

Test Structure

- **Total Questions:** 40
 - **Mathematics:** 20 Questions
 - **Science:** 20 Questions
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MATHEMATICS SYLLABUS

1. General Aptitude

- Logical reasoning and pattern recognition
- Number series and sequences
- Analogies and relationships
- Visual reasoning and spatial intelligence
- Data interpretation and analysis
- Problem-solving techniques
- Mathematical puzzles and brain teasers
- Code breaking and cipher problems
- Direction and distance problems

2. Squares and Cubes

- Perfect squares and their properties
- Methods to find squares of numbers
- Square roots and their calculation
- Properties of square numbers
- Perfect cubes and their properties
- Methods to find cubes of numbers
- Cube roots and their calculation
- Relationship between squares and cubes
- Applications in real-life problems

3. Exponents

- Laws of exponents (product rule, quotient rule, power rule)
- Negative exponents and their meanings
- Zero as an exponent
- Fractional exponents
- Scientific notation and standard form
- Comparison of numbers in exponential form
- Simplification of exponential expressions
- Applications of exponents in practical situations

4. Story of Numbers

- History and evolution of number systems
 - Ancient number systems (Roman, Egyptian, Babylonian)
 - Development of the decimal system
 - Concept of zero and its significance
 - Number patterns in nature (Fibonacci sequence, golden ratio)
 - Magic squares and number tricks
 - Binary and other number bases
 - Famous mathematicians and their contributions to numbers
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SCIENCE SYLLABUS

1. Investigative World of Science

- Scientific method and approach
- Observation, hypothesis, and experimentation
- Variables in experiments (independent, dependent, controlled)
- Data collection and analysis
- Drawing conclusions from experiments
- Scientific instruments and their uses
- Measurement and units in science
- Safety in laboratory and field work
- Famous scientists and their discoveries

2. Invisible World

- Microscopic organisms and their study
- Types of microorganisms (bacteria, viruses, fungi, protozoa)
- Role of microorganisms in daily life
- Beneficial and harmful microorganisms
- Food preservation and spoilage
- Diseases caused by microorganisms
- Introduction to cells as basic units of life
- Structure and function of plant and animal cells
- Microscopy and its applications

3. Health

- Components of a balanced diet
 - Nutritional deficiency diseases
 - Food groups and their importance
 - Personal hygiene and its importance
 - Common diseases and their prevention
 - Communicable and non-communicable diseases
 - First aid and emergency care
 - Mental health and stress management
 - Exercise and physical fitness
 - Environmental factors affecting health
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Preparation Tips

For Mathematics:

- Practice mental calculations and quick problem-solving
- Work on logical reasoning puzzles regularly
- Master multiplication tables and squares/cubes up to 20
- Understand and apply laws of exponents
- Learn about different number systems and their historical significance

For Science:

- Develop observation skills through daily life examples
- Understand the scientific method through practical examples
- Learn about microorganisms and their effects on health

- Focus on health-related concepts and their applications
 - Practice identifying scientific instruments and their uses
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