



# ACCELERATED LEARNING PROGRAMME (ALP)

تسریع التعلیم پروگرام

برائے  
سیکندری کلاسز

پنجاب کریکولم اینڈ ٹیکسٹ بک بورڈ، لاہور

(Note: All Conceptual questions are excluded.)

## CHAPTER 10: SIMPLE HARMONIC MOTION AND WAVES

Simple Harmonic Motion (Pg. 2), Motion of Mass Attached to a Spring (Pg. 2, 3), Motion of a Simple Pendulum (Pg. 4-6), Wave Motion (Pg. 7, 8), Activity: 10.2 (Pg. 7), Types of Mechanical Waves (Pg. 8-11), Relation between Velocity, Frequency and Wavelength ( $v=f\lambda$ ) (Pg. 11-12), Examples: 10.1, 10.2 (Pg. 6, 12)

### Exercise:

**Classwork:** MCQs: (i, ii, iv-vi) (Pg. 16), Review Questions: (10.1, 10.4, 10.5) (Pg. 17), Numerical Problems: (10.1-10.3) (Pg. 17, 18)

**Homework:** Review Questions: (10.2, 10.7) (Pg. 17), Numerical Problem: (10.4) (Pg. 18)

## CHAPTER 11: SOUND WAVES

Sound Waves (Pg. 20), Sound Requires Material Medium for its Propagation (Pg. 21), Longitudinal Nature of Sound Waves (Pg. 21, 22), Characteristics of Sound (Loudness, Pitch, Quality, Intensity) (Pg. 22-24), Sound Intensity Level (Pg. 24, 25), Speed of Sound (Pg. 27), Audible Frequency Range (Pg. 30,31), Examples: 11.1, 11.2 (Pg. 25-28)

### Exercise:

**Classwork:** Review Questions: (11.4, 11.5, 11.7-11.11) (Pg. 34), Numerical Problems: (11.1-11.4, 11.6) (Pg. 35)

**Homework:** MCQs: (i-vii) (Pg. 33), Review Questions: (11.1, 11.2) (Pg. 33, 34), Numerical Problem: (11.9) (Pg. 35)

## CHAPTER 12: GEOMETRICAL OPTICS

Spherical Mirrors (Pg. 38-40), Image Location by Spherical Mirror Formula (Pg. 40, 41), Sign Conventions (Pg. 41), Refraction of Light (Pg. 42, 43), Laws of Refraction (Pg. 43), Refractive Index (Pg. 43), Total Internal Reflection (Pg. 44), Refraction through Prism (Pg. 46, 47), Lenses (Pg. 47, 48), Image Location by Lens Equation (Pg. 51, 52), Sign Conventions for Lenses (Pg. 52), Examples: 12.1-12.6 (Pg. 41, 42, 44, 52, 53)

### Exercise:

**Classwork:** MCQs: (ix, x) (Pg. 64, 65), Review Questions: (12.6, 12.8-12.10) (Pg. 65), Numerical Problems: (12.2-12.5, 12.8-12.10) (Pg. 67)

**Homework:** MCQs: (i-vii) (Pg. 64), Review Questions: (12.4, 12.7, 12.12) (Pg. 65), Numerical Problem: (12.1) (Pg. 66)

## CHAPTER 13: ELECTROSTATICS

Electrostatic Induction (Pg. 70, 71), Coulomb's Law (Pg. 73, 74), Electric Field and Electric Field Intensity (Pg. 74-76), Electrostatic Potential (Pg. 76, 77), Capacitors and Capacitance (Pg. 77, 78), Combination of Capacitors (Pg. 79), Capacitors in Parallel (Pg. 79, 80), Capacitors in Series (Pg. 80, 81), Uses of Capacitors (Pg. 83), Examples: 13.1-13.4 (Pg. 74, 78-82)

**Exercise:**

**Classwork:** MCQs: (i, vi-xi) (Pg. 86-88), Review Questions: (13.2, 13.8-13.11, 13.13) (Pg. 88), Numerical Problems: (13.1-13.8) (Pg. 89)

**Homework:** Review Questions: (13.14, 13.17) (Pg. 88), Numerical Problems: (13.9, 13.10) (Pg. 89)

**CHAPTER 14: CURRENT ELECTRICITY**

Electric Current (Pg. 91, 92), The Measurement of Current (Pg. 93, 94), Potential Difference (Pg. 94, 95), Electromotive Force (e.m.f) (Pg. 95, 96), The Measurements of Potential Difference and Electromotive Force (Pg. 96, 97), Ohm's Law (Pg. 97, 98),  $V$ - $I$  Characteristics of Ohmic and Non-Ohmic Conductors (Pg. 98, 99), Combination of Resistors (Pg. 101), Series Combination (Pg. 101, 102), Parallel Combination (Pg. 102, 103), Electrical Energy and Joule's Law (Pg. 104, 105), Electric Power (Pg. 106), Kilowatt-Hour (Pg. 106, 107), Examples: 14.1, 14.2, 14.4, 14.5, 14.8 (Pg. 92, 98, 102-104, 107)

**Exercise:**

**Classwork:** Review Questions: (14.1, 14.6, 14.8) (Pg. 115), Numerical Problems: (14.3, 14.6) (Pg. 116)

**Homework:** MCQs: (i-ix) (Pg. 114, 115), Review Questions: (14.3-14.5, 14.10, 14.11) (Pg. 115), Numerical Problems (14.1, 14.2, 14.4, 14.5, 14.7) (Pg. 116)

**CHAPTER 15: ELECTROMAGNETISM**

Magnetic Effects of a Steady Current (Pg. 119, 120), Direction of Magnetic Field (Pg. 120), Magnetic Field of a Solenoid (Pg. 120, 121), Electromagnetic Induction (Pg. 125, 126), Direction of Induced e.m.f – Lenz's Law (Pg. 128), Mutual Induction (Pg. 130, 131), Transformer (Pg. 131, 132), Working of a Transformer (Pg. 132), Example: 15.1 (Pg. 132, 133)

**Exercise:**

**Classwork:** MCQs: (iii, iv, vii) (Pg. 136), Review Questions: (15.3, 15.7, 15.9), (Pg. 136, 137) Numerical Problems: (15.3, 15.4) (Pg. 138)

**Homework:** MCQs: (i, ii, viii, ix) (Pg. 135, 136), Review Questions: (15.11, 15.12) (Pg. 137), Numerical Problems: (15.1, 15.2) (Pg. 138)

**CHAPTER 16: BASIC ELECTRONICS**

Analogue and Digital Electronics (Pg. 143-145), Basic Operations of Digital Electronics – Logic Gates (Pg. 145, 146), AND Operation (Pg. 146, 147), OR Operation (Pg. 147, 148), NOT Operation (Pg. 148, 149), NAND Gate (Pg. 149, 150), NOR Gate (Pg. 150), Uses of Logic Gates (Pg. 150), House Safety Alarm (Pg. 150, 151)

**Exercise:**

**Classwork:** Review Questions: (16.8, 16.9) (Pg. 154)

**Homework:** MCQs: (iii-vii) (Pg. 153), Review Questions: (16.7, 16.10) (Pg. 153, 154)

## CHAPTER 17: INFORMATION AND COMMUNICATION TECHNOLOGY

Information and Communication Technology (Pg. 156), Components of Computer Based Information System (CBIS) (Pg. 156-158), Transmission of Light Signals through Optical Fibres only (Pg. 161, 162), Internet (Pg. 168, 169), Internet Services (Pg. 169), Browsers (Pg. 169), Electronic Mail (Pg. 169, 170)

### Exercise:

**Classwork:** Review Questions: (17.2, 17.11) (Pg. 173)

**Homework:** MCQs: (i, iii, vi, vii) (Pg. 172, 173), Review Questions: (17.1, 17.3, 17.7) (Pg. 173)

## CHAPTER 18: ATOMIC AND NUCLEAR PHYSICS

Atom and Atomic Nucleus (Pg. 175), Isotopes (Pg. 176), Natural Radioactivity (Pg. 176, 177), Background Radiations (Pg. 177), Nuclear Transmutations (Pg. 177-179), Half-Life and its Measurement (Pg. 180, 181), Radioisotopes and their Uses (Pg. 182-184), Fission Reaction (Pg. 185, 186), Nuclear Fusion (Pg. 187), Examples: 18.1, 18.2, 18.4 (Pg. 175, 176, 181, 184)

### Exercise:

**Classwork:** MCQs: (i, ii, iv-ix) (Pg. 189, 190), Review Questions: (18.1, 18.3, 18.5-18.9, 18.12, 18.13) (Pg. 190), Numerical Problems: (18.1-18.3, 18.5, 18.7, 18.9) (Pg. 191, 192)

**Homework:** Review Questions: (18.2, 18.4, 18.10) (Pg. 190)

### EXPERIMENTS:

1. To verify the Laws of Refraction by using a Glass Slab.
2. To determine the Critical Angle of Glass using a Semi Circular Slab and a Light Ray Box or by Prism.
3. To trace the path of a ray of light through Glass Prism and measure the Angle of Deviation.
4. To find the Focal Length of a Convex Lens by Parallax Method.
5. Verify Ohm's Law (using Wire as Conductor).
6. To study Resistors in Series Circuit.
7. To study Resistors in Parallel Circuit.
8. To find the Resistance of Galvanometer by Half Deflection Method.
9. To verify the Truth Tables of OR, AND, NOT, NOR and NAND Gates.



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