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## Exam Syllabus :



### MATHEMATICS

- **BASICS IN LOGARITHMS AND SETS :**
- **POLYNOMIALS INCLUDING QUADRATIC EQUATIONS AND LINEAR EQUATIONS :**  
Remainder theorem, Factor theorem, Relation between roots & coeff of polynomial equations, Signs of roots, Dependent & Independent equations.
- **PROGRESSIONS :**  
A.P, G.P,  $\Sigma n, \Sigma n^2, \Sigma n^3$ , means, nth term, sum of n terms & sum of infinity terms.
- **SURFACE AREAS & VOLUMES :**  
Areas and volumes of 3 dimensional objects.
- **COORDINATE GEOMETRY :**  
Distance, Slope, Point of intersection, Section formula & different forms of straight lines, Areas, Concurrent Lines and Points of Concurrency.
- **PLANE GEOMETRY :**  
Triangles - B.P.T, Pythagorean, Similarity & Congruency Circles, Tangent & Secants to a Circle.
- **TRIGONOMETRY & ITS APPLICATIONS :**  
Trigonometric ratios and identities, Compound angles & Elimination of an angle & Heights and Distances.
- **PROBABILITY :**  
Basic concepts, Types of events of probability and related problems.
- **STATISTICS :**  
Mean, Range, Median and Mode of an ungrouped and grouped data.



### BIOLOGY

- **NUTRITION**
- **REPRODUCTION**
- **RESPIRATION**
- **HEREDITY**
- **TRANSPORTATION**
- **OUR ENVIRONMENT**
- **EXCRETION**
- **CELL & TISSUES**
- **CONTROL & CO-ORDINATION**



### PHYSICS

- **MOTION IN STRAIGHT LINE :**  
Average speed, Average velocity, Acceleration, Equations of motions, Graphs (Displacement-time, Velocity-time, acceleration-time), Motion under gravity (Freely falling and vertically projected bodies).
- **FORCE & LAWS OF MOTION :**  
Force, Momentum, Types of inertia, Impulse, Laws of motion, conservation of linear momentum.
- **GRAVITATION :**  
Universal law of gravitation, Acceleration due to gravity and its variation, Weight.
- **WORK & ENERGY :**  
Work, Energy, Potential Energy, Kinetic Energy, Law of Conservation of Energy, Power.
- **LIGHT-REFLECTION AND REFRACTION :**  
Laws of Reflection, Image formed by plane and spherical mirrors and their characteristics, mirror formula, Use of spherical mirrors, Absolute and relative refractive indices, Snell's law, Spherical Lens, Lens makers formula, Lens formula, Ray diagrams, Critical Angle, Total internal reflection, Power of a lens, Combination of Lenses.
- **HUMAN EYE & COLOURFUL WORLD:**  
Myopia & its correction, Hyper metropia & its correction, Refraction & Dispersion through a prism, Scattering of light, Atmospheric refraction.
- **CURRENT ELECTRICITY :**  
Drift Velocity, Ohm's law, Resistance, series and parallel combination of resistances, Resistivity, Kirchoff's laws, Electricity bill, Electric power.
- **MAGNETIC EFFECTS OF ELECTRIC CURRENT :**  
Magnetic field, Field lines & Their properties, Magnetic field due to straight conductor, Circular loop & Solenoid, Right hand Thumb Rule, Force acting on a charged particle & Current carrying conductor in a magnetic field, Fleming's left hand Rule, Faraday's laws of electro magnetic induction, Domestic electric circuits.



### CHEMISTRY

- **MATTER AROUND US:**  
Understanding of the term Solution, Solubility, Concentration of a solution (mass, volume and mass by volume percentages), Properties of True solutions, Colloids & Suspensions.
- **ATOMS & MOLECULES :**  
Laws of Chemical Combination, Atomic Weight, Molecular Weight, Writing formulae of Simple Compounds, Basics of Mole Concept.
- **STRUCTURE OF ATOM :**  
Atomic models, Electronic configuration (Bohr-Bury Rules), isotopes and % abundance of isotopes.
- **CHEMICAL REACTIONS & EQUATIONS :**  
Balancing of chemical equations, Types of chemical reactions (Combination, Decomposition, Displacement, Double displacement), Oxidation & Reduction, Corrosion & Rancidity.
- **ACIDS, BASES & SALTS:**  
Chemical Properties of Acids & Bases,  $P^H$  and its importance in every day life, Salts, Chemicals from Common Salt & Water of Crystallization, Plaster of Paris.
- **METALS AND NON-METALS :**  
Properties, The Reactivity Series, Ionic bond and properties of ionic compounds, Occurrence of metals, extraction of metals and Corrosion, Basic structure of modern periodic table.
- **CARBON & ITS COMPOUNDS :**  
Bonding in Carbon, Versatile Nature of Carbon, Nomenclature of Carbon Compounds, Chemical Properties, Ethanol & Ethanoic Acid, Soaps & Detergents.



### APTITUDE

- **NON-VERBAL**
- **DIRECTIONS & RELATIONS**
- **SERIES**
- **MATHEMATICAL REASONING**
- **ODD ONE OUT & MISSING PAIRS**