



## Ranker's Package

# Detailed Test Planner JEE-XII

*Daily Test Planner*

*AIATS Planner*

*Comprehensive Test Planner*

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**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Physics Daily Test 1	Introduction, 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.
Chemistry Daily Test 1	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 definifions, (ii) Types of unit cells, Seven crystal systems and Bravais lattice, Calculation of effective number of particles in a unit cell.
Mathematics Daily Test 1	Relation : Definition, Domain, Range, Total number of relations, Composition & inverse of relations, Types of relation, Reflexive, Symmetric, Transitive, Equivalence, Examples
Physics Daily Test 2	Electric field, Electric field due to a point charge, superposition principle, Electric field due to a group of charges.
Chemistry Daily Test 2	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).
Mathematics Daily Test 2	Function : Domain
Physics Daily Test 3	Electric dipole, Dipole moment, Electric field due to an electric dipole on axial line, equatorial line and At any other point.
Chemistry Daily Test 3	ABAB.....type packing, (i) hexagonal close packing, (ii) Cubic close packing and voids, Packing efficiency.
Mathematics Daily Test 3	Range
Physics Daily Test 4	Electric dipole in a uniform electric field, Potential energy associated with dipole, Dipole in non-uniform electric field, Dipole oscillation.
Chemistry Daily Test 4	Radius ratio in ionic solids : $r^+/r^-$ in voids; Density, Coordination number, Types of crystal structure : (i) AB type, (ii) AB <sub>2</sub> and A <sub>2</sub> B type, (iii) Spinel and inverse spinel structures; Effect of temperature and pressure.
Mathematics Daily Test 4	Type of Functions : One-one, Many One, Onto, Into, Examples
Physics Daily Test 5	Motion of a charged particle in uniform electric field, Electric field of a continuous charge distribution, volume, surface and linear charge distribution
Chemistry Daily Test 5	Bragg's Law, Imperfection in solids : (i) Stoichiometric defects, (ii) Non-stoichiometric defects; Magnetic and electrical properties of solids

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Mathematics Daily Test 5	Composite Function, Inverse of a Function
Physics Daily Test 6	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.
Chemistry Daily Test 6	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,
Mathematics Daily Test 6	Even/odd Functions,
Physics Daily Test 7	Electric lines of force, properties of lines of force, lines of force due to a positive and negative point charge. Electric flux,
Chemistry Daily Test 7	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.
Mathematics Daily Test 7	Periodic function
Physics Daily Test 8	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
Chemistry Daily Test 8	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
Mathematics Daily Test 8	Binary Operation, Principal value, Graphical representation,
Physics Daily Test 9	A shell of charge, Uniform sphere of charge, An infinite thin non conducting sheet.
Chemistry Daily Test 9	Introduction ; Electrolytic conductance : (i) Conductors, (ii) Ohm's law, (iii) Resistance, (iv) Conductance, (v) Cell constant, (vi) Molar and equivalent conductance Variation of conductance with concentration, Kohlrausch's law and its application,
Mathematics Daily Test 9	Properties of Inverse Trigonometric functions
Physics Daily Test 10	Introduction, 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

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Chemistry Daily Test 10	Coductometric 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
Mathematics Daily Test 10	Converting one inverse function into another, example, Sum, difference formula of inverse function, Sum, difference formula of inverse function (cont.), Solution of inverse trigonometric equations.
Physics Daily Test 11	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.
Chemistry Daily Test 11	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 and its applications.
Mathematics Daily Test 11	Matrices : Introduction, 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 operations on matrices, Inverse using elementary operations
Physics Daily Test 12	Equipotential surface, Equipotenital 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. Conductor with cavity, Electrostatic pressure, Grounding of conductors, Dielectrics and polarisation
Chemistry Daily Test 12	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.
Mathematics Daily Test 12	Determinants: Introduction: Determinants of matrix of order one, two, three, Properties of Determinant, Applications of Determinants- Areas, Minor and Co-factors.
Physics Daily Test 13	Capacitor and Capacitance, Types of capacitors- Parallel plate Capacitor, spherical capacitor, Cylindrical capacitor, Charging of a capacitor, Energy stored in a capacitor.
Chemistry Daily Test 13	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.

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Mathematics Daily Test 13	Adjoint of a matrix, Inverse of a matrix, Applications of Determinants and Matrices, Solution of equations- Using Inverse and Cramer's rule.
Physics Daily Test 14	Force between the plates of a parallel plate capacitor, Grouping of capacitors, Capacitors with dielectrics,
Chemistry Daily Test 14	Integrated rate law : (i) Zero order, (ii) First order, (iii) Half-life (iv) nth 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;
Mathematics Daily Test 14	Limits, Indeterminate forms, Evaluation of limit, L' Hospital rule
Physics Daily Test 15	Sharing of charge and common potential, Laws for solving complex circuits of capacitors, Van De Graff Generator
Chemistry Daily Test 15	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
Mathematics Daily Test 15	Continuity, Definition, Examples, Differentiability : Definition, LHD, RHD
Physics Daily Test 16	Current Electricity: Introduction, Electric current, Electric current in conductors, Ohm's law , Factors affecting resistance of a conductor. Resistor colour codes, Temperature dependence of resistivity, Current density and electric field, Drift of electrons and the origin of resistivity, mobility, limitations of Ohm's law, Calculating resistance for different shapes, Electrical energy, Power
Chemistry Daily Test 16	Nuclear chemistry : (i) Properties of $\alpha$ -, $\beta$ -, $\gamma$ - rays, (ii) Group displacement law, (iii) Nuclear stability, (iv) Rate of radioactive decay, (v) Types of nuclear reactions, (vi) Radio-carbon dating
Mathematics Daily Test 16	Chain rule, Differentiation of composite, Implicit, Inverse Trigonometric function. Differentiation of logarithmic, Parametric forms,
Physics Daily Test 17	Combination of resistors, Cells, emf and internal resistance of a cell, Maximum power transfer theorem, Cells in series and parallel, Kirchoff's laws.

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Chemistry Daily Test 17	Introduction, Adsorption : (i) Some basic definitions, Distinction between adsorption and absorption, (ii) Mechanism, (iii) Types of adsorption, Characteristic of adsorption. (i) Freundlich Isotherm and Langmuir isotherm, (ii) Application, (iii) Catalyst, (iv) Enzymes Catalysis
Mathematics Daily Test 17	2nd Order derivative, Rolle's theorem, LMVT, Examples. Functional equations and assignment discussion.
Physics Daily Test 18	Earthing or grounding in an electric circuit. Wheatstone bridge, Equivalent resistance of complex networks.
Chemistry Daily Test 18	Colloidal system; (i) Particle size and colloidal state, (ii) Classification of colloidal system. Colloid : (i) Preparation, (ii) Properties, (iii) Purification, (iv) Emulsion (v) Application of colloid
Mathematics Daily Test 18	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
Physics Daily Test 19	Metering circuits, Galvanometer, Ammeter, Conversion of galvanometer to ammeter, Voltmeter, Conversion of galvanometer to voltmeter.
Chemistry Daily Test 19	Introduction : Occurrence, Important ores and minerals; Metallurgical process : (i) Crushing, (ii) Concentration, (iii) Calcination and roasting, (iv) Reduction. Thermodynamic principles of metallurgy: Ellingham diagram,
Mathematics Daily Test 19	Errors and approximation, Monotonicity - Increasing and Decreasing function
Physics Daily Test 20	Error in the measurement by ammeter/voltmeter. Meter bridge, potentiometer application of potentiometer, Sensitivity of potentiometer.
Chemistry Daily Test 20	Purification. Extractive metallurgy of (i) Iron, (ii) Tin, (iii) Copper, (iv) Lead, (v) Magnesium, (vi) Aluminium, (vii) Silver, (viii) Zinc
Mathematics Daily Test 20	Definition of local maxima & minima, Absolute maxima & minima First order Derivative test, Second order derivative Test
Physics Daily Test 21	R-C circuit, Steady state R-C circuit, Transient R-C circuit, Charging and discharging of a capacitor through resistance. Complex RC circuit.
Chemistry Daily Test 21	Physical properties of group - 15, Anomalous behaviour of nitrogen, Chemical properties and trends in chemical reactivity, Dinitrogen
Mathematics Daily Test 21	Word problem on Maxima & Minima

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Physics Daily Test 22	Introduction, Magnetic force (Lorentz force), Direction of magnetic force (Fleming's left hand rule), Properties of magnetic force on charge.
Chemistry Daily Test 22	Ammonia, Oxides of nitrogen, nitric acid, allotropes of phosphorus, Compounds of phosphorus (PH <sub>3</sub> , PCl <sub>3</sub> , PCl <sub>5</sub> , oxoacids of Phosphorus)
Mathematics Daily Test 22	Integrals: Indefinite Integrals Introduction basic concepts, Standard result, Algebra of Integration, Methods of integrations, Integration by substitution
Physics Daily Test 23	Magnetic field due to a current element (Biot-savart law), Magnetic field Surrounding a thin straight current carrying conductor,
Chemistry Daily Test 23	Physical and chemical properties fo 16th group elements, Dioxygen (Preperation and properties), oxides, ozone, Allotropes of S, Compounds of S (oxoacids, H <sub>2</sub> S, SO <sub>2</sub> , SO <sub>3</sub> , Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .5H <sub>2</sub> O)
Mathematics Daily Test 23	Integration using trigonometric identifies. Integration of some particular functions.
Physics Daily Test 24	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.
Chemistry Daily Test 24	Physical and chemical properties of 17th group F <sub>2</sub> , Cl <sub>2</sub> , Br <sub>2</sub> and I <sub>2</sub> . (Preperation and properties)
Mathematics Daily Test 24	Partial fraction, Integration by parts, Special Integral of Type:
Physics Daily Test 25	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.
Chemistry Daily Test 25	HX, Oxoacids of halogens bleaching powder, Interhalogen compounds, Psuedohalogens. Physical properties of 18th group elements, Compound of Xe.
Mathematics Daily Test 25	Integration of Irrational function Reduction formula problem discussion
Physics Daily Test 26	Magnetic force on a current carrying conductor. Force between two parallel current carrying wires. Force between two perpendicular current carrying wires.

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Chemistry Daily Test 26	Introduction : General characteristics of transition elements : (i) Electronic configuration, (ii) Variation in atomic and ionic size, (iii) Ionization enthalpy, (iv) Oxidation state, (v) Electrode potential, (vi) Colour, (v) Catalytic property, (vi) Formation of complex and interstitial compounds, (vii) Magnetic properties, Alloys. Some important compounds : (i) Potassium dichromate, (ii) Potassium permanganate,
Mathematics Daily Test 26	Introduction- Evaluation of integrals by substitution
Physics Daily Test 27	Motion of charged particle in a Magnetic field, when (a) $q = 0^\circ, 180^\circ$ straight line, (b) $q = 90^\circ$ , circular path, finding $r, T, F$ , (c) $q \dots 0^\circ, 90^\circ, 180^\circ$ , Helix. Finding radius, pitch $T$ , (d) Deviation of charged particle in a magnetic field, (e) Time spent by a charged particle in magnetic field.
Chemistry Daily Test 27	(iii) Silver nitrate, (iv) $Ag_2O$ , (v) $Ag_2S_2O_3$ , (iv) White vitriol, $ZnCl_2$ , Blue vitriol, $CuO$ , $CuCl_2 \cdot 2H_2O$ , $FeO$ , Green vitriol, (v) Ferric chloride, The inner transition elements (f-block) : General properties of Lanthanoids and actinoids
Mathematics Daily Test 27	Properties of definite integrals, Estimation of integrals, Gamma Function Reduction formula, Definite integral as the limit of a sum, Miscellaneous Problem
Physics Daily Test 28	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.
Chemistry Daily Test 28	Co-ordination Compounds:-Important definitions, HSAB principle, Classification of ligands. IUPAC Naming, Isomerism (Including stereoisomerism)
Mathematics Daily Test 28	Introduction, Area under simple curve, Curve sketching. Area under the curves, Miscellaneous Problem and assignment discussion.
Physics Daily Test 29	Cyclotron, 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.
Chemistry Daily Test 29	Werner theory, Effective atomic number, VBT, CFT, Colours of complex, organometallic, Stability of complex (Including factor affecting stability), Application of complexes.
Physics Daily Test 30	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. Tangent law. Deflection galvanometer.

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 1 – APRIL)**

Test Name	Test Syllabus
Chemistry Daily Test 30	Physical analysis; Microcosmic bead test, Na <sub>2</sub> CO <sub>3</sub> bead test, Dry test : (i) Flame test, (ii) Borax-bead test. Analysis of acid radicals : CO <sub>3</sub> <sup>2-</sup> , CH <sub>3</sub> COO <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , SO <sub>3</sub> <sup>2-</sup> , S <sup>-2</sup> , Cl <sup>-</sup> , Br <sup>-</sup> , I <sup>-</sup> , F <sup>-</sup> , BO <sub>3</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup> , PO <sub>4</sub> <sup>3-</sup> ,
Physics Daily Test 31	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. 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.
Chemistry Daily Test 31	Analysis of basic radicals : Ag <sup>+</sup> , Pb <sup>2+</sup> , Hg <sub>2</sub> <sup>2+</sup> , Hg <sup>2+</sup> , Cu <sup>2+</sup> , Cd <sup>2+</sup> , Bi <sup>3+</sup> , As <sup>3+</sup> ,
Physics Daily Test 32	Introduction, 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.
Chemistry Daily Test 32	Analysis of basic radicals : Sn <sup>2+</sup> , Sb <sup>3+</sup> , Fe <sup>3+</sup> , Al <sup>3+</sup> , Cr <sup>3+</sup> , Ni <sup>2+</sup> , Co <sup>2+</sup> , Zn <sup>2+</sup> , Mn <sup>2+</sup> , Ba <sup>2+</sup> , Ca <sup>2+</sup> , Sr <sup>2+</sup> , Mg <sup>2+</sup> , NH <sub>4</sub> <sup>+</sup> .
Physics Daily Test 33	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 in a straight conductor, effective length concept. Energy consideration. Eddy current, Electromagnetic damping, DC motor
Physics Daily Test 34	Inductance and inductor, Self inductance, Potential difference across an inductor, energy stored in an inductor, energy density. Grouping of Inductors,
Physics Daily Test 35	Mutual inductance, Calculation of mutual inductance for two coils. Mutual inductance of a solenoid surrounded by a coil. Coefficient of coupling. Combination of inductances by taking into account their mutual inductance.
Physics Daily Test 36	L-R circuit (growth of current and decay of current) steady state LR circuit, steady state LCR- circuits. Current in various branches just after closing and just after opening the switch. Time constant of complex LR circuits, AC generator, Migration of birds.
Physics Daily Test 37	Alternating current and emf, Mean value for half cycle of AC, Root mean square value of AC, Phasor diagram, Hot wire instrument, AC voltage applied to a resistor, Inductor and capacitor. AC through an L-R circuit, AC through an R-C circuit.
Physics Daily Test 38	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

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 2 – SEPTEMBER)**

Test Name	Test Syllabus
Mathematics Daily Test 29	Introduction: Order Degree of differential equation, Examples, Formation of a differential equation.
Mathematics Daily Test 30	Methods of solving differential equation variable separable. Homogeneous differential equation. Reducible to homogeneous differential equation,
Mathematics Daily Test 31	linear differential equation, Bernoulli's equation, Inspection method, Orthogonal trajectory examples
Mathematics Daily Test 32	Introduction : Types of vectors, Addition of Vectors and Properties, Multiplication by Scalar, Components of Vector, Section Formula, Dot product of two vectors
Chemistry Daily Test 33	General Organic Chemistry
Mathematics Daily Test 33	Cross Product of two vectors, Scalar Triple product, Volume of parallelepiped, Tetrahedron, Examples
Chemistry Daily Test 34	Haloalkanes and Haloarenes : Introduction, Classification, IUPAC nomenclature, Preparation of haloalkanes from alcohols, from hydrocarbons, halogen exchange; from Arenes and from Diazonium salt.
Mathematics Daily Test 34	Vector triple product and its application, Solution of vector equation
Chemistry Daily Test 35	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.
Mathematics Daily Test 35	Introduction, Direction cosines, direction ratios, vector and Cartesian equation of a line in space, Angle between two lines , Skew lines, Shortest distance between skew lines and parallel lines
Chemistry Daily Test 36	Mechanism of SN1, SN2, E1 and E2 reactions Reactions of Haloarenes : Nucleophilic substitution, Electrophilic substitution, Reaction with metals; polyhalogen compounds.
Mathematics Daily Test 36	Plane : Introduction, Various equations of the plane, Family of planes, Coplanar lines, angle between planes
Chemistry Daily Test 37	Alcohols and phenols : Introduction, Classification, Nomenclature, Structure of functional group, Preparation of alcohols, Preparation of phenol

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 2 – SEPTEMBER)**

Test Name	Test Syllabus
Mathematics Daily Test 37	Plane and line– Angle, Distance of a point from a plane and from a line. Image of a point with respect to a plane
Chemistry Daily Test 38	Preparation of phenol, 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
Mathematics Daily Test 38	Basics of probability, Problem on P & C, Introduction, Conditional Probability, multiplication theorem on probability
Physics Daily Test 39	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.
Chemistry Daily Test 39	Ethers : Classification, naming and preparation of ethers, Chemical reactions of ethers, Electrophilic substitution of aryl ethers, Preparation of epoxides, Reactions of epoxides
Mathematics Daily Test 39	Independent events, Total probability : Examples, Bayes’ theorem
Physics Daily Test 40	Concept of rays; Laws of reflection; Plane mirrors; (reflection from plane surface); Number of images due to two inclined mirrors;
Chemistry Daily Test 40	Aldehydes and Ketones : Introduction, Nomenclature and structure, Preparation of aldehydes and ketones from alcohols, hydrocarbons, acid halides cyanides, esters and carboxylic acids, Preparations of aromatic aldehydes and ketones
Mathematics Daily Test 40	Bayes’ theorem continued, Probability distribution of a random variable, Mean & Variance of distribution, Binomial Distribution
Physics Daily Test 41	Reflection from curved surface; spherical Mirror equation; (graph) ; Magnification ; (lateral as well as longitudinal); speed of image.
Chemistry Daily Test 41	Physical properties of aldehydes and ketones, Chemical reactions – Nucleophilic addition of HCN, NaHSO <sub>3</sub> , Grignard’s reagent, alcohols and ammonia derivatives

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 2 – SEPTEMBER)**

Test Name	Test Syllabus
Physics Daily Test 42	Refraction at plane surface, laws of refraction; Apparent depth; Total internal reflection; (critical angle); Shift due to a slab, Refraction from spherical surfaces; Refraction from single spherical surface;
Chemistry Daily Test 42	Reduction reactions : Reduction to alcohols; reduction to hydrocarbons, Oxidation reactions by Tollen's reagent and Fehling solution; Haloform reaction; Baeyer-Viliger oxidation,
Physics Daily Test 43	Lenses; Lens - maker's formula; Lenses; Lens formula, Magnification of image due to lens, Lens Constant.; Displacement method.
Chemistry Daily Test 43	Reaction due to $\alpha$ -hydrogen : Aldol condensation; Cannizzaro reaction Electrophilic substitution of aromatic carbonyl compounds, Perkin reaction, Pinnacol – Pinnacolone rearrangement, Beckmann rearrangement, Carboxylic acids : Nomenclature and structure of carboxyl group, Preparation of carboxylic acids, Physical properties
Physics Daily Test 44	Power of a lens; Power of a combination of thin lenses in contact; Prism; Expression for deviation due to prism; Deviation due to thin prism;
Chemistry Daily Test 44	Chemical reactions : Acidic strength, formation of acid halides, esters, anhydrides and amides; Decarboxylation and HVZ reaction,
Physics Daily Test 45	Dispersion and deviation due to prism, dispersive power; Optical Instruments; Simple microscope; Compound microscope; Telescope.
Chemistry Daily Test 45	Derivatives of carboxylic acid : Preparation and properties of acid halides, anhydrides, esters and amides
Physics Daily Test 46	Wave Optics; Concept of wavefront and ray; Huygen's construction; Explanation of laws of reflection and refraction; Coherent and Incoherent source of light, Interference of light – Mathematical analysis, Young's Double slit experiment, Shape of fringes on screen, fringe-width;
Chemistry Daily Test 46	Amines : Structure, Classification, Preparation : Reduction of nitro compounds, cyanides, isocyanides and amides; Gabriel phthalimide synthesis; Hoffman bromamide reaction, Physical properties Chemical reactions : Basic character of primary, secondary, tertiary aliphatic and aromatic amines;
Physics Daily Test 47	Diffraction, Resolving power of optical instruments, validity of ray optics, Polarization, Intensity of transmitted light, Law of Malus, Brewster's Law
Chemistry Daily Test 47	alkylation and acylation of amines, Carbylamine reaction, Reaction with $\text{HNO}_2$ , Hinsberg test Electrophilic substitution of aromatic amines, Diazonium salts, Preparation, physical properties and chemical reactions of diazonium salts, Coupling reaction with phenol and aniline

**DAILY TEST SCHEDULE & SYLLABUS (VOLUME 2 – SEPTEMBER)**

Test Name	Test Syllabus
Physics Daily Test 48	Dual Nature of radiation and Matter; Photoelectric effect; Radiation pressures; (when light falls normally / obliquely) ; Matter - waves and de-Broglie wave-length ; Davisson – Germer experiment, Compton effect
Chemistry Daily Test 48	Carbohydrates : Classification, Glucose-preparation and structure, Reaction with phenyl hydrazine, Cyclic structure of glucose, Diasaccharides Starch and cellulose
Physics Daily Test 49	Atomic structure; Bohr’s model; Line spectra of hydrogen atom, Atomic excitation due to collision, X-rays; Characteristic and continuous X-rays; Minimum wavelength of continuous X-rays, Moseley’s law.
Chemistry Daily Test 49	Proteins : Amino acids – Nomenclature and classification; Isoelectric point, Peptides and polypeptides, Structure of proteins, Enzymes, Vitamins, Nucleic acids
Physics Daily Test 50	Nucleus; Nuclear binding energy and examples on its calculation; Mass defect; Packing fraction; Nuclear reactions; $\alpha$ , $\beta$ , $\gamma$ – decays, Natural Radioactivity and Law of radioactive decay; Successive disintegration and radioactive equilibrium; Problems based on nuclear collisions and reactions
Chemistry Daily Test 50	Polymers : Introduction, Classification, Types of polymerization – Addition and condensation, Copolymerisation, Rubber-Natural and synthetic; Vulcanization of rubber, Average molecular mass, Biodegradable polymers
Physics Daily Test 51	Semiconductors, Intrinsic semiconductors, Extrinsic Semiconductors, PN Junction Diode, Application of Junction Diode as a rectifier, Special purpose PN Junction Diode Junction Transistor, Transistor as a device(Switch, Amplifier and oscillator), Digital electronics and logic gates; Communication Systems, Elements of communication system; modulation and its necessity, Amplitude modulation, Different communication system.
Physics Daily Test 52	Experiments based on vernier callipers, Screw Gauge, Determination of Young’s modulus by sear’s method and determination of focal length.

**Topicwise Test Schedule for Class 12 Studying Students**
**AIATS for JEE (Main & Advanced) 2023 Version 2.0**
**(Online)**

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
Practice Test-1 (Online)	17-07-2022	19-07-2022	24-07-2022	JEE (Main)	Phy	Electric Charges and Field, Electrostatic Potential and Capacitance
					Chem	The Solid State, Solution, Electrochemistry
					Maths	Relations** & Functions, Inverse Trigonometric Functions
1	24-07-2022	26-07-2022	31-07-2022	JEE (Main)	Phy	Electric Charges and Field, Electrostatic Potential and Capacitance
					Chem	The Solid State, Solution, Electrochemistry
					Maths	Relations** & Functions, Inverse Trigonometric Functions
1A	31-07-2022	02-08-2022	07-08-2022	JEE (Advanced) Paper-1 & 2	PCM	Syllabus of Test-1
2	11-09-2022	13-09-2022	18-09-2022	JEE (Main)	Phy	Current Electricity, Moving Charges and Magnetism, Magnetism & Matter**
					Chem	Chemical Kinetics & Nuclear Chemistry, Surface Chemistry, General Principles and Processes of Isolation of Elements, The p-Block Elements
					Maths	Matrices, Determinants, Limits, Continuity and Differentiability
2A	25-09-2022	27-09-2022	01-10-2022	JEE (Advanced) Paper-1 & 2	PCM	Syllabus of Test-2
3	20-11-2022	15-11-2022	20-11-2022	JEE (Main)	Phy	Electromagnetic Induction, Alternating Current, Electromagnetic Waves, Ray Optics
					Chem	The d & f - Block Elements, Coordination Compounds, Qualitative Analysis, Haloalkanes and Haloarenes
					Maths	Application of Derivatives, Indefinite Integrals, Definite Integrals, Application of Integrals
3A	27-11-2022	29-11-2022	04-12-2022	JEE (Advanced) Paper-1 & 2	PCM	Syllabus of Test-3
4	08-01-2023	10-01-2023	15-01-2023	JEE (Main)	Phy	Wave Optics, Dual Nature of Radiation and Matter, Atoms, Nuclei, Semiconductor Electronics : Materials, Devices and Simple Circuits**, Communication Systems**, Experimental Physics
					Chem	Alcohols, Phenols and Ethers, Aldehydes, Ketones and Carboxylic Acids, Amines, Biomolecules, Polymers, Chemistry in Everyday Life
					Maths	Differential Equations, Vectors, Three Dimensional Geometry, Probability, Linear programming
4A	15-01-2023	17-01-2023	22-01-2023	JEE (Advanced) Paper-1 & 2	PCM	Syllabus of Test-4

### Topicwise Test Schedule for Class 12 Studying Students

## AIATS for JEE (Main & Advanced) 2023 Version 2.0

(Online)

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
5	22-01-2023	24-01-2023	29-01-2023	JEE (Main)	Phy	Motion in a Straight Line, Motion in a Plane, Laws of Motion, Work, Energy & Power, System of Particles and Rotational Motion
					Chem	Some Basic Concepts of Chemistry, Structure of Atom, Classification of Elements & Periodicity in Properties, Chemical Bonding & Molecular Structure, States of Matter, Thermodynamics
					Maths	Complex Numbers & Quadratic Equations, Permutations and Combinations, Binomial Theorem, Sequences and Series (including Exponential & Logarithmic Series**), Principle of Mathematical Induction**
6	29-01-2023	31-01-2023	05-02-2023	JEE (Main)	Phy	Gravitation, Mechanical Properties of Solids, Mechanical Properties of Fluids, Thermal Properties of Matter, Thermodynamics, Kinetic Theory of Gases, Oscillations, Waves
					Chem	Equilibrium, Redox Reactions, Hydrogen, The s-Block Elements, The p-Block Elements (XIth Syllabus), Organic Chemistry (Some Basic Principles and Techniques), Hydrocarbons, Environmental Chemistry**
					Maths	Trigonometric Functions (Transformation Formulae, Trigonometric Equations, Properties of Triangle, Height & Distance), Straight Lines (Including Pair of Straight Lines**), Conic Section-I (Circle), Conic Section-II (Parabola, Ellipse and Hyperbola), Mathematical Reasoning**.
7	05-02-2023	07-02-2023	12-02-2023	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
5A	12-02-2023	14-02-2023	19-02-2023	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)
8	19-03-2023	21-03-2022	26-03-2023	JEE (Main)	PCM	MOCK TEST on Complete Syllabus of JEE (Main)
6A	26-03-2023	28-03-2023	02-04-2023	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)
7A	23-04-2023	25-04-2023	30-04-2023	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)
8A	30-04-2023	02-05-2023	07-05-2023	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)
9A	07-05-2023	09-05-2023	14-05-2023	JEE (Advanced) Paper-1 & 2	PCM	MOCK TEST on Complete Syllabus of JEE (Advanced)

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

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

**Note : Test window of AIATS Test will remain open for 48 Hrs thereafter the link would be disabled**

COMPREHENSIVE TEST PACKAGE (CTP) JEE (MAIN & ADVANCED)-2023 (XII STUDYING)			
ONLINE TEST SCHEDULE			
Test Date	Day	Test No.	Details
21-05-2022	Saturday	UT -1 (Main)	<b>Physics</b> - Physical World, Units & Measurement, Motion in a Straight Line, Motion in a Plane <b>Chemistry</b> - Structure of Atom, Classification of Elements and Periodicity in Properties, Some Basic Concepts of Chemistry <b>Maths</b> - Basics of Mathematics, Relations and Functions(Class XI), Trigonometric Functions-I
28-05-2022	Saturday	UT -2 (Main)	<b>Physics</b> - Electric Charges and Field, Electrostatic Potential and Capacitance <b>Chemistry</b> - The Solid State, Solution, Electrochemistry <b>Maths</b> -Relations and Functions(Class XII), Inverse Trigonometric Functions
11-06-2022	Saturday	UT -3 (Main)	<b>Physics</b> - Laws of Motion, Work, Energy and Power <b>Chemistry</b> - Chemical Bonding and Molecular Structure, Redox Reactions & Volumetric Analysis, States of Matter <b>Maths</b> - Quadratic Equations, Complex Numbers-I : (Algebra of Complex Numbers, Modulus & conjugate of a Complex Number, Polar form), Sequence & Series
25-06-2022	Saturday	PT -1 (Adv)	Test on Topics covered in Unit Test -1 to Unit Test -3
23-07-2022	Saturday	UT -4 (Main)	<b>Physics</b> -Current Electricity, Moving Charges & Magnetism <b>Chemistry</b> - Chemical Kinetics, Surface Chemistry, General Principles & Processes of Isolation of Elements <b>Maths</b> -Matrices and Determinants
30-07-2022	Saturday	UT -5 (Main)	<b>Physics</b> - System of Particles and Rotational Motion, Gravitation <b>Chemistry</b> - Thermodynamics, Equilibrium <b>Maths</b> - Linear Inequalities, Binomial Theorem(including Mathematical Induction), Permutations and Combinations, Straight Lines
13-08-2022	Saturday	UT -6 (Main)	<b>Physics</b> - Magnetism and Matter, Electromagnetic Induction, Alternating Current <b>Chemistry</b> - The p-Block Elements(class XII), The d & f-Block Elements, Coordination Compounds, Qualitative Analysis <b>Maths</b> - Continuity and Differentiability, Applications of Derivatives
03-09-2022	Saturday	PT-2 (Adv)	Test on Topics covered in Unit Test -4 to Unit Test -6
17-09-2022	Saturday	CT-1 (M&A)	Test on Topics covered in Unit Test -1 to Unit Test -6
24-09-2022	Saturday	UT -7 (Main)	<b>Physics</b> - Mechanical Properties of Solids, Mechanical Properties of Fluids <b>Chemistry</b> - Organic Chemistry - Some Basic Principles and Techniques <b>Maths</b> - Conic Sections-I, Conic Sections-II
08-10-2022	Saturday	UT -8 (Main)	<b>Physics</b> - Electromagnetic Waves, Ray Optics and Optical Instruments, Wave Optics <b>Chemistry</b> - Haloalkanes and Haloarenes, Alcohols, Phenols and Ethers <b>Maths</b> - Indefinite Integrals, Definite Integrals, Applications of Integrals
24-10-2022	Monday	UT -9 (Main)	<b>Physics</b> - Thermal Properties of Matter, Thermodynamics, Kinetic Theory of Gases <b>Chemistry</b> - Hydrocarbons, Environmental Chemistry <b>Maths</b> - Introduction to Three Dimensional Geometry, Limits and Derivatives, Statistics, Probability(Class XI)
29-10-2022	Saturday	PT -3 (Adv)	Test on Topics covered in Unit Test -7 to Unit Test -9
12-11-2022	Saturday	UT -10 (Main)	<b>Physics</b> - Dual Nature of Radiation and Matter, Atoms, Nuclei <b>Chemistry</b> - Aldehydes, Ketones and Carboxylic Acids, Amines <b>Maths</b> - Differential Equations, Vector Algebra
03-12-2022	Saturday	UT -11 (Main)	<b>Physics</b> - Oscillations, Waves <b>Chemistry</b> - Hydrogen, The s-Block Elements, The p-Block Elements <b>Maths</b> - Complex Numbers-II, Mathematical Reasoning, Trigonometric Functions -II
17-12-2022	Saturday	UT -12 (Main)	<b>Physics</b> - Semiconductor Electronics : Materials, Devices and Simple Circuits, Communication Systems, Experimental Physics <b>Chemistry</b> - Biomolecules, Polymers, Chemistry in Everyday life <b>Maths</b> - Three Dimensional Geometry, Linear Programming, Probability(Class XII)
24-12-2022	Saturday	PT -4 (Adv)	Test on Topics covered in Unit Test -10 to Unit Test -12
31-12-2022	Saturday	CT-2 (M&A)	Test on Topics covered in Unit Test -7 to Unit Test -12
07-01-2023	Saturday	FST-1	Complete Syllabus Test - Based on JEE (Main) Pattern (Class XI & XII)
12-01-2023	Thursday	FST-2	Complete Syllabus Test - Based on JEE (Advanced) (Paper-1 & 2) - Pattern (Class XI & XII)
17-01-2023	Tuesday	FST-3	Complete Syllabus Test - Based on JEE (Main) Pattern (Class XI & XII)
24-01-2023	Tuesday	FST-4	Complete Syllabus Test - Based on JEE (Advanced) (Paper-1 & 2) - Pattern (Class XI & XII)

UT- Unit Test | PT- Part Test | CT- Cumulative Test | FST- Full Syllabus Test



# Thank You

**ALL THE BEST FOR YOUR EXAMS!!**