

## **Science (PCB)**

### **BIOLOGY (20 Questions)**

#### **Unit 1: Cell Biology**

- Cell Structure & Function
- Biomolecules
- Cell Cycle
- Cell Division (Mitosis & Meiosis)
- Cell Communication

#### **Unit 2: Genetics**

- Mendelian Genetics
- Chromosomal Theory
- Linkage & Crossing Over
- Mutation
- Human Genetic Disorders
- Pedigree Analysis

#### **Unit 3: Molecular Biology**

- DNA Structure
- DNA Replication
- RNA
- Protein Synthesis
- Gene Expression
- Gene Regulation

#### **Unit 4: Human Physiology**

- Digestive System
- Respiratory System
- Circulatory System
- Excretory System
- Nervous System

- Endocrine System
- Reproductive System
- Muscular System

#### **Unit 5: Plant Physiology**

- Photosynthesis
- Respiration
- Plant Growth Regulators
- Mineral Nutrition
- Water Transport
- Transpiration

#### **Unit 6: Reproduction**

- Human Reproduction
- Reproductive Health
- Plant Reproduction
- Embryonic Development

#### **Unit 7: Evolution**

- Origin of Life
- Darwin's Theory
- Hardy-Weinberg Principle
- Speciation
- Human Evolution

#### **Unit 8: Biotechnology**

- Genetic Engineering
- Recombinant DNA Technology
- PCR
- DNA Fingerprinting
- Gene Therapy
- CRISPR (Basic Concepts)

### **Unit 9: Ecology**

- Ecosystem
- Food Chain
- Food Web
- Biodiversity
- Environmental Issues
- Conservation Biology
- Climate Change

### **Unit 10: Applied Biology**

- Immunology
- Vaccines
- Human Diseases
- Microbiology
- Bioinformatics (Basics)
- Biomedical Applications

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## **CHEMISTRY (30 Questions)**

### **Physical Chemistry**

- Mole Concept
- Atomic Structure
- Chemical Bonding
- Thermodynamics
- Chemical Equilibrium
- Ionic Equilibrium
- Electrochemistry
- Chemical Kinetics
- Surface Chemistry
- Solutions

## **Organic Chemistry**

- General Organic Chemistry
- Isomerism
- Hydrocarbons
- Halo Compounds
- Alcohols
- Phenols
- Ethers
- Aldehydes
- Ketones
- Carboxylic Acids
- Amines
- Biomolecules
- Polymers
- Named Reactions
- Reaction Mechanisms

## **Inorganic Chemistry**

- Periodic Table
- Chemical Bonding
- Coordination Compounds
- d-Block Elements
- f-Block Elements
- Metallurgy
- Qualitative Analysis

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## **PHYSICS (30 Questions)**

### **Mechanics**

- Units & Dimensions

- Vectors
- Motion
- Newton's Laws
- Work, Energy & Power
- Rotational Motion
- Gravitation

### **Heat & Thermodynamics**

- Thermal Physics
- Heat Transfer
- Thermodynamics
- Kinetic Theory

### **Oscillations & Waves**

- SHM
- Wave Motion
- Sound Waves
- Doppler Effect

### **Electricity & Magnetism**

- Electrostatics
- Current Electricity
- Capacitors
- Magnetism
- Electromagnetic Induction
- Alternating Current

### **Optics**

- Ray Optics
- Wave Optics
- Optical Instruments

### **Modern Physics**

- Photoelectric Effect
  - Dual Nature
  - Atomic Structure
  - Nuclear Physics
  - Semiconductor Electronics
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### **Question Pattern**

- Single Correct MCQ
- Assertion–Reason Questions
- Statement-Based Questions
- Diagram-Based Questions
- Experimental Analysis Questions
- Case Study Questions
- Data Interpretation
- Application-Oriented Questions
- Multi-Concept Questions

### **Scientific Reasoning (10 Questions)**

#### **Unit 1: Scientific Method**

- Observation & Hypothesis
- Variables in Experiments
- Experimental Design
- Scientific Investigation
- Research Methodology (Basic)

#### **Unit 2: Data Interpretation**

- Tables & Graphs
- Charts & Scientific Data
- Trend Analysis
- Error Analysis

- Experimental Results

### **Unit 3: Critical Scientific Thinking**

- Cause & Effect
- Pattern Recognition
- Evidence-Based Conclusions
- Scientific Inference
- Hypothesis Testing

### **Unit 4: Application of Science**

- Real-life Scientific Applications
- Environmental Science
- Health & Biotechnology Applications
- Technology-Based Problems

### **Question Types**

- Case Study Questions
- Graph Analysis
- Diagram Interpretation
- Experimental Analysis
- Assertion & Reason
- Statement-Based Questions

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## **Logical & Analytical Aptitude (10 Questions)**

### **Unit 1: Logical Reasoning**

- Analogy
- Classification
- Coding-Decoding
- Series Completion
- Logical Sequence

## **Unit 2: Analytical Reasoning**

- Blood Relations
- Direction Sense
- Seating Arrangement
- Ranking
- Puzzle Solving

## **Unit 3: Quantitative Aptitude**

- Percentage
- Ratio & Proportion
- Average
- Time & Work
- Time, Speed & Distance
- Profit & Loss
- Simple & Compound Interest

## **Unit 4: Data Interpretation**

- Tables
- Bar Graphs
- Pie Charts
- Line Graphs

## **Unit 5: Critical Thinking**

- Logical Arguments
- Assumptions
- Conclusions
- Decision Making
- Problem Solving

## **Question Types**

- Multiple Choice Questions
- Numerical Reasoning

- Logical Puzzles
- Data-Based Questions
- Case-Based Reasoning