

Test Planner (FT, TE) for PHASE-1 (2020-21)

Sr. No.	Class	Test Name	Test Date	Test Syllabus
1	XI	FT-01	8-May-20	<p>Physics : Physical World, Units & Measurements Chemistry : Some Basic Concepts of Chemistry-I: Nature of Matter, Properties of matter and their measurement SI unit, Mass weight, Volume temperature, Need for standard reference, Scientific notation, Precision and accuracy : (i) Significant figure and calculation involving significant figure., Law of chemical combination : (i) Law of conservation of mass, (ii) Law of constant combination, (iii) Law of multiple proportion, (v) Gay-Lussac's law, (vi) Avagadro law, (vii) Dalton's atomic theory Atomic mass : (i) Relative atomic mass, (ii) Average atomic mass, (iii) Molecular mass calculation using atomic mass. Mole concept : (i) Calculation based on mole concept : (i) Molar mass and concept of gram atom, gram molecule, Formula representation of molecule : (i) Empirical formula, (ii) Molecular formula, (iii) Formula unit, (ii) Concentration term : (i) Molarity, (ii) Molalitiv. (iii) Mole fraction. Mathematics : Basics of Mathematics, Sets:, Wavy curve method and Inequalities</p>
2	XII	FT-01	8-May-20	<p>Physics : Electric Charges and Field :Electric charges, Conductors and insulators, Charging by induction, Charging by friction, Properties of electric charge., Coulomb's law, Vector form of Coulomb's law, principle of superposition, forces between multiple charges, Electric field, Electric field due to a point charge, superposition principle, Electric field due to a group of charges, Motion of a charged particle in uniform electric field, Electric field of a continuous charge distribution, volume, surface and linear charge distribution, Electric field due to a linear charge distribution like a straight rod, Electric field on the axis of a disk, ring and other cases of interest, Electric lines of force, properties of lines of force, lines of force due to a positive and negative point charge. Electric flux, Gauss's Law and application, Calculating electric field using Gauss's law. Electric field due to a point charge, An infinite linear charge distribution, A hollow cylinder of charge, Charged solid cylinder, A shell of charge, Uniform sphere of charge, An infinite thin non conducting sheet Chemistry : Solid State: Introduction : Three states of mater, Classification of solids : (i) Characteristic properties, (ii) Difference between crystalline and amorphous solids, (iii) Classification of crystalline solids; Structure of solids : (i) Basic definitions, (ii) Types of unit cells, Seven crystal systems and Bravais lattice, Calculation of effective number of particles in a unit cell.,Elements of symmetry in cube : (i) Centre of symmetry, (ii) Plane of symmetry, (iii) Axis of symmetry, Close-packed structures : (i) 1-D close packing, (ii) 2-D close packing, (iii) 3-D close packing, (AAA... type packing).,ABAB.....type packing, (i) hexagonal close packing, (ii) Cubic close packing and voids, Packing efficiency.,Radius ratio in ionic solids : r^+/r^- in voids; Density, Coordination number,Types of crystal structure : (i) AB type, (ii) AB₂ and A₂B type, (iii) Spinel and inverse spinel structures; Effect of temperature and pressure, Imperfection in solids : (i) Stoichiometric defects, (ii) Non-stoichiometric defects; Magnetic and electrical properties of solids. Mathematics : Relations and Functions: Relation : Definition, Domain, Range, Total number of relations, Composition & inverse of relations, Types of relation, Reflexive, Symmetric, Transitive, Equivalence, Examples,Function : Domain,Range, Graph, Example,Type of Functions : One-one, Many One, Onto, Into, Examples,</p>

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Sr. No.	Class	Test Name	Test Date	Test Syllabus
3	XI	FT-02	22-May-20	<p>Physics : Motion in a Straight Line-I Concept of position, path length, displacement, average velocity & average speed, Instantaneous velocity and speed., Differentiation, Its physical significance, Important formulae for Differentiation, Application of Differentiation, Integration, Its physical significance, Important formulae, Application of Integration</p> <p>Chemistry : Some Basic Concepts of Chemistry-II: Concept of limiting reagent : Use of stoichiometry in balanced equation and limiting reagent concept, Gravimetric and volumetric analysis., Stoichiometry : (i) Problem on gravimetric and volumetric analysis, (ii) Principle of atom conservation; Equivalent mass : (i) Equivalent mass and gram equivalent, (ii) Normality, (iii) Relation between molarity and normality, (iv) n-factor, Stoichiometry - Application of gram equivalent concept and percentage of free SO₃ in oleum,</p> <p>Mathematics : Relations and Functions, Transformation of Graphs -I: Introduction, Cartesian products of sets & Relations, Definition of function., Definition of domain, Range, Methods to find out domain, Some basic functions and their graphs, Algebra of functions, Identity function constant function, polynomial function, , Rational function, Irrational functions. Modulus function and their properties ,</p>
4	XII	FT-02	22-May-20	<p>Physics : Electric Charges and Field : Electric dipole, Dipole moment, Electric field due to an electric dipole on axial line, equatorial line and at any other point., Electric dipole in a uniform electric field, Potential energy associated with dipole, Dipole in non-uniform electric field, Dipole oscillation</p> <p>Electrostatic Potential and Capacitance: Electrostatic potential energy , Electrostatic potential energy of two and more point charges, Electrostatic potential, Potential difference, Potential due to a point charge, Potential due to system of charges, Potential due to continuous charge distribution e .g ., Uniformly charged disc/ring, Relation between electric field and potential, Electric potential of an Annulus, Potential due to a spherical shell, Uniform sphere of charge, Infinite long linear charge, Equipotential surface, Equipotential surface due to a point charge and electric dipole, a long linear charge, Plane sheet of charge., Electrostatics of conductors : A conductor placed in electric field, A charged isolated conductor. Electric field near the surface of conductor, The role of sharp points on conducting surfaces</p> <p>Chemistry : Solutions: Introduction : (i) Basic definitions, (ii) Type of solutions; methods of expressing strength of solutions; Solubility : (i) Solid in liquid, (ii) Gas in liquid (with Henry's law), (iii) Liquid in liquid, Vapour pressure of solution : (i) Factors affecting vapour pressure, (ii) Raoult's law, (iii) Ideal solutions., Non-ideal solutions, (iv) Classification of non-ideal solutions, Composition of vapour; Azeotropic mixture, Colligative properties : (i) Relative lowering of vapour pressure., (ii) Elevation in boiling point, (iii) Depression in freezing point, (iv) Osmotic pressure, van't Hoff factor and abnormal molecular mass : (i) Association of solute, (ii) Dissociation of solute,</p> <p>Mathematics : Relations and Functions: Composite Function, Inverse of a Function, Even/Odd Functions, Periodic function, Binary Operation and its Types, Miscellaneous question, Assignment discussion,</p>

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Sr. No.	Class	Test Name	Test Date	Test Syllabus
5	XI	FT-03	5-Jun-20	<p>Physics : Motion in a Straight Line-II: Average and Instantaneous acceleration, Kinematics of non uniformly accelerated motion, Uniformly accelerated motion, Motion Under Gravity, Graphs between position, velocity, acceleration and time for uniform and nonuniform accelerated motion., Relative velocity in one Dimension only</p> <p>Chemistry : Structure of Atom</p> <p>Mathematics : Relations and Functions, Transformation of Graphs-II: Signum function, Greatest integer, Fractional part function, Exponential function, logarithmic function and their properties., Algebra of real function, replacement properties of function, Transformations of Graphs, Assignment discussion.,</p>
6	XII	FT-03	5-Jun-20	<p>Physics : Electrostatic Potential and Capacitance: Conductor with cavity, Electrostatic pressure, Grounding of conductors, Dielectrics and polarisation, Capacitor and Capacitance, Types of capacitors-Parallel plate Capacitor, spherical capacitor, Cylindrical capacitor, Charging of a capacitor, Energy stored in a capacitor, Force between the plates of a parallel plate capacitor, Grouping of capacitors, Capacitors with dielectrics, Sharing of charge and common potential, Laws for solving complex circuits of capacitors, Van De Graff Generator</p> <p>Chemistry : Electrochemistry; Introduction ; Electrolytic conductance :(i) Conductors, (ii) Ohm's law, (iii) Resistance, (iv) Conductance, (v) Cell constant, (vi) Molar and equivalent conductance,(vi) Molar and equivalent conductance, Variation of conductance with concentration, Kohlrausch's law and its application, ,Codoctometric titration (Preceptation reaction, Strong acid - strong base reaction, Weak acid-weak base reaction, weak acid-strong reaction),Electrolysis : (i) Electrolytic cell, (ii) Product of electrolysis, (iii) Faraday's law of electrolysis,</p> <p>Mathematics : Inverse Trigonometric Functions: Principal value, Graphical representation, Properties, Converting one inverse function into another, example, Sum, difference formula of inverse function, Solution of inverse trigonometric equations. Miscellaneous question, Assignment discussion</p>
7	XI	TE-01	12-Jun-20	Syllabus of FT-01 to FT-03
8	XII	TE-01	12-Jun-20	Syllabus of FT-01 to FT-03

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Sr. No.	Class	Test Name	Test Date	Test Syllabus
9	XI	FT-04	26-Jun-20	<p>Physics : Motion in a Plane</p> <p>Chemistry : Classification of Elements and Periodicity in Properties, Chemical Bonding and Molecular Structure-I (i) What is chemical bond ? (ii) Types of chemical bond (Just introduction), (iii) Lewis dot structure (overview), (iv) Formal charge., (v) Ionic bonding (energetics), (vi) Properties of ionic solid, (i), Covalent bonding (valence bond theory), (ii) Type of orbital overlap (s and p bond), (iii) Orbital overlap to explain simple molecules, (iv) Hybridisation concept in introduction, (i) Overlap of hybridised orbital and orbital overlap diagram, (ii) Prediction of hybridisation state and shape of molecule.</p> <p>Mathematics : Trigonometric Functions - I : Trigonometric Ratios & Identities, Transformation formulae, Trigonometric Equation (based on NCERT only)</p>
10	XII	FT-04	3-Jul-20	<p>Physics : Current Electricity: Electric current, Electric current in conductors, Ohm's law, Factors affecting resistance of a conductor, Current density and electric field, Drift of electrons and the origin of resistivity, mobility, limitations of Ohm's law, Resistor colour codes, Temperature dependence of resistivity, Calculating resistance for different shapes, Electrical energy, Power, Combination of resistors, Cells, emf and internal resistance of a cell, Maximum power transfer theorem, Cells in series and parallel, Kirchoff's laws., Earthing or grounding in an electric circuit</p> <p>Chemistry : Electrochemistry: Electrochemical cell : (i) Cell representation (ii) Working of a cell, (iii) Function of salt bridge, (iv) Electrode potential and emf of a cell, Electrochemical series and its application; (i) Nernst's equation, Applications of Nernst's Equation, Equilibrium Constant, Concentration Cell, Thermodynamic Relationship of a cell, Standard electrodes : Gas-gas ion electrode, Metal-metal ion electrode, Metal-metal insoluble electrodes, Redox electrode. Batteries, Fuel Cell, Corrosion,</p> <p>Mathematics : Matrices : Definition Types of matrices Operations on Matrices- Equality of matrices, Algebra of matrices-Addition, Subtraction, Multiplication by scalar, matrix multiplication & Properties, Trace of a matrix, Transpose of a matrix ; Symmetric, Skew Symmetric, Elementary row transformation</p> <p>Determinants : Determinants of matrix of order one, two, three, Properties of Determinant, product of Determinant, Applications of Determinants- Areas, Minor and Co-factors, Adjoint of a matrix, Inverse of a matrix, Applications of Determinants and Matrices, Inverse of a matrix, Applications of Determinants and Matrices</p>
11	XI	FT-05	10-Jul-20	<p>Physics : Laws of Motion-I: The law of inertia, Newton's first law of motion, Momentum, Newton's second law of motion, Impulse, Newton's third law of motion, Conservation of linear momentum., Equilibrium of a particle, Common forces in mechanics (Weight, tension, normal reaction, Spring force), Motion of connected bodies, Motion of a body on an inclined plane, Pulley block system, Problems on pulley block system (including movable pulley),</p> <p>Chemistry : Chemical Bonding and Molecular Structure-I: (iii) Fajan's rule, (iv) Percentage ionic character, (v) VSEPR theory, Bond Parameters (bond length, bond angle, bond energy), Resonance, (ii) concept of dipole moment, Chemical Bonding and Molecular Structure-II: (i) , (i) Linear combination of atomic orbitals (ii) Molecular orbital theory (concept of bonding and anti-bonding orbital) and shape of molecular orbitals., (i) Filling of M.O. and energy diagram, (ii) Determine bond order and discuss magnetic property / bond length and bond stability, (iii) H-bonding, (iv) Metallic bonding.,</p> <p>Mathematics : Principle of Mathematical Induction, Quadratic Equations</p>

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12	XII	FT-05	17-Jul-20	<p>Physics : Current Electricity: Wheatstone bridge, Equivalent resistance of complex networks, Metering circuits, Galvanometer, Ammeter, Conversion of galvanometer to ammeter, Voltmeter, Conversion of galvanometer to voltmeter, Error in the measurement by ammeter/voltmeter, Meter bridge, potentiometer application of potentiometer, Sensitivity of potentiometer, R-C circuit, Steady state R-C circuit, Transient R-C circuit, Charging and discharging of a capacitor through resistance, Complex RC circuit</p> <p>Chemistry : Chemical Kinetics and Nuclear Chemistry: Introduction ; Rates of chemical reaction: (i) Rate, (ii) Average and instantaneous rate, (iii) Law of mass action, (iv) Rate law or rate equation of a reaction, (v) units of rate of a reaction, Order and molecularity. Integrated rate law : (i) Zero order, (ii) First order, (iii) Half-life, (iv) n^{th} order, Graphical method., Numericals on some first order reactions : (i) In terms of concentrations, (ii) in terms of pressure, (iii) in terms of volumetric analysis, (iv) in terms of optical rotation, Order of reaction from reaction mechanism, Parallel reaction, Factors affecting rate of a chemical reaction : (i) Concentration of reactant, (ii) Nature of reactant and product, (iii) Exposure to radiation (photochemical reactions), (iv) Temperature (Arrhenius equation), (v) Catalyst, (vi) Surface area, Nuclear chemistry : (i) Properties of α^-, β^-, γ^- rays, (ii) Group displacement law, (iii) Nuclear stability, (iv) Rate of radioactive decay, (v) Types of nuclear reactions, (vi) Radio-carbon dating,</p> <p>Mathematics : Determinants: Solution of equations- Using Inverse and Cramer's rule., Assignment discussion,</p> <p>Limit and Continuity: Limits, Indeterminate forms, Evaluation of limit, L' Hospital rule, Continuity, Definition, Examples</p>
13	XI	FT-06	24-Jul-20	<p>Physics : Laws of Motion-II: Problems involving Movable Wedge, Friction, Static & kinetic friction, Motion on a fixed rough surface, Miscellaneous problems on friction (one block over the other), Inertial & non inertial frames, Pseudo force. Solving problems in non-inertial frames, Circular motion and banking of roads,</p> <p>Chemistry : States of Matter</p> <p>Mathematics : Complex Numbers-I : Cartesian Form, Algebra of Complex Numbers, Modulus & conjugate of a Complex Number, Polar form, Linear Inequalities, Sequences and Series: (Including Exponential series logarithmic series.)</p>
14	XI	TE-02	31-Jul-20	Syllabus of FT-04 to FT-06

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Sr. No.	Class	Test Name	Test Date	Test Syllabus
15	XI	FT-07	7-Aug-20	Physics : Work, Energy and Power Chemistry : Thermodynamics Mathematics : Binomial Theorem: (Including Factorial notation definition of $P(n,r)$ and $C(n,r)$)
16	XII	FT-06	7-Aug-20	Physics : Moving Charges and Magnetism: Magnetic field due to a current element (Biot-Savart law), Magnetic field Surrounding a thin straight current-carrying conductor, Magnetic field due to a loop of current on its axial point at centre, Magnetic field due to an arc at its centre, Magnetic field due to different combined structures, Ampere's circuital law. Applications of Ampere's law (a) magnetic field due to a straight infinite current-carrying wire, (b) Magnetic field inside a long straight current-carrying conductor, (c) Magnetic field inside a hollow straight current-carrying conductor, (d) Magnetic field due to an infinite plane sheet of current, (e) Magnetic field due to a long solenoid, (f) Magnetic field of a toroid" "Magnetic force (Lorentz force), Direction of magnetic force (Fleming's left hand rule), Properties of magnetic force on charge, Magnetic force on a current-carrying conductor. Force between two parallel current-carrying wires. Force between two perpendicular current carrying wires. Motion of charged particle in a Magnetic field, when (a) $\theta = 0^\circ, 180^\circ$ straight line, (b) $\theta = 90^\circ$, circular path, finding r, T, F , (c) $\theta \neq 0^\circ, 90^\circ, 180^\circ$, Helix. Finding radius, pitch, (d) Deviation of charged particle in a magnetic field, (e) Time spent by a charged particle in magnetic field Chemistry : Surface Chemistry, General Principles and Processes of Isolation of Elements Mathematics : Differentiability, Method of Differentiation: Differentiability : Definition, LHD, RHD, Chain rule, Differentiation of composite, Implicit, Inverse Trigonometric function. Differentiation of logarithmic, Parametric forms, 2^{nd} Order derivative, Rolle's theorem, LMVT, Examples, Functional equations and assignment discussion.
17	XII	TE-02	14-Aug-20	Syllabus of FT-04 to FT-06

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Sr. No.	Class	Test Name	Test Date	Test Syllabus
18	XI	FT-08	21-Aug-20	<p>Physics : System of Particles and Rotational Motion-I: Centre of mass of discrete particle system and continuous mass distribution, Motion of centre of mass, Linear momentum of system of particles, , Miscellaneous Problems on Conservation of linear momentum and mechanical energy., Rigid body, Rigid body constraint for velocity and acceleration, Vector product of two vectors, Torque, Equilibrium of a rigid body, Shifting of normal reaction and toppling, , Moment of inertia for discrete particle system, Uniform symmetric bodies. Theorems of perpendicular and parallel axis., Dynamics of rotational motion about a fixed axis.,</p> <p>Chemistry : Equilibrium-I: Introduction to equilibrium : (i) Physical equilibrium, (ii) Chemical equilibrium, (iii) Law of mass action and equilibrium constant, (iv) Introduce K_c and K_p, (v) Relation between K_c and K_p, (vi) Homogeneous and heterogeneous equilibria., Applications of equilibrium constant : (i) Predicting the extent of reaction, (ii) Predicting direction of reaction, (iii) Predicting equilibrium concentration, (iv) Solving problems based on them., (i) Relationship between equilibrium constant (K), reaction quotient (Q) and Gibb's free energy (G), (ii) Relative vapour density and degree of dissociation., (iii) Factors affecting equilibria (Lechatelier principle), (iv) Solving problems based on Chemical Equilibrium, Ionic equilibrium in solution : (i) Acids, bases and salts, (ii) Acids and bases- Arrhemius concept, Bronsted and Lowry concept and Lewis concept, (iii) Ionisation of water and K_w, pH scale, Effect of temperature on pH scale, (iv) pH of acids and bases (v) Ionisation constants of weak acids and weak bases (pH calculation).,</p> <p>Mathematics : Permutations and Combinations</p>

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19	XII	FT-07	28-Aug-20	<p>Physics : Moving Charges and Magnetism: Motion of charged particle in combined electric and magnetic fields, (a) V, E and B all parallel to each other, (b) V, E and B all perpendicular to each other, (c) E is parallel to B and particle velocity is perpendicular to both these fields</p> <p>Current loop as a magnetic dipole, Torque on a current loop in a uniform magnetic field, The magnetic dipole moment of revolving electron, The moving coil galvanometer</p> <p>Magnetism and Matter: Bar magnet, Magnetic Field Lines, Pole strength, Bar magnet as an equivalent solenoid, Magnetic dipole moment of a bar magnet, Magnetic field due to a bar magnet (a) On axial position, (b) On normal bisector, Dipole in uniform magnetic field, Torque on a magnetic dipole in uniform magnetic field, Work done in rotating dipole in uniform magnetic field, Potential energy of dipole in uniform magnetic field</p> <p>Tangent law, Deflection galvanometer, Gauss's law, Earth's Magnetism, Geographic meridian, Magnetic meridian, Magnetic declination and dip, Horizontal and vertical component of earth magnetic field, Relation between horizontal component, Vertical component and angle of dip</p> <p>Magnetization and magnetic intensity, Magnetic susceptibility, Magnetic permeability, Relative permeability, Magnetic properties of material (a) Diamagnetism (b) Paramagnetism (c) Ferromagnetism (d) Hysteresis (e) Curie's law, Hard and soft magnets, Permanent magnet and electromagnets</p> <p>Chemistry : p-Block elements (group 15 – 18) : Physical properties of group - 15, Anomalous behaviour of nitrogen, Chemical properties and trends in chemical reactivity, Dinitrogen, Ammonia, Oxides of nitrogen, nitric acid, allotropes of phosphorous, Compounds of phosphorous (PH₃, PCl₃, PCl₅, oxoacids P), Physical and chemical properties of 16th group elements, Dioxygen (Preparation and properties), oxides, ozone, Allotropes of "S", Compounds of S (oxoacids, H₂S, SO₂, SO₃, Na₂S₂O₃.5H₂O), Physical and chemical properties of 17th group F₂, Cl₂, Br₂ and I₂. (Preparation and properties), HX, Oxoacids of halogens bleaching powder, Interhalogen compounds, Pseudohalogens, Physical properties of 18th group elements, Compound of Xe</p> <p>Mathematics : Applications of Derivatives: Derivative as rate measurer- Rate of change of quantities, Marginal rate, related rates, Equation of tangent & Normal, Length of tangent, Normal, Sub-tangent, Subnormal, Angle between two curves, Examples, Errors and approximation, Monotonicity - Increasing and Decreasing function, Definition of local maxima & minima, Absolute maxima & minima, First order Derivative test, Second order derivative Test, Word problem on Maxima & Minima.</p>

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20	XII	FT-08	11-Sep-20	<p>Physics : Electromagnetic Induction: The experiments of Faraday and Henry, Magnetic flux, Faraday's law of induction, Lenz's law, Lenz's law and conservation of energy, Methods to change the magnetic flux, Induced emf, induced current and induced charge in different cases, Field induction, induced electric field, Induced electric field in a cylindrical region, Examples based on calculation of emf induced in rods placed in various positions in the cylindrical region, Motional EMF, Eddy currents, Inductance and inductor, Self inductance, Potential difference across an inductor, energy stored in an inductor, energy density, Grouping of Inductors, <i>L-R</i> circuit (growth of current and decay of current), steady state <i>LR</i> circuit, steady state <i>LCR</i> - circuits, Current in various branches just after closing and just after opening the switch, Time constant of complex <i>LR</i> circuits, Mutual inductance, Mutual inductance of co-axial solenoids, AC generator, Migration of birds</p> <p>Chemistry : d & f - Block elements (group 15 – 18), Co-ordination Compounds, Qualitative analysis, Some basic concept of organic chemistry: Electronic Effects (Electromeric, Inductive, Resonance and hyperconjugation), Intermediates and their stability, Comparison of acidic strength of acids, Comparison of basic strength of bases, Isomerism</p> <p>Mathematics : Indefinite Integration: Indefinite Integrals Introduction basic concepts, Standard result, Algebra of Integration, Methods of integrations, Integration of some particular functions., Partial fraction, Integration by parts, Special Integral of Type : Integration of Irrational function, Reduction formula problem discussion</p>
21	XII	FT-09	25-Sep-20	<p>Physics : Alternating Current : AC voltage applied to a series LCR circuit, Resonance, sharpness of resonance, Parallel resonance circuit, Power in AC circuit (the power factor) Choke coil, LC oscillation, Transformer. Electromagnetic Waves : Introduction, Ampere circuital law and its contradiction, Displacement current, Consequences of displacement current, Maxwell equation, Sources of electromagnetic waves, Relation between Electric field, Magnetic Field and speed of light, Intensity of electromagnetic waves; Intensity due to a point source, Electromagnetic Spectrum. Ray Optics and Optical Instruments: Concept of rays; Laws of reflection; Plane mirrors; (reflection from plane surface); Image formation and characteristics of image; Speed of image of moving object, Number of images due to two inclined mirrors; Field of view and minimum size of mirror to view full image of the persons; Minimum size of mirror to view full length of wall behind the person, Field of view, Reflection from curved surface; Pole, principal axis, centre of curvature, etc.; Mirror equation; (graph between $1/v$ and $1/u$, between v and u); Magnification ; (lateral as well as longitudinal); Co-ordinates of image if point object is not at principal axis; Image speed when object is moving.</p> <p>Chemistry : Haloalkanes and Haloarenes: Haloalkanes and Haloarenes : Introduction, Classification, IUPAC nomenclature, Preparation of haloalkanes from alcohols, from hydrocarbons, halogen exchange; from Arenes and from Diazonium salt., Physical and chemical properties of haloalkanes, Ambident nucleophiles., Stereochemical aspects of nucleophilic substitution reactions – Optical isomerism, specific rotation, chiral carbon, elements of symmetry, enantiomers, diastereomers, relative and absolute configuration., Mechanism of S_N1, S_N2, E_1 and E_2 reactions, Reactions of Haloarenes : Nucleophilic substitution, Electrophilic substitution, Reaction with metals; polyhalogen compounds,</p> <p>Mathematics : Definite Integration: Introduction- Definite integral as the limit of a sum, Properties of definite integrals, Estimation of integrals, Gamma Function, Reduction formula, Miscellaneous Problem.</p> <p>Application of Integrals: Area under simple curve, Curve sketching, Basic problems, Miscellaneous Problems and assignment discussion</p>

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22	XI	FT-09	9-Oct-20	<p>Physics : System of Particles and Rotational Motion-II: General motion of a rigid body, Kinematics of Rolling motion, Dynamics of Rolling Motion, Rotational kinetic energy and work-energy theorem for rigid body., Angular momentum of a particle and system of particles. Angular momentum of rigid body, Conservation of angular momentum, Angular Impulse, Instantaneous axis of rotation,</p> <p>Chemistry : Equilibrium-II: (i) Factors affecting acidic strength, (ii) Common ion effect in the ionisation of weak acids and weak bases, (iii) pH determinations of a (iv) Mixture of two weak acid, (i) Polyprotic weak acid, (ii) introduce the concept of salt hydrolysis, (iii) Salt of strong acid strong base, (i) Salt of weak acid strong base, (ii) Salt of weak base strong acid, (iii) Salt of weak acid weak base, (iv) Hydrolysis constant and pH determination., Buffer solution : (i) Types of buffer solution - Acidic buffer, Basic buffers and Salt buffers. (i) Buffer action, (ii) pH of a buffer solution, (iii) Buffer capacity. (iv) Acid-base titration-theory of indicators, pH curves., (v) Solubility and solubility product, (vi) Relation between solubility and solubility product., (i) Common ion effect on solubility of ionic salts, (ii) Different cases of calculating solubilities, (iii) Ionic product and solubility product (Precipitation)..</p> <p>Mathematics : Straight Lines: (Including Pair of Straight Lines)</p>
23	XII	TE-03	9-Oct-20	Syllabus of FT-07 to FT-09
24	XI	TE-03	23-Oct-20	Syllabus of FT-07 to FT-09

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Sr. No.	Class	Test Name	Test Date	Test Syllabus
25	XI	FT-10	30-Oct-20	Physics : Gravitation: Chemistry : Redox Reactions, Volumetric Analysis Mathematics : Conic Sections-I: (Circle)
26	XII	FT-10	30-Oct-20	Physics : Ray Optics and Optical Instruments : Refraction at plane surface, laws of refraction; Finding refracted ray, given incident ray vector; Apparent depth; Apparent depth in the case of multi-layer of media, Total internal reflection; (critical angle); Mirage, optical fibres; Shift due to a slab, Path of a ray of light in a medium of variable refractive index, Refraction from spherical surfaces; Refraction from single spherical surface; (relation between image distance and object distance), Lenses; Lens - maker's formula; Different types of lenses, e.g ., Biconvex, Biconcave, Plano convex etc., Lenses; Lens formula, Image formation due to lens ; (convex and concave); Magnification of image due to lens, Lens Constant.; Displacement method to determine the focal length of a convex lens. Power of a lens; Power of a combination of thin lenses in contact; Equivalent focal length; (power) of a combination of two lenses separated by a distances; Behaviour of lens silvered on one face, Prism; Expression for deviation due to prism; Deviation due to thin prism; Minimum deviation and calculation of refractive index with the help of minimum deviation; Condition for no emergence of ray from prism; Dispersion and deviation due to prism, dispersive power; Condition for dispersion without deviation and deviation without dispersion, Optical Instruments; Simple microscope; (magnification in normal adjustment and adjustment for least distance); Compound microscope; (magnification in both adjustments - normal as well as for least distance) tube length; Telescope; (magnification in both adjustments), tube – length Chemistry : Alcohols, Phenols and Ethers: Alcohols and phenols : Introduction, Classification, Nomenclature, Structure of functional group, Preparation of alcohols,Preparation of phenols, Physical properties of alcohols and phenols, Chemical properties of alcohols,Chemical reactions of phenol – Nitration, halogenation, sulphonation; Kolbe's reaction, Reimer Tieman reaction, reduction, oxidation, Claisen rearrangement.,Coupling reaction of phenol; Ethers : Classification, naming and preparation of ethers, Chemical reactions of ethers, Electrophilic substitution of aryl ethers, Preparation of epoxides, Reactions of epoxides. Mathematics : Differential Equations: Order Degree of differential equation, Examples, Formation of a differential equation, Variable seprable, Homogeneous differential equation. Reducible to homogeneous differential equation,, Linear differential equation, Bernoulli's equation, Inspection method, Orthogonal trajectory examples, Miscellaneous questions Vectors : Types of vectors, Addition of Vectors and Properties, Multiplication by Scalar, Components of Vector, Section Formula, Scalar Triple product, Volume of parallelepiped, Tetrahedron, Examples, Vector triple product and its application, Solution of vector equation, Assignment discussion
27	XI	FT-11	13-Nov-20	Physics : Mechanical Properties of Solids, Mechanical Properties of Fluids Chemistry : Hydrogen, The s-Block Elements, The p-Block Elements Mathematics : Conic Sections II : (Parabola, Ellipse and Hyperbola)

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Sr. No.	Class	Test Name	Test Date	Test Syllabus
28	XII	FT-11	20-Nov-20	<p>Physics : Wave Optics : Wave Optics; Concept of wavefront and ray; Huygen’s construction; Explanation of laws of reflection and refraction; Behaviour of mirrors, lenses and prisms according to wave – model. Coherent and Incoherent source of light, Interference of light – Mathematical analysis, Young’s Double slit experiment, locations of bright and dark fringes, Shape of fringes on screen, fringe-width; Effect on fringe - width if colour of light changed, if experimental set - up is dipped in liquid; Intensity variation, fringe visibility. Interference; Interference experiment with bi-chromatic light, coincidence of two bright fringes or dark fringes; Optical path, displacement of fringes due to introduction of a transparent slab in the path of waves, Diffraction, Resolving power of optical instruments, validity of ray optics, Polarization, Intensity of transmitted light, Law of Malus, Brewster’s Law, Dual Nature of radiation and Matter : Introduction, Electron Emission; Photoelectric effect; Work function; Stopping potential, its dependence on intensity and frequency of incident light; Failure of wave-model of light to explain out the above mentioned experimental findings, Hallwach and Lenard’s observation, experimental study of photoelectric effect, laws of photoelectric emission, Einstein’s theory of photons; Einstein’s photo-electric equation, Problems based on photoelectric effect, Radiation pressures; (when light falls normally / obliquely) ; Matter - waves and de-Broglie wave-length ; Davisson – Germer experiment, Compton effect,</p> <p>Chemistry : Aldehydes, Ketones and Carboxylic acids: Aldehydes and Ketones : Introduction, Nomenclature and structure, Preparation of aldehydes and ketones from alcohols, hydrocarbons and acid halides, Preparation continued from cyanides, esters and carboxylic acids, Preparations of aromatic aldehydes and ketones, Physical properties of aldehydes and ketones, Chemical reactions – Nucleophilic addition of HCN, NaHSO₃, Grignard’s reagent, alcohols and ammonia derivatives, Reduction reactions : Reduction to alcohols; reduction to hydrocarbons, Oxidation reactions by Tollen’s reagent and Fehling solution; Haloform reaction; Baeyer-Villiger oxidation, Reaction due to α-hydrogen : Aldol condensation; Cannizzaro reaction; Electrophilic substitution of aromatic carbonyl compounds, Perkin reaction, Pinnacol – Pinnacolone rearrangement, Beckmann rearrangement</p> <p>Mathematics : 3D Geometry: Direction cosines, direction ratios, Angle between two lines , Skew lines, Shortest distance between skew lines and parallel lines</p> <p>Plane: Various equations of the plane, Family of planes, Coplanar lines, angle between planes</p> <p>Plane and line: Angle, Distance of a point from a plane and from a line. Image of a point with respect to a plane</p> <p>Linear Programming: Solution of inequalities using graphical approach, formation of LPP optional, Solution of LPP</p>

Test Planner (FT, TE) for PHASE-1 (2020-21)

Sr. No.	Class	Test Name	Test Date	Test Syllabus
29	XI	FT-12	27-Nov-20	<p>Physics : Thermal Properties of Matter, Thermodynamics</p> <p>Chemistry : Organic Chemistry - Some Basic Principles and Techniques-I: General Introduction; Structural representation and classification of organic compounds; Nomenclature: Rules of IUPAC nomenclature of alkanes and unsaturated hydrocarbons., IUPAC nomenclature of (i) Monofunctional and (ii) polyfunctional organic compounds, (iii) Monosubstituted benzene compounds and (iv) di, tri or higher substituted benzene compounds., Isomerism: Structural isomerism (i) Chain isomerism, (ii) Position isomerism, (iii) Functional and (iv) Metamerism, Tautomerism: Various types of tautomerism; General mechanism of tautomerism; Unsaturation number, Stereoisomerism: (i) Geometrical isomerism (ii) Conformational isomerism Conformations of ethane, butane and cyclohexane; Relative stability of conformers., Concepts of organic reaction mechanism: (i) Fission of a covalent bond, (ii) Types of reagents : Electrophiles, nucleophiles.</p> <p>Mathematics : Complex Numbers-II: (Including Geometrical Application)</p>
30	XII	FT-12	4-Dec-20	<p>Physics : Atoms : Atomic structure; Thomson model; Rutherford's α-scattering exp.; atomic spectra, Bohr's model; (radius, speed of electron, energy); Line spectra of hydrogen atom. De Broglie's explanation of Bohr's second postulate of quantization, Examples based on above concepts, Atomic excitation due to collision, X-rays; Coolidge tube arrangement; Characteristic and continuous X-rays; Minimum wavelength of continuous X-rays; Moseley's law and its derivation according to Bohr's model, Nucleus; Nuclear forces; Nuclear stability curve; Nuclei : Nuclear binding energy and examples on its calculation; Mass defect; Packing fraction; Nuclear reactions; α, β, γ – decays, Natural Radioactivity and Law of radioactive decay; Half – life; Average life; Activity; (its units); Examples based on above concepts; Determination of age of rock; Carbon – dating, Radioactive decay series; Successive disintegration and radioactive equilibrium; Examples based on above concepts; Problems based on nuclear collisions and reactions,</p> <p>Semiconductor Electronics : Materials Devices And Simple Circuits : Classification of insulators, conductors and semiconductors, Intrinsic semiconductors, Extrinsic Semiconductors, Energy bands, PN type semi conductors, PN Junction, Semiconductor Diode, Application of Junction Diode as a rectifier (Half wave Rectifier and Full Wave Rectifier) Special purpose PN Junction Diode, Junction Transistor, Transistor as a device(Switch, Amplifier and oscillator), Digital electronics and logic gates, Communication Systems : Introduction, Elements of communication system; Basic Terminology used in electronic communication system, band width of signals, band width of transmission medium, modulation and its necessity, types of modulation, Amplitude modulation, Demodulation detection of amplitude modulated wave, Different communication systems (Ground wave, Space wave, Sky wave, Satellite communication), Experimental Physics : Experiments based on vernier callipers, Screw Gauge</p> <p>Chemistry : Carboxylic acids : Nomenclature and structure of carboxyl group, Preparation of carboxylic acids, Physical properties; Chemical reactions : Acidic strength, formation of acid halides, esters, anhydrides and amides; Decarboxylation and HVZ reaction, Derivatives of carboxylic acid : Preparation and properties of acid halides, anhydrides, Esters and Amides, Amines, Biomolecules, Polymers, Chemistry in Everyday Life</p> <p>Mathematics : Probability: Basics of probability, Problem on P & C, Independent events, Total probability : Examples, Bayes' theorem, Probability distribution of a random variable, Mean & Variance of distribution, Binomial Distribution</p>
31	XI	TE-04	11-Dec-20	Syllabus of FT-10 to FT-12
32	XII	TE-04	11-Dec-20	Syllabus of FT-10 to FT-12

Test Planner (FT, TE) for PHASE-1 (2020-21)

Sr. No.	Class	Test Name	Test Date	Test Syllabus
33	XI	FT-13	25-Dec-20	<p>Physics : Kinetic Theory of Gasses, Oscillations</p> <p>Chemistry : Organic Chemistry - Some Basic Principles and Techniques-II: Electron displacement in covalent bonds: (i) Inductive effect (+I and –I), (ii) Electromeric effect (+E and –E), Resonance (+R and –R): Resonance energy; Application of inductive and resonance effects. Aromaticity; Hyperconjugation; Relative stability of (i) Carboncation, (ii) Free radical and (iii) Alkene, , Reaction intermediates: (i) Carbocations, (ii) Carbanions, (iii) Free radicals; Types of reactions. (i) Addition reaction, (ii) Elimination reaction, (iii) Substitution reaction and (iv) Rearrangement, Methods of purification of organic compounds (i) Sublimation, (ii) Crystallisation, (iii) Distillation, (iv) Fractional distillation, (v) Distillation under reduced pressure, (vi) Steam distillation and (vii) Chromatography, Qualitative analysis of organic compounds (i) Detection of carbon and hydrogen (ii) Lassaignes test for detection of nitrogen, Sulphur, halogens and phosphorus, Quantitative analysis: (i) Estimation of carbon and hydrogen (Liebig’s method), (ii) Estimation of nitrogen by Dumas method and Kjeldahls method, (iii) Estimation of halogens, Sulphur and phosphorus by carius method, (iv) Molecular weight determination,</p> <p>Mathematics : Introduction to Three Dimensional Geometry, Limits and Derivatives</p>
34	XI	FT-14	8-Jan-21	<p>Physics : Waves-I: Progressive wave and its types [Transverse & longitudinal]; Wave pulse; Wave function and equation of a plane progressive harmonic wave. Phase difference, Path difference; Particle velocity, Particle acceleration, Velocity of transverse wave in string, Velocity of longitudinal waves (sound wave); Intensity and loudness, power transmitted in waves, Super Position of Waves, Reflection and refraction of waves; Standing waves and its wave function ; Standing waves in string fixed at both ends /Free at one end. Organ pipe, Resonance tube and end correction,</p> <p>Chemistry : Hydrocarbons: Introduction; Classification of hydrocarbons; Alkanes: (i) Nomenclature and Isomerism; (ii) Preparation of alkanes from unraturated hydrocarbons, alkyl halides, Carbonyl compounds and carboxylic acids., Properties of alkanes: Physical properties; Chemical properties; (i) Substitution reactions-halogenation, (ii) Combustion, (iii) Controlled oxidation, (iv) Isomerisation, (v) Aromatization and (vi) Pyrolysis, Alkenes : Structure of double bond; Isomerism : Structural and geometrial; Preparation of alkenes from alkynes, alkylhalides, vicinal dihalides and alcohols (Saytzeff and Hoffmann rule), Physical properties and chemical properties of alkenes (i) Addition of hydrogen, halogen, hydrogen halides, (ii) Markovnikov addition, (iii) Peroxide effect and (iv) Addition of sulphuric acid and water, Oxidation of alkenes by (i) Baeyer’s reagent and (ii) acidified KMnO_4; Ozonolysis; Polymerisation. Dienes and their addition reactions with halogen and hydrogen halide, Hydrocarbons,</p> <p>Mathematics : Mathematical Reasoning, Statistics, Probability</p>
35	XI	FT-15	22-Jan-21	<p>Physics : Waves-II: Interference of sound waves ; Condition for maxima and minima in terms of phase difference and path difference., Beats, definition of beat frequency and calculation of beat frequency, Application of beats to find unknown frequency, Doppler effect; Mixed problem on Doppler effect and beats,</p> <p>Chemistry : Alkynes : (i) Nomenclature, Isomerism, (ii) Structure of triple bond, (iii) Preparation of alkynes and (iv) physical properties and (v) Acidic character alkynes., Addition reactions of alkynes., Addition of hydrogen, halogen, hydrogen halide, water; Polymerisation; Oxidation; Ozonolysis, Aromatic hydrocarbons: Structure of benzene; Resonance in benzene; Molecular orbital theory. Preparation of benzene. Electrophilic Aromatic substitution, General mechanism, Nitration, Halogenation and sulphonation of benzene; Friedel Craft’s alkylation and acylation of benzene; Addition of H_2 and Cl_2 to benzene, Ortho, Meta and para directing groups; Activating groups; Deactivating groups, Orientation in monosubstituted benzene,</p> <p>Environmental Chemistry</p> <p>Mathematics : Trigonometric Functions -II: (Remaining Parts of Trigonometric Functions)</p>

Topicwise Test Schedule for Class 12 Passed Students

AIATS for JEE (Main & Advanced) 2021

(Offline/ *Online-CBT/ #Center-CBT)

Test No.	Test Date	Date of Display of Answer key and uploading of video Solutions	Result Date	Pattern of Test	Subject	Topics of the Test
1	04-10-2020	05-10-2020	18-10-2020	JEE (Main)	Phy	Motion in a Straight Line, Motion in a Plane, Laws of motion, Work, energy and power, System of Particles and Rotational Motion, Gravitation, Mechanical Properties of Solids, Mechanical Properties of Fluids, Oscillations.
					Chem	Some Basic concepts of Chemistry, Atomic Structure, Periodic Properties, Chemical bonding and molecular structure, States of Matter, Thermodynamics, Equilibrium, Redox Reactions & Volumetric Analysis*, Solid State, Solutions, Electrochemistry, Chemical Kinetics and Nuclear Chemistry
					Maths	Quadratic Equations, Complex numbers, Principle of Mathematical Induction, Sequence and Series, Binomial Theorem, Permutation and Combination, Matrices, Determinants, Trigonometric functions
1A	11-10-2020	12-10-2020	24-10-2020	JEE (Advanced) Paper-1 & 2	PCM	Syllabus of Test-1
2	22-11-2020	23-11-2020	06-12-2020	JEE (Main)	Phy	Waves, Thermal Properties Of Matter, Kinetic Theory Of Gases, Thermodynamics, Electric Charges And Field, Electrostatic Potential And Capacitance, Current Electricity
					Chem	Organic Chemistry : Some Basic Principles and Techniques, Hydrocarbon, Haloalkanes and Haloarenes, Alcohols, Phenols and Ethers, Aldehydes, Ketones and Carboxylic acids, Amines, Biomolecules, Polymers, Chemistry in Everyday Life, Environmental Chemistry
					Maths	Inverse Trigonometric Functions, Straight Line, Conic Section-I, Conic Section-II, Mathematical Reasoning, Sets, Relation and function
2A	29-11-2020	30-11-2020	13-12-2020	JEE (Advanced) Paper-1 & 2	PCM	Syllabus of Test-2
3	20-12-2020	21-12-2020	03-01-2021	JEE (Main)	Phy	Moving Charges and Magnetism, Magnetism and Matter**, Electromagnetic Induction, Alternating Current, Electromagnetic Waves**, Ray Optics, Wave Optics, Dual Nature of radiation and Matter, Atoms, Nuclei, Semiconductor Electronics : Materials Devices And Simple Circuits**, Communication Systems**, Units & Measurements
					Chem	d & f - Block elements, Co-ordination Compounds, Qualitative Analysis, General Principles and Processes of Isolation of Elements, Hydrogen, s-block element, p-block elements (group 13 to group 18), Surface Chemistry,
					Maths	Limits and Derivatives, Continuity and Differentiability, Applications of Derivatives, Indefinite Integration, Definite Integration, Application of integrals, Differential Equations, Vectors Algebra, 3D Geometry, Probability, Statistics
⁴ #(Centre-CBT)	27-12-2020	28-12-2020	10-01-2021	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
06 - 20 January - 2021 - JEE Main (Phase - 01)						
3A	17-01-2021	18-01-2021	31-01-2021	JEE (Advanced) Paper-1 & 2	PCM	Syllabus of Test-3
5	07-02-2021	08-02-2021	21-02-2021	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
4A	14-02-2021	15-02-2021	28-02-2021	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)

Topicwise Test Schedule for Class 12 Passed Students

AIATS for JEE (Main & Advanced) 2021

(Offline/ *Online-CBT/ #Center-CBT)

Test No.	Test Date	Date of Display of Answer key and uploading of video Solutions	Result Date	Pattern of Test	Subject	Topics of the Test
6	28-02-2021	01-03-2021	14-03-2021	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
5A	07-03-2021	08-03-2021	21-03-2021	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)
7	21-03-2021	22-03-2021	04-04-2021	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
8 #(Centre-CBT)	28-03-2021	29-03-2021	01-04-2021	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
9 *(Online-CBT)	04-04-2021	05-04-2021	08-04-2021	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
07 - 21 April - 2021 - JEE Main (Phase - 02)						
6A	25-04-2021	26-04-2021	09-05-2021	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)
7A *(Online-CBT)	02-05-2021	03-05-2021	06-05-2021	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)
8A #(Centre-CBT)	09-05-2021	10-05-2021	13-05-2021	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)

1. Chapters marked** are not in JEE (Advanced) syllabus but are included in JEE (Main) syllabus.

2. Offline Timing: JEE Main: 10:00 AM to 01:00 PM

JEE(Advanced) Paper-1 (10:00 AM - 01:00 PM) & Paper -2 (2:00 PM – 5:00 PM)

*Online-CBT Mode: JEE Main: 10:30 AM to 02:00 PM

JEE(Advanced) Paper-1 (10:30 AM - 02:00 PM) & Paper -2 (3:00 PM – 6:30 PM)

*Online-CBT mode exam shall be given by the students being at home in the pre-defined window of online test.

#Center-CBT mode exam has to be conducted in certain fixed computer labs available in the city.