



# Aakash

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## Ranker Test Series Schedule

For Repeater Students (XII Passed 2023-24)

### Online Test Schedule

Test Date	Day	Test No	TOPIC
16-06-2023	Friday	UT-01 (Main)	<p><b>Physics</b> - Physical World and Units &amp; Measurement, Motion in a Straight Line, Motion in a Plane, Laws of Motion, Work, Energy and Power</p> <p><b>Chemistry</b> - Structure of Atom, Classification of Elements and Periodicity in Properties, Some Basic Concepts of Chemistry, Chemical Bonding and Molecular Structure, States of Matter, Thermodynamics</p> <p><b>Maths</b> - Quadratic Equations, Complex Numbers, Sequences and Series, Binomial Theorem, Principle of Mathematical Induction</p>
30-06-2023	Friday	PT-01 (Advanced) Paper-1 & 2	Syllabus of UT-01
14-07-2023	Friday	UT-02 (Main)	<p><b>Physics</b> - System of Particles and Rotational Motion, Gravitation, Mechanical Properties of Solids, Mechanical Properties of Fluids</p> <p><b>Chemistry</b> - Equilibrium, Redox Reactions, Stoichiometry &amp; (Volumetric Analysis)*, The Solid State, Solution, Electrochemistry, Chemical Kinetics and Nuclear Chemistry, Surface Chemistry</p> <p><b>Maths</b> - Permutations and Combinations, Matrices, Determinants, Trigonometric Functions</p>
28-07-2023	Friday	PT-02 (Advanced) Paper-1 & 2	Syllabus of UT-02
11-08-2023	Friday	UT-03 (Main)	<p><b>Physics</b> - Thermal Properties of Matter, Thermodynamics, Kinetic Theory of Gases, Oscillations, Waves</p> <p><b>Chemistry</b> - Organic Chemistry - Some Basic Principles and Techniques, Hydrocarbons, Haloalkanes and Haloarenes</p> <p><b>Maths</b> - Inverse Trigonometric Functions, Straight Lines (Including Pair of Straight Lines), Conic Sections-I (Circle), Conic Sections-II (Parabola, Ellipse, Hyperbola), Mathematical Reasoning</p>
25-08-2023	Friday	PT-03 (Advanced) Paper-1 & 2	Syllabus of UT-03
01-09-2023	Friday	UT-04 (Main)	<p><b>Physics</b> - Electric Charges and Field, Electrostatic Potential and Capacitance, Current Electricity, Moving Charges &amp; Magnetism</p> <p><b>Chemistry</b> - Alcohols, Phenols and Ethers, Aldehydes, Ketones and Carboxylic Acids, Amines, Biomolecules, Polymers, Chemistry in Everyday life, Environmental Chemistry</p> <p><b>Maths</b> - Basics of Mathematics (Sets), Relations and Functions, Limits and Derivatives, Continuity and Differentiability, Applications of Derivatives</p>
15-09-2023	Friday	PT-04 (Advanced) Paper-1 & 2	Syllabus of UT-04



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## ➤ Ranker Test Series Schedule

For Repeater Students (XII Passed 2023-24)

### Online Test Schedule

Test Date	Day	Test No	TOPIC
29-09-2023	Friday	UT-05 (Main)	<p><b>Physics</b> - Magnetism and Matter, Electromagnetic Induction, Alternating Current, Electromagnetic Waves, Ray Optics and Optical Instruments</p> <p><b>Chemistry</b> - The d &amp; f-Block Elements, Coordination Compounds, Qualitative Analysis, General Principles &amp; Processes of Isolation of Elements</p> <p><b>Maths</b> - Indefinite Integration, Definite Integration, Applications of Integrals, Differential Equations</p>
13-10-2023	Friday	PT-05 (Advanced) Paper-1 & 2	Syllabus of UT-05
27-10-2023	Friday	UT-06 (Main)	<p><b>Physics</b> - Wave Optics, Dual Nature of Radiation and Matter, Atoms, Nuclei, Semiconductor Electronics : Materials, Devices and Simple Circuits, Communication Systems, Experimental Physics</p> <p><b>Chemistry</b> - Hydrogen, The s-Block Elements, The p-Block Elements (Group 13-14), The p-Block Elements (Group 15-18)</p> <p><b>Maths</b> - Vector Algebra, Three Dimensional Geometry, Probability, Statistics</p>
17-11-2023	Friday	PT-06 (Advanced) Paper-1 & 2	Syllabus of UT-06
06-01-2024	Saturday	Mock Test-1	Complete Syllabus Test - Based on JEE (Main) Pattern
11-01-2024	Thursday	Mock Test-2 Paper-1 & 2	Complete Syllabus Test - Based on JEE (Advanced) Pattern (Paper-1 & 2)
16-01-2024	Tuesday	Mock Test-3	Complete Syllabus Test - Based on JEE (Main) Pattern
23-01-2024	Tuesday	Mock Test-4 Paper-1 & 2	Complete Syllabus Test - Based on JEE (Advanced) Pattern (Paper-1 & 2)

UT- Unit Test | PT- Part Test | Mock Test



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## ➤ AIATS Schedule for Repeater Students (XII Passed 2023-24)

### AIATS for JEE (Main & Advanced) - Online

Test No.	Test Date	Date of Display of Answer key and uploading of video Solutions	Result Date	Pattern of Test	Topics of the Test
1	08-10-2023	08-10-2023	15-10-2023	JEE (Main)	<p><b>Physics:</b> Physical World and Units &amp; Measurement, 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</p> <p><b>Chemistry:</b> Structure of Atom, Classification of Elements and Periodicity in Properties, Some Basic Concepts of Chemistry, Chemical Bonding and Molecular Structure, States of Matter, Thermodynamics, Equilibrium, Redox Reactions, Stoichiometry &amp; (Volumetric Analysis)*, The Solid State, Solution, Electrochemistry, Chemical Kinetics and Nuclear Chemistry, Surface Chemistry</p> <p><b>Maths:</b> Quadratic Equations, Complex Numbers, Sequences and Series, Binomial Theorem, Principle of Mathematical Induction, Permutations and Combinations, Matrices, Determinants, Trigonometric Functions</p>
1A	15-10-2023	17-10-2023	22-10-2023	JEE (Advanced) Paper-1 & 2	<b>PCM Syllabus of Test-1</b>
2	02/12/2023	03/12/2023	10/12/2023	JEE (Main)	<p><b>Physics:</b> Thermal Properties of Matter, Thermodynamics, Kinetic Theory of Gases, Oscillations, Waves, Electric Charges and Field, Electrostatic Potential and Capacitance, Current Electricity, Moving Charges &amp; Magnetism</p> <p><b>Chemistry:</b> Organic Chemistry - Some Basic Principles and Techniques, Hydrocarbons, Haloalkanes and Haloarenes, Alcohols, Phenols and Ethers, Aldehydes, Ketones and Carboxylic Acids, Amines, Biomolecules, Polymers, Chemistry in Everyday life, Environmental Chemistry</p> <p><b>Maths:</b> Inverse Trigonometric Functions, Straight Lines (Including Pair of Straight Lines), Conic Sections-I (Circle), Conic Sections-II (Parabola, Ellipse, Hyperbola), Mathematical Reasoning, Basics of Mathematics (Sets), Relations and Functions, Limits and Derivatives, Continuity and Differentiability, Applications of Derivatives</p>
2A	10/12/2023	12/12/2023	17/12/2023	JEE (Advanced) Paper-1 & 2	<b>PCM Syllabus of Test-2</b>



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## ➤ AIATS Schedule for Repeater Students (XII Passed 2023-24)

### AIATS for JEE (Main & Advanced) - Online

Test No.	Test Date	Date of Display of Answer key and uploading of video Solutions	Result Date	Pattern of Test	Topics of the Test
3	21-01-2024	23-01-2024	28-01-2024	JEE (Main)	<p><b>Physics:</b> Magnetism and Matter, Electromagnetic Induction, Alternating Current, Electromagnetic Waves, Ray Optics and Optical Instruments, Wave Optics, Dual Nature of Radiation and Matter, Atoms, Nuclei, Semiconductor Electronics : Materials, Devices and Simple Circuits, Experimental Physics</p> <p><b>Chemistry:</b> The d &amp; f-Block Elements, Coordination Compounds, Qualitative Analysis, The p-Block Elements (Group 13-14), The p-Block Elements (Group 15-18)</p> <p><b>Maths:</b> Indefinite Integration, Definite Integration, Applications of Integrals, Differential Equations, Vector Algebra, Three Dimensional Geometry, Probability, Statistics</p>
3A	28-01-2024	30-01-2024	04-02-2024	JEE (Advanced) Paper-1 & 2	Syllabus of Test-3 + General Principles & Processes of Isolation of Elements, Hydrogen, The s-Block Elements
4	04-02-2024	06-02-2024	11-02-2024	JEE (Main)	<b>MOCK TEST on Complete Syllabus of JEE (Main)</b>
4A	11-02-2024	13-02-2024	18-02-2024	JEE (Advanced) Paper-1 & 2	<b>MOCK TEST on Complete Syllabus of JEE (Advanced)</b>
5	24-03-2024	26-03-2024	31-03-2024	JEE (Main)	<b>MOCK TEST on Complete Syllabus of JEE (Main)</b>
6	31-03-2024	02-04-2024	07-04-2024	JEE (Main)	<b>MOCK TEST on Complete Syllabus of JEE (Main)</b>
5A	14-04-2024	16-04-2024	21-04-2024	JEE (Advanced) Paper-1 & 2	<b>MOCK TEST on Complete Syllabus of JEE (Advanced)</b>
6A	28-04-2024	30-04-2024	05-05-2024	JEE (Advanced) Paper-1 & 2	<b>MOCK TEST on Complete Syllabus of JEE (Advanced)</b>
7A	12-05-2024	14-05-2024	19-05-2024	JEE (Advanced) Paper-1 & 2	<b>MOCK TEST on Complete Syllabus of JEE (Advanced)</b>
8A	19-05-2024	21-05-2024	26-05-2024	JEE (Advanced) Paper-1 & 2	<b>MOCK TEST on Complete Syllabus of JEE (Advanced)</b>

\*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**

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

Test Name	Test Syllabus
Physics Daily Test 1	What is physics, Scope & Excitement of physics, Physics technology and society, Fundamental forces in nature, Nature of physical laws
Chemistry Daily Test 1	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.
Mathematics Daily Test 1	Introduction, Sets, Representation of sets, Kinds of Sets, Analysis of two sets : Equal sets, Equivalent sets, Subsets, Intervals as subset of R.
Physics Daily Test 2	Concept of measurement of physical quantity, International system of units, measurement of physical parameters like length, mass and time.
Chemistry Daily Test 2	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.
Mathematics Daily Test 2	Power sets, Universe set, Venn diagram, Operation on sets : Union of sets, intersection of sets, disjoint sets, difference two sets, complement of a set, Algebra on sets.
Physics Daily Test 3	Dimensions of various physical quantities. Principle of Homogeneity
Chemistry Daily Test 3	Formula representation of molecule : (i) Empirical formula, (ii) Molecular formula, (iii) Formula unit, Mole concept : (i) Introduction of mole concept with basic problems
Mathematics Daily Test 3	Wavy Curve Method & Inequalities.
Physics Daily Test 4	Dimensional Analysis and its Application
Chemistry Daily Test 4	Calculation based on mole concept : (i) Mass / Mass relation, Molar mass and concept of gram atom, gram molecule, (ii) Volume / Volume relation
Mathematics Daily Test 4	Wavy Curve Method & Inequalities.

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

Test Name	Test Syllabus
Physics Daily Test 5	Accuracy & Precision of instruments, Errors (with its types), Propagation of errors in different operations like sum, difference, product and division
Chemistry Daily Test 5	Concept of limiting reagent : Use of stoichiometry in balanced equation and limiting reagent concept.
Mathematics Daily Test 5	Practical problems on union and intersection of two sets. Assignment discussions.
Physics Daily Test 6	Significant figures and different operations with significant figures, Rules of Rounding off
Chemistry Daily Test 6	Concentration term : (i) Molarity, (ii) Molality, (iii) Mole fraction.
Mathematics Daily Test 6	Introduction, Cartesian products of sets & Relations, Definition of function.
Physics Daily Test 7	Concept of position, path length, displacement, average velocity & average speed, Instantaneous velocity and speed.
Chemistry Daily Test 7	Stoichiometry : (i) Problem on gravimetric and volumetric analysis, (ii) Principle of atom conservation; (iii) n-factor
Mathematics Daily Test 7	Definition of domain, Range, Methods to find out domain
Physics Daily Test 8	Differentiation, Its physical significance, Important formulae for Differentiation
Chemistry Daily Test 8	Equivalent mass : (i) Equivalent mass and gram equivalent, (ii) Normality, (iii) Relation between molarity and normality. Stoichiometry - Application of gram equivalent concept and percentage of free SO <sub>3</sub> in oleum
Mathematics Daily Test 8	Some basic functions and their graphs, Algebra of functions, Identity function constant function, polynomial function,
Physics Daily Test 9	Application of Differentiation
Chemistry Daily Test 9	Atomic Structure: (i) Basic discovery and subatomic particles (Cathode rays, anode rays, Chadwick experiment), (ii) Rutherford experiment, (iii) Introduction to electromagnetic wave and introduce $C = \nu \lambda$ formula. (iv) Principle of quantization (Plank theory), (v) Black body radiation, (vi) Photoelectric effect
Mathematics Daily Test 9	Rational function, Irrational functions. Modulus function and their properties Signum function, Greatest integer, Fractional function

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

Test Name	Test Syllabus
Physics Daily Test 10	Integration, Its physical significance, Important formulae, Application of Integration,
Chemistry Daily Test 10	(i) Hydrogen spectrum, (ii) Bohr theory with mathematical derivations, (iii) Basic question on Bohr theory.
Mathematics Daily Test 10	Exponential function, logarithmic function and their properties. Algebra of real function, replacement properties of function, Transformations of Graphs
Physics Daily Test 11	Average and Instantaneous acceleration, Kinematics of non uniformly accelerated motion
Chemistry Daily Test 11	(i) Dual Behaviour of matter, (ii) De broglie equation, (iii) Heisenberg uncertainty principle
Mathematics Daily Test 11	Angles, Important terms, system of measurement of angles, trigonometric function, Values of trigonometric function for some specific angles, Trigonometric ratios of allied angles, Domain and ranges of trigonometric function, Graph of trigonometric functions.
Physics Daily Test 12	Uniformly accelerated motion
Chemistry Daily Test 12	(iv) Quantum mechanical model, (i) Introduction of quantum numbers, (iii) Shape of orbital,
Mathematics Daily Test 12	Transformation formulae: trigonometric ratio of the sum and difference of two angles. Transforming product into sum or difference, Transforming the sum or difference into product. Trigonometric ratio of multiple angles, sub-multiple angles.
Physics Daily Test 13	Physics: Motion Under Gravity
Chemistry Daily Test 13	(ii) Introduction to Radial function (y), (i) Aufbau principle, Pauli's exclusion principle, Hund's rule, (ii) Electronic configuration, Electronic configuration of Half-filled and full-filled orbitals
Mathematics Daily Test 13	Trigonometric equation: Types of trigonometric equation, Principal value, General solution of basic trigonometric equation.
Physics Daily Test 14	Graphs between position, velocity, acceleration and time for uniform and nonuniform accelerated motion, Relative velocity in one Dimension only

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

Test Name	Test Syllabus
Chemistry Daily Test 14	Periodic Properties: (i) Introduction to historical development for periodicity, (ii) Modern periodic law and prediction of periodic table, (iii) IUPAC naming of element ( $Z > 100$ ), Location of element by using atomic number and vice versa, (i) Atomic radius (various types and variation), (ii) Ionic radius and prediction of trend by using isoelectronic species
Mathematics Daily Test 14	Statement of preposition, problem based on proving theorem or identities by the principle of mathematical induction problem based on showing that a given expression is divisible by an integer or by another expression, problem based on proving inequality by the principle of mathematical induction and target discussion
Physics Daily Test 15	Motion in a Plane: Scalars & Vectors, Multiplication of vectors by real numbers, Addition & subtraction of vectors-graphical method (triangle law & parallelogram Law), Resolution of vectors, Vector addition and subtraction using resolution
Chemistry Daily Test 15	(ii) Ionic radius and prediction of trend by using isoelectronic species, (i) Ionisation energy and its general trends, (ii) Ionisation trend by using half-filled / full-filled orbital and screening effect (iii) Electron gain enthalpy, (iv) Electronegativity, (v) Metallic character and valency, (vi) Anomalous behaviour of 2nd period elements, (vii) Periodic trends and chemical reactivity.
Mathematics Daily Test 15	Quadratic equation: Fundamental theorem of algebra nature of roots of quadratic equations $ax^2 + bx + c = 0$ , Properties related to nature of roots of quadratic equations.
Physics Daily Test 16	Motion in a plane with constant acceleration. Projectile motion, Ground to ground Projection, Maximum height, Range, Time of flight,
Chemistry Daily Test 16	(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) Bond Parameters (bond length, bond angle, bond energy), Resonance
Mathematics Daily Test 16	Condition for common roots of quadratic equations. Quadratic expression $y = ax^2 + bx + c$ , Location of roots.
Physics Daily Test 17	Equation of trajectory for Ground to Ground projection, Horizontal /Oblique projection from a height

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

Test Name	Test Syllabus
Chemistry Daily Test 17	(ii) Introduce to concept of dipole moment, (iii) Fajan's rule, (iv) Percentage ionic character, (v) VSEPR theory (i) Covalent bonding (valence bond theory), (ii) Type of orbital overlap (s and p bond), (iii) Orbital overlap to explain simple molecules,
Mathematics Daily Test 17	Roots of an equation, analysis of cubic equation, formation of new equations with the help of given equation. Descartes rule, transformation of quadratic equation $ax^2 + bx + c = 0$ , Assignment discussion
Physics Daily Test 18	Projectile motion along inclined plane
Chemistry Daily Test 18	(iv) Hybridisation concept in introduction (i) Overlap of hybridised orbital and orbital overlap diagram, (ii) Prediction of hybridisation state and shape of molecule.
Mathematics Daily Test 18	Introduction, square root of negative number, complex number, representation of complex number in an argand plane. Equality of complex number, Algebra of complex number, Identities,
Physics Daily Test 19	Relative motion
Chemistry Daily Test 19	(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.
Mathematics Daily Test 19	Conjugate of a complex number, Representation of conjugate of a complex number in an Argand plane, properties of conjugate, Modulus of a complex number, representation of modulus of a complex number on the Argand plane, properties of modulus, Properties of arguments of Complex Numbers, Polar representation of a complex numbers
Physics Daily Test 20	Kinematics of uniform and nonuniform circular Motion
Chemistry Daily Test 20	(I) Intermolecular force and thermal energy, (II) Gaseous state-(i) Introduce volume, pressure and temperature their various units and relation among them, (ii) Gas laws – (a) Boyle's law, (b) Charle's law, (c) Gay Lusac's law ; (d) Avogardo's law

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

Test Name	Test Syllabus
Mathematics Daily Test 20	Introduction, inequalities, some rules to solve inequalities, inequalities related to modulus of a real numbers, Graphical solution of linear inequalities in two variables Type-1: Problem based on solution of system of linear inequalities Type-2: Problem based on finding system of linear inequalities when their solution set is given as a shaded region, Assignment discussion
Physics Daily Test 21	Laws of motion: 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
Chemistry Daily Test 21	(III) Ideal gas introduction and ideal gas equation, Basic problem on them, (I) Ideal gas equation (numericals), (II) Dalton's law of partial pressure
Mathematics Daily Test 21	Introduction, A.P. nth term of AP, properties of A.P. Sum of n term of an AP
Physics Daily Test 22	Common forces in mechanics (Weight, tension, normal reaction, Spring force), Motion of connected bodies,
Chemistry Daily Test 22	(III) Kinetic theory of gases, (IV) Kinetic energy and molecular speeds, (V) Maxwell boltzmann distribution of molecular speeds, (I) Graham's law of diffusion and effusion
Mathematics Daily Test 22	Arithmetic mean, Geometric progression, nth term, sum of n term of GP Geometric mean,
Physics Daily Test 23	Motion of a body on an inclined plane, Pulley block system
Chemistry Daily Test 23	(II) Real gas and van der Waal equation (ideal gas equation correction), (III) Introduction of compressibility factor, (IV) Compressibility factor expression from van der Waal equation and its qualitative explanation.
Mathematics Daily Test 23	Introduction to H.P., Relation between AM, GM and HM, Arithmetic, Geometric series
Physics Daily Test 24	Problems on pulley block system (including movable pulley)
Chemistry Daily Test 24	Liquefaction of gases, (v) Eudiometry. (vi) Liquid state : Vapour pressure, Surface tension, Viscosity
Mathematics Daily Test 24	Sum of n terms of special series, method of difference, Exponential series logarithmic series.
Physics Daily Test 25	Problems involving Movable Wedge

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

Test Name	Test Syllabus
Chemistry Daily Test 25	Introduction to Basic Terms : (i) Types of system, (ii) State of a System, (iii) State function, (iv) State variable, (v) path function, (vi) Extensive intensive property, (vii) Thermodynamic process
Mathematics Daily Test 25	Introduction, Pascal triangle, Binomial theorem for a positive integer index, Some special forms of binomial theorem, problem based on direct expansion, General term in the expansion of $(a + x)^n$ , middle term in the expansion of $(a + x)^n$
Physics Daily Test 26	Friction, Static & kinetic friction, Motion on a fixed rough surface
Chemistry Daily Test 26	(viii) Internal Energy as a state function (ix) Pressure volume work (x) First law of thermodynamics with Enthalpy.
Mathematics Daily Test 26	Greatest binomial coefficient, numerically greatest term in the binomial expansion, use of differentiation and integration,
Physics Daily Test 27	Miscellaneous problems on friction (one block over the other)
Chemistry Daily Test 27	(i) Heat capacity, (iii) Relation between $C_p$ and $C_v$ for an ideal gas, (iii) Isothermal reversible process, (iv) Reversible adiabatic process.
Mathematics Daily Test 27	Bino-binomial series. Multinomial expansion, binomial theorem for any index.
Physics Daily Test 28	Inertial & non inertial frames, Pseudo force, Solving problems in non-inertial frames
Chemistry Daily Test 28	(i) Measurement of $\Delta U$ and $\Delta H$ , (ii) Enthalpy change of a reaction, (iii) Standard enthalpy of formation ( $\Delta H^\circ_f$ ), (iv) Enthalpy change for different type of reaction.
Mathematics Daily Test 28	Fundamental principle of counting, multiplication principle, addition principle, factorial notation,
Physics Daily Test 29	Circular motion and banking of roads
Chemistry Daily Test 29	(i) Hess's law, (ii) Bond dissociation enthalpy, (iii) Kirchoff's equation.
Mathematics Daily Test 29	Permutation: Permutation of things not all distinct. Different types of problem based on Permutation, circular permutation
Physics Daily Test 30	Scalar product of vectors, Work (Positive, negative and Zero Work), Kinetic energy, Work energy theorem

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

Test Name	Test Syllabus
Chemistry Daily Test 30	(i) Second law of thermodynamics, (ii) Spontaneity and Enthalpy change, (iii) Introduction to Entropy, (iv) Entropy change in various process.
Mathematics Daily Test 30	Combination: Difference between a permutation and combination, Rank of a word in dictionary, Combination of different type of objects Special use of $nCr$
Physics Daily Test 31	Work done by a constant and variable force, Power
Chemistry Daily Test 31	(i) Numericals based on entropy, (ii) Trouton's rule, (iii) Gibbs free energy change and spontaneity, (iv) Calculation of Gibbs energy for a reaction. (i) Thermodynamics of equilibrium state, (ii) Third law of thermodynamics.
Mathematics Daily Test 31	Divisors, sum of the numbers formed by $n$ distinct digits. Division into groups, Equal division of objects, Arrangement into group.
Physics Daily Test 32	Problems based on work-energy theorem, Calculating work using Graphs like F-S, F-t
Chemistry Daily Test 32	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.
Mathematics Daily Test 32	Number of integral solution of an equation, application of multinomial expansion. Exponent of a prime number in a factorial, derangement.
Physics Daily Test 33	Conservative and non conservative forces. Concept of potential energy, Gravitational and spring potential energy
Chemistry Daily Test 33	(i) Relationship between equilibrium constant ( $K$ ), reaction quotient ( $Q$ ) and Gibbs's free energy ( $G$ ), (ii) Factors affecting equilibria (Lechatlier principle), (iii) Relative vapour density and degree of dissociation.
Mathematics Daily Test 33	Introduction, distance formula, section formula area of triangle slope of line, Angle between two lines, condition for two lines to be parallel and perpendicular, Collinearly of three points
Physics Daily Test 34	Conservation of mechanical energy, Vertical circular motion

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

Test Name	Test Syllabus
Chemistry Daily Test 34	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 Kw, 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).
Mathematics Daily Test 34	Various forms of line: (i) Horizontal and vertical line, point slope form, Two point form, Slope intercept form, Intercept form Normal form, Parametric form, General equation and comparison with different form
Physics Daily Test 35	Head on elastic and inelastic collision
Chemistry Daily Test 35	(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, (v) Mixture of strong acid and weak acid, (i) Polyprotic weak acid,
Mathematics Daily Test 35	Distance of line from a point, distance between two parallel lines, Image of point with line, foot of perpendicular, Equation of the bisectors, Analysis of three lines, Transformation of axes
Physics Daily Test 36	Oblique elastic & Oblique inelastic collisions
Chemistry Daily Test 36	(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 and strong acid, (iii) Salt of weak acid and weak base, (iv) Hydrolysis constant and pH determination. Buffer solution : (i) Types of buffer solution - Acidic buffer, Basic buffers and Salt buffers.
Mathematics Daily Test 36	Transformation of axes , Rotation of axes, Pair of straight line angle between lines, Point of intersection, parallel lines, joint equation of pair of straight lines joining origin and the points of intersection of a curve and a line
Physics Daily Test 37	Centre of mass of discrete particle system, Center of mass for continuous mass distribution
Chemistry Daily Test 37	(i) Buffer action, (ii) pH of a buffer solution, (iii) Buffer capacity. (iv) Acid-base titration-theory of indicators, pH curves.
Mathematics Daily Test 37	Definition, different form of circle, general equation, centre radius, Diameter form parametric form, Circle and point length of intercept on the co-ordinate axes, line and circle, condition for tangency to the circle
Physics Daily Test 38	Motion of centre of mass, Linear momentum of system of particles,

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

Test Name	Test Syllabus
Chemistry Daily Test 38	(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).
Mathematics Daily Test 38	Equation of tangent normal to a circle, equation at chord having mid-point, equation of tangent drawn from external point, Director circle, equation of pair of tangent
Physics Daily Test 39	Miscellaneous Problems on Conservation of linear momentum and mechanical energy.
Chemistry Daily Test 39	(i) Classical idea of oxidation and reduction reactions, (ii) Oxidising agent and reducing agent, (iii) Electronic concept of redox reactions, (iv) Oxidation numbers, (v) Rules for assigning oxidation number, (vi) Oxidation and reduction in terms of oxidation numbers. Types of redox reactions : (i) Combinations reaction, (ii) Decomposition reactions, (iii) Displacement reactions, (iv) Disproportionation reactions, (v) Fractional oxidation states, (vi) Balancing of redox reactions by oxidation number method and ion electron method
Mathematics Daily Test 39	Analysis of two circles, Radical axis, Locus Problems
Physics Daily Test 40	Rigid body, Rigid body constraint for velocity and acceleration, Vector product of two vectors, Torque
Chemistry Daily Test 40	(i) Equivalent weight, (ii) Normality, Volumetric calculation of simple titrations Back titration, Double titration. Redox reactions as the basis of titrations involving : (i) Acidified $\text{KMnO}_4$ , (ii) Acidified $\text{K}_2\text{Cr}_2\text{O}_7$ (iii) Iodo/Iodimetric titration, (iv) Volume strength of $\text{H}_2\text{O}_2$ Redox reactions and Electrode processes : (i) Function of salt bridge, (ii) standard electrode potential, (iii) Applications of electrochemical series.
Mathematics Daily Test 40	Standard equation of parabola, parametric equation line as tangent, condition for tangency, Equation of tangent in different form, point of intersection of tangent
Physics Daily Test 41	Equilibrium of a rigid body, Shifting of normal reaction and toppling,
Chemistry Daily Test 41	(i) Unique position of hydrogen as explained by resemblance with alkali metals and halogens, (ii) Isotopes of hydrogen, (iii) Preparation, properties, both physical and chemical and uses of hydrogen, (iv) Hydride - Ionic, Covalent and metallic, (v) Water- Structure, Physical and Chemical Properties,

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

Test Name	Test Syllabus
Mathematics Daily Test 41	Normal, co-normal points, properties of co-normal points, important points related to parabola, Equation of chord having mid-point (x1, y1) equation of pair of tangent
Physics Daily Test 42	Moment of inertia for discrete particle system, Uniform symmetric bodies, Theorems of perpendicular and parallel axis.
Chemistry Daily Test 42	(i) Hard and soft water - Types of hardness, softening of water and degree of hardness, (ii) Hydrogen peroxide- Preparations, Structure, Physical and Chemical Properties, (iii) Volume Strength of H <sub>2</sub> O <sub>2</sub> , (iv) Heavy Water (D <sub>2</sub> O), (v) Dihydrogen as a fuel
Mathematics Daily Test 42	Standard equation of ellipse, position of a point, line and ellipse, equation of tangent, Normal equation of chord having mid-point (x1, y1), pair of tangent
Physics Daily Test 43	Dynamics of rotational motion about a fixed axis.
Chemistry Daily Test 43	(i) s-block elements- Alkali and alkaline earth metals: diagonal relationship, (ii) Group-1 elements: General discussion on physical and chemical properties, (iii) General characteristics of compounds of alkali metals (i) Anomalous properties of Lithium, (ii) Compounds of sodium and potassium,
Mathematics Daily Test 43	Standard equation of hyperbola, Line and hyperbola equation of tangent, Equation of normal.
Physics Daily Test 44	General motion of a rigid body, Kinematics of Rolling motion, Dynamics of Rolling Motion
Chemistry Daily Test 44	(iii) Alkaline earth metals- General discussion on physical and chemical properties (i) General characteristics of compounds of alkaline earth metals, (ii) Anomalous behaviour of beryllium, (iii) Compounds of calcium and magnesium
Mathematics Daily Test 44	Asymptotes, Rectangular hyperbola, Parametric form, Tangent, Normal.
Physics Daily Test 45	Rotational kinetic energy and work energy theorem for rigid body.
Chemistry Daily Test 45	(i) Boron family- Physical and chemical properties, (ii) Anomalous properties of boron, (iii) extraction of boron and its properties, (i) Compounds of boron,

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

Test Name	Test Syllabus
Physics Daily Test 46	Angular momentum of a particle and system of particles. Angular momentum of rigid body
Chemistry Daily Test 46	(ii) Compounds of aluminium, (i) Carbon family- Physical and Chemical properties, (ii) Allotropes of carbon, (iii) Compounds of Carbon and silicon
Physics Daily Test 47	Conservation of angular momentum, Angular Impulse, Instantaneous axis of rotation
Physics Daily Test 48	Universal law of Gravitation, The gravitational constant, Acceleration due to gravity upon the Earth's surface, Variation of g due to height, depth, shape and rotation of the earth.
Physics Daily Test 49	Gravitational field, Gravitational field due to bodies of different shapes: Point mass, thin spherical shell, solid sphere, uniform ring
Physics Daily Test 50	Gravitational potential energy, Gravitational Potential energy of an object in the field of earth, Escape velocity
Physics Daily Test 51	Gravitational Potential, Relationship between field and potential, Gravitational potential due to different bodies: point mass, spherical shell, Solid sphere, ring
Physics Daily Test 52	Earth's satellite, Energy of satellite, Geostationary & polar satellite, Weightlessness, Kepler's laws of planetary motion.
Physics Daily Test 53	Elastic behaviour of solids, Stress and Strain, Hook's Law, Stress strain curve, Elastic moduli, Elastic potential energy, Poisson's ratio, Application of elastic behaviour of materials.
Physics Daily Test 54	Pressure, density, Pascal's law, Variation of pressure with depth, Hydrostatic paradox, Hydraulic lift, Hydraulic brakes, Force and torque due to hydrostatic pressure.
Physics Daily Test 55	Archimede's principle, Liquids in accelerated containers, Container having vertical acceleration, Container having horizontal acceleration, Horizontally accelerated U-tube, Pressure in a rotating frame.
Physics Daily Test 56	Streamline flow, Equation of continuity, Bernoulli's principle, Applications of Bernoulli's theorem
Physics Daily Test 57	Surface tension, Surface energy, angle of contact, Excess pressure, Capillary rise, Viscosity, Stoke's law, Terminal velocity, Reynolds number, Poiseuille's formula

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

Test Name	Test Syllabus
Mathematics Daily Test 45	Square root of a complex number. Euler form, de Moivre's theorem, cube roots of unity, $n$ th roots of unity
Mathematics Daily Test 46	Argument or amplitude, Rotation of complex number, Geometry of complex numbers, section formulae, condition, for quadrilateral
Chemistry Daily Test 47	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,
Mathematics Daily Test 47	Straight line in Argand plane, circle, Important loci in Argand plane.
Chemistry Daily Test 48	(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
Mathematics Daily Test 48	Introduction to 3-D geometry, octant, distance formula, section formula
Chemistry Daily Test 49	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,
Mathematics Daily Test 49	Definition, idea of limits, indeterminate form limits of polynomial and rational function, $0/0$ form, Limits of trigonometric function, $0 \times \infty$ form, $\infty - \infty$ form,
Chemistry Daily Test 50	(ii) Types of reagents : Electrophiles, nucleophiles. 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;
Mathematics Daily Test 50	Derivative by first principle, algebra of derivative of function. Derivative of polynomial and trigonometric function.
Chemistry Daily Test 51	Relative stability of (i) Carbocation, (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
Mathematics Daily Test 51	L's Hospital rule, Assignment Discussion.

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

Test Name	Test Syllabus
Chemistry Daily Test 52	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
Mathematics Daily Test 52	Introduction, mathematical statement, New statement from old, negation of statement, compound statement, Special words/phrases AND or 'OR' implication, contra positive and converse
Chemistry Daily Test 53	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
Mathematics Daily Test 53	Measure of dispersion, Mean deviation for ungrouped and grouped data, mean deviation about median, mean deviation about mean, Variance and standard deviation standard deviation of discrete frequency distribution, Analysis of frequency distribution
Chemistry Daily Test 54	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
Mathematics Daily Test 54	Basic definition, Random experiment, Types of event exhaustive event, Mutually exclusive event
Chemistry Daily Test 55	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
Mathematics Daily Test 55	Axiomatic approach of probability addition rule of probability, Miscellaneous problem based on P & C
Chemistry Daily Test 56	Oxidation of alkenes by (i) Baeyer's reagent and (ii) acidified $\text{KMnO}_4$ ; Ozonolysis; Polymerisation. Dienes and their addition reactions with halogen and hydrogen halide 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

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

Test Name	Test Syllabus
Mathematics Daily Test 56	Important key related half angles, Analysis of the form $y = a \sin x + b \cos x$ . Conditional identities, Sum of trigonometrical series.
Chemistry Daily Test 57	"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 <sub>2</sub> and Cl <sub>2</sub> to benzene Ortho, Meta and para directing groups; Activating groups; Deactivating groups, Orientation in monosubstituted benzene."
Mathematics Daily Test 57	Equation containing more than one variable: trigonometric equation containing more than one function in one variables, Trigonometric equation containing different functions and different variables, Trigonometric equation in which trigonometric function containing large exponent. Trigonometric inequalities, precautions in solving the equation.
Physics Daily Test 58	Introduction, Temperature & Heat, Measurement of temperature, Thermal expansion, Linear expansion, Volume expansion, Relation between volume expansion and linear expansion
Chemistry Daily Test 58	Atmospheric pollution, Gaseous Air pollutants; Greenhouse effect; Particulate pollutants; Smag; Ozone hole; Water pollution, Soil pollution, Industrial waste, Strategies to control environmental pollution.
Mathematics Daily Test 58	Properties of triangle, sine rule and cosine rule, Napier's analogy, projection formulae, Area of triangle in different form. Half angle formula,
Physics Daily Test 59	Specific heat capacity, Latent heat, Calorimetry, Heat transfer – Conduction, Fourier's law of heat conduction, Steady state heat conduction, thermal resistance,
Mathematics Daily Test 59	Circum centre incentre, Ortho centre, Centroid. Escribed circle, Regular polygon
Physics Daily Test 60	Growth of ice in pond, Convection, radiation, Black body, Newton's law of cooling, Stefan's law, Kirchhoff's law, energy distribution of black body radiation, Wein's displacement law
Physics Daily Test 61	Physics: Introduction, Thermal equilibrium, Zeroth law of thermodynamics, Thermodynamic state variables and equation of state. Heat, internal energy and work, Calculating work done by a gas, Calculating work done by indicator diagram, First law of thermodynamics.

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

Test Name	Test Syllabus
Physics Daily Test 62	Specific heat capacity, Calculating molar heat capacity of a gas, Various Thermodynamic processes, Polytropic process ( $Pv^\gamma = \text{Constant}$ ), Heat engines, Refrigerators & heat pumps, Second law of thermodynamics, Reversible and irreversible process, Carnot's Engine.
Physics Daily Test 63	Introduction, Molecular nature of matter, Behaviour of gases, Gas Laws, Kinetic theory of an ideal gas, Pressure exerted by a gas, Law of equipartition of energy, Specific heat capacity, Mean free path.
Physics Daily Test 64	Introduction, Periodic & oscillatory motions, Simple harmonic motion and uniform circular motion, Velocity and acceleration in simple harmonic motion, Force law for simple harmonic motion, Energy in simple harmonic motion, Calculation of time period of spring block system
Physics Daily Test 65	Combination of springs, SHM of two particle system, Angular SHM, Simple pendulum and physical pendulum, Torsion pendulum, Other examples on linear SHM, Damped simple harmonic motion, Forced oscillations & resonance.
Physics Daily Test 66	Progressive wave and it's 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
Physics Daily Test 67	Super Position of Waves, Reflection and refraction of waves, Standing waves and it's wave function; Standing waves in string and Organ pipe, Resonance tube and end correction, Interference of sound waves; Beats; Doppler effect ; Mixed problem on Doppler effect and beats

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) Partical 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 : Occurance, 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 of 16th group elements, Dioxygen (Preparation 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 identities. 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> . (Preparation 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, Pseudohalogens. 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)

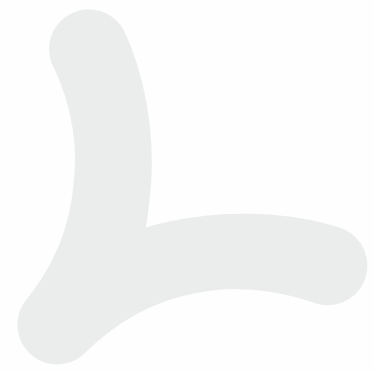
Test Name	Test Syllabus
Mathematics Daily Test 37	Plane and line– Angle, Distance of a point from a plane and from a line. Image of a point with respect to a plane
Chemistry Daily Test 38	Preparation of phenol, Physical properties of alcohols and phenols, Chemical properties of alcohols Chemical reactions 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 searl's method and determination of focal length.



## Summary for Class XII Passed

RANKER PACKAGE	
Year Syllabus	Class XI & XII
AIATS	15
Unit Tests	6
Part Tests	6
Full Syllabus Tests	4
Daily Practice Tests	326