

Advance Forte Scholarship Test Syllabus

Foundation Courses for IIT-JEE, NEET & Olympiads

FOR STUDENTS APPEARING FOR CLASS 8

PHYSICS

- **Heat:** Temperature, measurement, transfer of heat, effects of heat
- **Motion and Time:** Speed, distance-time graphs, uniform and non-uniform motion
- **Light:** Reflection, mirrors, lateral inversion, refraction basics
- **Electric Current and Its Effects:** Circuit diagrams, heating effect, magnetic effect, electromagnets
- **Physical and Chemical Changes:** Types of changes, rusting, crystallization

CHEMISTRY

- **Acids, Bases and Salts:** Indicators, neutralization, properties
- **Fiber to Fabric:** Natural and synthetic fibers, properties
- **Water:** Sources, water cycle, conservation
- **Nutrition in Plants and Animals:** Photosynthesis, nutrition modes, digestive system
- **Materials and Separation:** Mixtures, separation techniques

MATHEMATICS

- **Integers:** Operations, properties
- **Fractions and Decimals:** Operations, conversions
- **Rational Numbers:** Introduction, representation
- **Algebra:** Simple equations, expressions
- **Lines and Angles:** Types, properties, pairs of angles
- **Triangles and Their Properties:** Types, properties, congruence basics
- **Perimeter and Area:** Plane figures
- **Data Handling:** Mean, median, mode, bar graphs, probability introduction

MENTAL ABILITY

- Number series, alphabet series, coding-decoding, mirror images, water images, paper folding and cutting, direction sense, ranking, odd one out
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FOR STUDENTS APPEARING FOR CLASS 9

PHYSICS

- **Force and Pressure:** Types of forces, contact and non-contact forces, pressure in fluids, atmospheric pressure, buoyancy
- **Friction:** Types, laws, factors affecting, advantages and disadvantages
- **Sound:** Production, propagation, characteristics (pitch, loudness, quality), speed of sound, human ear
- **Light:** Laws of reflection, plane and spherical mirrors, image formation
- **Electricity:** Electric current, potential difference, circuit diagrams, Ohm's law, series and parallel combinations, heating effect
- **Stars and Solar System:** Celestial objects, planets, moon, constellations

CHEMISTRY

- **Synthetic Fibers and Plastics:** Types, properties, characteristics
- **Materials - Metals and Non-metals:** Physical and chemical properties, uses, reactivity series
- **Coal and Petroleum:** Formation, products, natural resources
- **Combustion and Flame:** Types of combustion, conditions, fire extinguisher
- **Chemical Effects of Electric Current:** Conductors, electroplating, LED
- **Pollution of Air and Water:** Causes, effects, prevention

BIOLOGY

- **Crop Production and Management:** Agricultural practices, tools
- **Microorganisms:** Useful and harmful, food preservation
- **Cell - Structure and Functions:** Discovery, types, organelles
- **Reproduction in Animals:** Modes, asexual and sexual reproduction
- **Reaching the Age of Adolescence:** Changes during puberty, reproductive health

MATHEMATICS

- **Rational Numbers:** Properties, operations, representation on number line
- **Linear Equations in One Variable:** Solving, applications
- **Understanding Quadrilaterals:** Properties of parallelogram, rhombus, rectangle, square, trapezium
- **Practical Geometry:** Construction of quadrilaterals
- **Data Handling:** Frequency distribution, histograms, circle graphs, probability
- **Squares and Square Roots, Cubes and Cube Roots:** Properties, methods
- **Comparing Quantities:** Ratio, proportion, percentage, profit and loss, simple and compound interest
- **Algebraic Expressions and Identities:** Multiplication, standard identities
- **Mensuration:** Area and perimeter, surface area and volume of cube, cuboid, cylinder
- **Exponents and Powers:** Laws of exponents
- **Direct and Inverse Proportions**
- **Factorization:** Methods, division of algebraic expressions
- **Introduction to Graphs:** Cartesian system, linear graphs

MENTAL ABILITY

- Logical sequence, analogy, classification, series completion, coding-decoding, blood relations, direction and distance, statement and conclusion, venn diagrams

FOR STUDENTS APPEARING FOR CLASS 10

PHYSICS

- **Motion:** Distance and displacement, uniform and non-uniform motion, speed and velocity, acceleration, equations of motion, uniform circular motion
- **Force and Newton's Laws:** First, second and third laws, inertia, momentum, conservation of momentum
- **Gravitation:** Universal law of gravitation, free fall, mass and weight, thrust and pressure, Archimedes' principle, relative density
- **Work and Energy:** Work, energy (kinetic and potential), law of conservation of energy, power
- **Sound:** Nature, propagation, characteristics, speed, reflection, range of hearing, applications (SONAR, ultrasound)
- **Floataion:** Buoyant force, Archimedes' principle, applications

CHEMISTRY

- **Matter in Our Surroundings:** States of matter, change of state, evaporation
- **Is Matter Around Us Pure:** Mixtures, solutions, suspensions, colloids, separation techniques, physical and chemical changes
- **Atoms and Molecules:** Laws of chemical combination, atomic and molecular mass, mole concept, chemical formula
- **Structure of the Atom:** Charged particles, Thomson's model, Rutherford's model, Bohr's model, valency, atomic number, mass number, isotopes
- **The Fundamental Unit of Life:** Cell theory, cell structure, prokaryotic and eukaryotic cells, cell organelles

BIOLOGY

- **Tissues:** Plant tissues (meristematic and permanent), animal tissues (epithelial, connective, muscular, nervous)
- **Diversity in Living Organisms:** Basis of classification, hierarchy of classification, plant kingdom (thallophyta, bryophyta, pteridophyta, gymnosperms, angiosperms), animal kingdom (non-chordata and chordata)
- **Why Do We Fall Ill:** Health and diseases, infectious and non-infectious diseases, means of spread, prevention
- **Natural Resources:** Air, water, soil, biogeochemical cycles (nitrogen, water, oxygen, carbon), ozone layer

MATHEMATICS

- **Number Systems:** Irrational numbers, real numbers and their decimal expansions, operations on real numbers, laws of exponents for real numbers, rationalization
- **Polynomials:** Polynomials in one variable, zeroes of a polynomial, remainder theorem, factorization, algebraic identities
- **Coordinate Geometry:** Cartesian system, plotting points
- **Linear Equations in Two Variables:** Solution, graph, equations of lines parallel to axes
- **Introduction to Euclid's Geometry:** Axioms, postulates, theorems
- **Lines and Angles:** Basic terms, pairs of angles, parallel lines and transversal
- **Triangles:** Congruence, criteria, properties, inequalities
- **Quadrilaterals:** Properties of parallelogram, rhombus, rectangle, square, trapezium, mid-point theorem
- **Areas:** Parallelograms and triangles on same base and between same parallels
- **Circles:** Basic definitions, angle subtended by chord, perpendicular from center, equal chords, cyclic quadrilateral
- **Constructions:** Bisectors, angles, triangles
- **Heron's Formula:** Area of triangle
- **Surface Areas and Volumes:** Cuboid, cube, cylinder, cone, sphere, hemisphere
- **Statistics:** Collection, presentation, mean, median, mode of grouped data, graphical representation
- **Probability:** Experimental approach

MENTAL ABILITY

- Analytical reasoning, statement and assumptions, statement and arguments, data sufficiency, assertion and reason, course of action, critical reasoning, puzzle test, mathematical operations

GENERAL TEST INSTRUCTIONS

Test Pattern

- **Type:** Multiple Choice Questions (MCQs)
- **Sections:** Subject-wise (Physics, Chemistry, Mathematics/Biology, Mental Ability)
- **Negative Marking:** Yes (typically -1 for incorrect, +4 for correct)
- **Duration:** Varies by class level (2-3.5 hours)

Scholarship Benefits

Based on performance, students will receive:

- Fee waivers (25%, 50%, 75%, 100%)
- Study material support
- Special mentoring sessions
- Performance-based incentives

Preparation Strategy

1. Complete thorough revision of previous class
2. Focus on NCERT textbooks as base
3. Practice numerical and conceptual problems daily
4. Take regular mock tests
5. Maintain formula sheets and revision notes
6. Analyze errors and work on weak areas

Note: This syllabus is designed considering that students will be tested on their **PREVIOUS CLASS completed syllabus** to assess their foundation before entering the next class. The difficulty level and question pattern will match competitive exam standards while being age-appropriate.