**PHYSICS**

**For Class-X**

**1. SIMPLE HARMONIC MOTION AND WAVES**

1.1 Simple Harmonic Motion (SHM)

1.2 Motion of mass attached to a spring

1.3 Simple pendulum

1.4 Waves, their nature and type

1.5 Properties of waves

**2. SOUND**

2.1 Sound waves

2.2 Speed of sound

2.3 Characteristics of sound

2.4 Noise pollution

2.5 Audible frequency range

2.6 Ultrasound

**3. GEOMETRICAL OPTICS**

3.1 Reflection of light

3.2 Image location by spherical mirror equation

3.3 Refraction of light

3.4 Total internal reflection

3.5 Refraction through a prism

3.6 Image location by lens equation

3.7 Magnifying power and resolving power

3.8 Compound microscope

3.9 Telescope

3.10 Defects in vision

**4. ELECTROSTATICS**

4.1 Electric charge

4.2 Electrostatic induction

4.3 Electroscope

4.4 Coulomb’s law

4.5 Electric field and its intensity

4.6 Electrostatic potential

4.7 Applications of electrostatic

4.8 Capacitors and capacitance

4.9 Different types of capacitors

**5. CURRENT ELECTRICITY**

5.1 Electric current

5.2 Potential difference and emf

5.3 Ohm’s law

5.4 Resistance, series and parallel combinations

5.5 The I-V characteristics for ohmic and non ohmic conductors

5.6 Electrical power and Joule’s law

5.7 Use of circuit components

5.8 Measuring instruments (voltmeter, galvanometer, ammeter)

5.9 Alternating current A.C

5.10 Safety measures

**6. ELECTROMAGNETISM**

6.1 Magnetic effect of a steady current

6.2 Force on a current carrying conductor in a magnetic field

6.3 Turning effect on a current carrying coil in a magnetic field

6.4 D.C motor

6.5 Electromagnetic induction

6.6 A.C generator

6.7 Mutual Induction

6.8 Transformer

**7. INTRODUCTORY ELECTRONICS**

7.1 Thermionic emission

7.2 Electron gun and cathode rays

7.3 Deflection of electron by electric field

7.4 Deflection of electron by magnetic field

7.5 Cathode rays oscilloscope (CRO)

7.6 Introduction to electronics

7.7 Analogue and digital electronics

7.8 Logic gates

**8. INFORMATION AND COMMUNICATION TECHNOLOGY**

8.1 Components of ICT

8.2 Flow of information

8.3 Communication technology

8.4 Storing information

8.5 Handling information

**9. RADIOACTIVITY**

9.1 Atom and Atomic nucleus

9.2 Natural radioactivity

9.3 Natural transmutations

9.4 Background radiation

9.5 Half life

9.6 Radio isotopes

9.7 Fission and fusion

9.8 Hazards and safety measures

**LIST OF PRACTICALS**

**Section-A**

1. To measure the volume of a solid cylinder by measuring length and diameter of a solid cylinder with vernier callipers.

2. To measure the thickness of a metal strip or a wire by using a screw gauge.

3. To find the acceleration of a ball rolling down an angle iron by drawing a graph between 2S and T2.

4. Investigate the relationship between force of limiting friction and normal reaction to find the co-efficient of sliding friction between a wooden block and horizontal surface.

5. To find the weight of an unknown object by using vector addition of forces.

6. To find the weight of an unknown object by using principle of moments.

7. To study the relationship between load and extension (Helical spring) by drawing a graph.

8. To find the density of a body heavier than water by Archimedes principle.

9. To draw a graph between temperature and time when ice is converted into water and then to steam by slow heating.

**Section-B**

10. To study the effect of the length of simple pendulum on its time period and hence find “g” by calculation.

11. To verify the laws of refraction by using a glass slab.

12. To find the refractive index of water by using concave mirror.

13. To determine the critical angle of glass using a glass prism.

14. To trace the path of a ray of light through glass prism and measure the angle of deviation.

15. To find the focal length of a convex lens by parallax method.

16. Verify Ohm’s law (using wire as conductor).

17. To study resistors in series circuit.

18. To study resistors in parallel circuit.

19. To trace the magnetic field using a bar magnet.

20. To verify the truth table of OR, AND, NOT, NOR and NAND gates.

**RECOMMENDED REFERENCE BOOKS FOR CLASS X**

 The question papers will be syllabus oriented. However, the following book is recommended for reference and supplementary reading:

 Physics 10

 Malik Sirajuddin & Sons

 Lahore

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| LOGO |  |
| Federal Board SSC Examination Physics Practical Model Question Paper  |  |

Time: 3 hours Marks: 20

Note: Perform any TWO experiments, one from each section. Plot a graph where necessary.

**SECTION – A**

Q.1 Measure the length and diameter of a solid cylinder with Vernier Callipers. **(6)**

Q.2. To find the weight of an unknown object by using principle of moments. **(6)**

Q.3 To draw a graph between temperature and time when ice is converted into water and then to steam by slow heating. **(6)**

**SECTION – B**

Q.4 Verify Ohm’s law by using a wire as conductor. **(6)**

Q.5 Find the resistance of Galvanometer by half deflection method. **(6)**

Q.6 Find the refractive index of water using concave mirror. **(6)**

Viva Voce (4)

Note Book (4)

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