

Test Structure

- **Total Questions:** 50
 - **Mathematics:** 25 Questions
 - **Science:** 25 Questions
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MATHEMATICS SYLLABUS

1. General Aptitude

- Logical reasoning and analytical thinking
- Number series and pattern recognition
- Analogies and relationships
- Visual reasoning and spatial intelligence
- Data interpretation and statistical analysis
- Problem-solving strategies and techniques
- Mathematical puzzles and brain teasers
- Code breaking and logical deduction
- Direction, distance, and time problems
- Set theory and Venn diagrams

2. Number Systems

- Natural numbers, whole numbers, and integers
- Rational and irrational numbers
- Real numbers and their properties
- Number line representation
- Operations on real numbers
- Laws of exponents for real numbers
- Rationalization of denominators
- Decimal representation of rational numbers
- Comparison and ordering of real numbers

- Applications in solving equations

3. Polynomials

- Introduction to polynomials and their terminology
- Types of polynomials (linear, quadratic, cubic)
- Degree and coefficients of polynomials
- Addition, subtraction, and multiplication of polynomials
- Division of polynomials
- Remainder theorem and factor theorem
- Factorization of polynomials
- Zeros of polynomials and their relationship with coefficients
- Algebraic identities and their applications
- Word problems involving polynomials

4. Coordinate Geometry

- Cartesian coordinate system
 - Plotting points on coordinate plane
 - Distance between two points
 - Section formula and its applications
 - Area of triangles using coordinates
 - Collinearity of points
 - Midpoint formula
 - Coordinate geometry in real-life situations
 - Graphical representation of linear equations
 - Introduction to coordinate geometry proofs
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SCIENCE SYLLABUS

1. Matter in Our Surroundings

- States of matter (solid, liquid, gas)
- Properties of matter in different states
- Interconversion of states of matter
- Effect of temperature and pressure on states
- Melting, boiling, freezing, and sublimation

- Evaporation and factors affecting it
- Kinetic theory of matter
- Plasma as the fourth state of matter
- Classification of matter (pure substances and mixtures)
- Separation techniques for mixtures

2. Fundamental Unit of Life

- Cell as the basic unit of life
- Discovery of cell and cell theory
- Structure and organization of cells
- Prokaryotic and eukaryotic cells
- Plant cell and animal cell differences
- Cell organelles and their functions
- Cell membrane and its properties
- Nucleus and its importance
- Cell division (mitosis and meiosis basics)
- Tissues and their types in plants and animals

3. Work and Power

- Concept of work in physics
 - Conditions for work to be done
 - Calculation of work done
 - Positive, negative, and zero work
 - Energy and its forms (kinetic and potential)
 - Law of conservation of energy
 - Power and its calculation
 - Relationship between work, energy, and power
 - Units of work, energy, and power
 - Applications in daily life situations
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Preparation Tips

For Mathematics:

- Strengthen algebraic manipulation skills
- Practice coordinate geometry problems with graphing

- Master polynomial operations and factorization
- Understand number system classifications thoroughly
- Work on logical reasoning and pattern recognition regularly

For Science:

- Understand the particulate nature of matter through examples
- Learn cell structures through diagrams and comparisons
- Practice numerical problems related to work, energy, and power
- Connect theoretical concepts with real-life observations
- Focus on understanding rather than memorizing definitions