity	1) Carbohydrate
	2) **Straight lines:** Various forms of equations of a line, intersection of lines, angles between two lines, conditions for concurrence of three lines.	2) Ohm's law & Electric resistance	2) Classification: Monosaccharides, polysaccharides, oligosaccharides, D.L. Configuration, Oligosaccharides
	3) Distance of a point from a line, equations of internal and external bisectors of angles between two lines, coordinates of the centroid, ortho Centre, and circum centre of a triangle, equation of the family of lines passing through the point of intersection of two lines.	3) Combination of resistors	3) Proteins: Elementary idea of amino acids, peptide bonds, polypeptides, proteins, Primary structure, secondary structure, tertiary structure and quaternary structure, Denaturation of proteins, Enzymes
		4) Kirchhoff's laws	4) Hormones
			5) Vitamins : Classification and functions
			6) Nucleic acids : DNA and RNA
			7) Exercise - I
			8) Exercise - II
			9) Exercise - III
			10) Exercise - IV
			11) Exercise - V
	P.T. – 17, 16/07/2023, Sunday		
	4) Circles, conic sections: Standard form of the equation of a circle, the general form of the equation of a circle, its radius and centre,	**14. Electrostatics (Physics-2)**	**20. Alcohols, Phenols and Ethers**

Month			
	equation of a circle when the endpoints of a diameter are given, points of intersection of a line and a circle with the centre at the origin and condition for a line to be tangent to a circle, equation of the tangent.		
	5) Sections of cones, equations of conic sections (parabola, ellipse, and hyperbola) in standard forms, condition for y = mx + c to be a tangent and point (s) of tangency.	5) Electrostatics potential energy & electric potential	1) Alcohols: Nomenclature, Methods of preparation, Physical and chemical properties, Identification of primary, secondary and tertiary alcohol Mechanism of dehydration, Uses with special reference to methanol and ethanol
	6) Exercise – I	6) Electric dipole	2) Phenols : Nomenclature, , Physical and chemical properties, Acidic nature of phenols, Electrophilic substitution reactions, Uses of phenols
	7) Exercise – II	7) Motion of charged particle in uniform electric field	3) Ethers : Nomenclature, Nature of carbonyl group, Methods of preparation, Physical and chemical properties, Uses
	8) Exercise – III	8) Conductor & its properties	4) Exercise - I
	9) Exercise – IV	9) Exercise-I (Conceptual Question)	5) Exercise - II
	10) Exercise – V	10) Exercise-II (Previous Years Questions)	6) Exercise - III
		11) Exercise-III (Analytical Questions)	7) Exercise - IV
			8) Exercise - V
	P.T. – 18, 30/07/2023, Sunday		
August	**11. Statistics and Probability**	**15. Current Electricity (Physics-1)**	**21. Aldehyde, Ketones and Carboxylic Acids**
	1) **Measures of Dispersion:** Calculation of mean, mode, median, variance, standard deviation, and mean deviation of ungrouped and grouped data.	12) Cells, combinations of cells, electrical heating and power	1) Aldehydes and Ketones : Nomenclature, Nature of carbonyl group, Methods of preparation, Physical and chemical properties, Mechanism of nucleophilic addition, Reactivity of alpha hydrogen in aldehyde, Uses
		13) Measuring Devices	
		14) Potentiometer	2) Exercise - I
		15) Applications of Potentiometer	3) Exercise - II
		16) Exercise-I (Conceptual Question)	4) Exercise - III
		17) Exercise-II (Previous Years Questions)	5) Exercise - IV
		18) Exercise-III (Analytical Questions)	6) Exercise - V
	C.T. – 9, 13/08/2023, Sunday		
	2) Probability: Probability of events, multiplication theorems, addition theorems, Baye's theorem, Bernoulli trials, Binomial distribution and probability distribution.	**16. Capacitor (Physics-2)**	**22. Organic compound containing Nitrogen**
	3) Exercise – I	1) Capacitance	1) Amines: Nomenclature, Classification, Structure, methods of preparation, Physical and chemical properties, Identification of primary,

				secondary and tertiary
				2) Amines, Uses
	4) Exercise – II	2) Energy stored in capacitor	3) Exercise - I
	5) Exercise – III	3) Capacitance of spherical conductor	4) Exercise - II
	6) Exercise – IV	4) Parallel plate capacitor	5) Exercise - III
	7) Exercise – V	5) Effect of dielectric	6) Exercise - IV
		6) Dielectric slab inside a parallel plate capacitor	7) Exercise - V
		7) Electrostatic pressure	
		8) Combination of capacitor	
		9) Sharing of charges	
		10) Charging and discharging of condenser	
		11) Van De graph Generator	
		12) Exercise-I (Conceptual Question)	
		13) Exercise-II (Previous Years Questions)	
		14) Exercise-III (Analytical Questions)	

<div align="center">

P.T. – 19, 27/08/2023, Sunday

</div>

Sept	**12. Trigonometry**	**17. Magnetic effect of current and magnetism (Physics-1)**	**23. Surface Chemistry**
	1) Identities of Trigonometry and Trigonometric equations.	1) Oersted's Discovery and Biot - savart Law	1) Adsorption - Physisorption and chemisorption
	2) Functions of Trigonometry.	2) Special Thumb rules	2) Factors affecting adsorption of gases on solids
		3) Application of Biot - savart law	3) Catalysis: Homogeneous, Heterogeneous
		4) Ampere's circuital law and its applications(Infinitely long straight wire, solenoid and toroid)	4) Activity and selectivity : enzyme catalysis
		5) Motion of charge in magnetic field	5) Colloidal State: distinction between true
			6) solutions
			7) Colloids and suspensions
			8) Properties of colloids: Tyndall effect
			i- Brownian movement
			ii- Electrophoresis
			iii- Coagulation
			9) Emulsions - types of emulsions
			10) Exercise - I
			11) Exercise - II
			12) Exercise - III
			13) Exercise - IV
			14) Exercise - V

<div align="center">

P.T. – 20, 10/09/2023, Sunday

</div>

	3) Properties of Inverse trigonometric functions	**18. Electromagnetic Induction (EMI) (Physics-2)**	**24. General Principles andProcess of Isolation of Elements**
	4) Problems on Heights and Distances.	1) Magnetic flux	1) Principles and methods of extraction
	5) Exercise – I	2) Electromagnetic induction	i- Concentration
	6) Exercise – II	3) Faraday's law	ii- Oxidation
	7) Exercise – III	4) Lenz's law	iii- Reduction electrolytic method and refining
	8) Exercise – IV	5) Induced parameters	2) Occurrence and principles of extraction of Al, Cu, Zn and Fe
	9) Exercise – V	6) Types of EMI	

		7) Self-induction	
		8) L- R circuit	
		9) Energy stored in inductor	
		10) Mutual induction	
		11) Dynamic emi (motion EMF)	
		12) Periodic EMI	
		13) Main Applications of EMI	
		14) Exercise-I (Conceptual Question)	
		15) Exercise-II (Previous Years Questions)	
		16) Exercise-III (Analytical Questions)	
C.T. – 10, 24/09/2023, Sunday		
Oct	**13. Differential Equations**	**17. Magnetic effect of current and magnetism (Physics-1)**	3) Exercise – I
	1) Ordinary differential equations, their order, and degree.	6) Magnetic dipole moment	4) Exercise – II
	2) Formation of differential equations.	7) Magnetic dipole in magnetic moment	5) Exercise – III
	3) The solution of differential equations by the method of separation of variables.	8) Atomic magnetism	6) Exercise – IV
		9) Geomagnetism	7) Exercise – v
		10) Application of geomagnetism	
		11) (tangent galvanometer, vibration magnetometer & neutral point)	
		12) Magnetic materials	
		13) Exercise-I (Conceptual Question)	
		14) Exercise-II (Previous Years Questions)	
		15) Exercise-III (Analytical Questions)	
P.T. – 21, 08/10/2023, Sunday		
	4) The solution of homogeneous and linear differential equations of the type:	**18. Alternating Current (AC) (Physics-2)**	**25. Chemistry in Everyday Life**
	5) Exercise – I	1) Alternating current and voltage	1) Chemicals in medicines
	6) Exercise – II	2) Different type of AC Circuits	i- Analgesics
	7) Exercise – III	3) Inductance, Capacitance and Resistance in series	ii- Tranquilizers
	8) Exercise – IV	4) Power in AC Circuits	iii- Antiseptic, disinfectants, antimicrobials,
	9) Exercise – V	5) LC Oscillation	iv- Antifertility drugs, antibiotics, antacids, antihistamines
		6) Exercise-I (Conceptual Question)	2) Chemicals in food
		7) Exercise-II (Previous Years Questions)	i- Preservative, artificial sweetning agents
		8) Exercise-III (Analytical Questions)	ii- Elementary idea of antioxidants
			3) Exercise
			4) Cleansing agents
			i- Soaps and detergents, cleansing agents
P.T. – 22, 22/10/2023, Sunday		
Nov	**14. 3D Geometry**	**19. Electromagnetic Waves (EMW) (Physics-1)**	5) Exercise - I
	1) Coordinates of a point in space, the distance between two points.	1) Concept of displacement current	6) Exercise - II

	2) Section formula, direction ratios and direction cosines, the angle between two intersecting lines.	2) Maxwell's equations	7) Exercise- III
		3) Hertz experiment	8) Exercise - IV
		4) Properties of EMW	9) Exercise - V
		5) Transverse nature of EMW	
		6) Parts of electromagnetic spectrum	
		7) Exercise-I (Conceptual Question)	
		8) Exercise-II (Previous Years Questions)	
		9) Exercise-III (Analytical Questions)	

C.T. – 11, 05/11/2023, Sunday			
	3) Skew lines, the shortest distance between them and its equation.	**20. Ray Optics and Optical Instruments (Physics-2)**	
	4) Equations of a line and a plane in different forms, the intersection of a line and a plane, coplanar lines.	1) Reflection of light	
	5) Exercise – I	2) Reflection from plane mirror	
	6) Exercise – II	3) Spherical mirror	
	7) Exercise – III	4) Refraction of Light	
	8) Exercise – IV	5) Total internal reflection	
	9) Exercise – V	6) Refraction at curved surfaces	
		7) Lens	
		8) Combination of Lens & mirrors	
		9) Chromatic aberration	
		10) Prism	
		11) Dispersion of Light	

P.T. – 23, 19/11/2023, Sunday			
Dec	**15. Vector Algebra**	**22. Modern Physics - I (Photo Electric Effect and Matter Waves) (Physics-1)**	**21. Aldehyde, Ketones and Carboxylic Acids**
	1) Scalars and Vectors. Addition, subtraction, multiplication and division of vectors.	1) Photo Electric Effect	1) Carboxylic acids : Nomenclature, Acidic nature, Methods of preparation, Physical and chemical properties, Uses
	2) Vector's Components in 2D and 3D space.	2) Quantum Theory	2) Exercise – I
		3) Experimental study of P.E.E. by Lenard	3) Exercise – II
		4) Failure of wave theory of light	
		5) Explanation by Einstein	
		6) Photo Cell	
		7) Matter Wave	
		8) Dual nature of Light	
		9) De - Broglie Hypothesis	
		10) Davisson Germer Experiment	

P.T. – 24, 03/12/2023, Sunday			
	3) Scalar products and vector products, triple product.	**20. Ray Optics and Optical Instruments (Physics-2)**	4) Exercise – III
	4) Exercise - I	12) Optical Instruments [Simple microscope, Compound microscope, Telescope, Lens - Camera]	5) Exercise – IV
	5) Exercise – II	13) Defects of Vision	6) Exercise – V
	6) Exercise – III	14) Some natural phenomenon of sunlight	

	7) Exercise – IV	15) Exercise - I (Conceptual Questions)	
	8) Exercise - V	16) Exercise - II (Previous Years Question)	
		17) Exercise - III (Analytical Questions)	
C.T. – 12, 17/12/2023, Sunday			
Jan	**16. Mathematical Reasoning**	**22. Modern Physics - I (Photo Electric Effect and Matter Waves) (Physics-1)**	**22. Organic compound containing Nitrogen**
	1) Statements and logical operations: or, and, implied by, implies, only if and if.	11) Explanation of Bohr Quantization Condition	8) Cyanides and isocyanides
	2) Understanding of contradiction, tautology, contrapositive and converse.	12) Exercise - I (Conceptual Questions)	9) Diazonium salts: Preparation, Chemical reactions and importance in synthetic organic chemistry
		13) Exercise - II (Previous Years Questions)	
		14) Exercise - III (Analytical Questions)	
		21. Wave Optics (Physics-2)	
		1) Interference of Light	
		2) Nature of light	
		3) Interference of light	
P.T. – 25, 24/12/2023, Sunday			
	3) Exercise – I	4) Young's double slit experiment	10) Exercise – I
	4) Exercise – II	5) Effect of thin films	11) Exercise – II
	5) Exercise – III	6) Diffraction of light	12) Exercise – III
	6) Exercise – IV	7) Fraunhofer diffraction due to single slit	13) Exercise – IV
	7) Exercise – V	8) Rayleigh's criterion for Resolution & Resolving power	14) Exercise – V
		9) Polarization	
		10) Methods of obtaining plane polarized light	
		11) Exercise - I (Conceptual Questions)	
		12) Exercise - II (Previous Years Questions)	
		13) Exercise - III (Analytical Questions)	
P.T – 26, 21/01/2024, Sunday			
Feb		**23. Semiconductor and Digital Electronics (Physics-1)**	
		1) Energy band theory	
		2) Properties of semiconductor	
		3) P - N Junction	
		4) Application of junction Diode	
		5) Rectifier	
		6) Zener diode	
		7) Optoelectric junction devices(LED, Photodiode, Solar cell)	
		8) Transistor	
		9) Application of Transistor	
		10) Transistor as a switch	
		11) Transistor as an amplifier	
		12) Transistor as an Oscillator	
		13) Integrated Circuit	
		14) Logic gates	
		15) Exercise - I (Conceptual Questions)	
		16) Exercise - II (Previous Years Questions)	

		17) Exercise - III (Analytical Questions)	
		21. Wave Optics (Physics-2)	
		14) Polarization	
		15) Methods of obtaining plane polarized light	
		16) Exercise - I (Conceptual Questions)	
		17) Exercise - II (Previous Years Questions)	
		18) Exercise - III (Analytical Questions)	
	B.P.T – 1, 04/02/2024, Sunday		
	B.P.T – 2, 18/02/2024, Sunday		
	B.P.T – 3, 03/03/2024, Sunday		
	B.P.T – 4, 10/03/2024, Sunday		