MODEL PAPER PHYSICS CLASS 10

NOTE: Attempt all questions of Section-A by filling the corresponding bubble on the **MCQs RESPONSE SHEET.** It is mandatory to return the attempted MCQs sheet to the Superintended within given time

Section-A

Time: 20 Minutes **Marks:** 12

1. **Choose the correct option for the following.**

i. Simple Harmonic Motion is a special type of:

A. Translatory Motion B. Rotatory Motion C. Oscillatory Motion D. Circulatory Motion

ii. Speed of sound in air at 0℃ is 331m/s, at 20 ℃ speed will be:

A. 340m/s B.341m/s C.342m/s D.343m/s

iii. Which property of light waves remains same during the refraction of light?

A. Speed B. Frequency C. Wavelength D. Direction

iv. The speed of light in water having refractive index 1.5 is:

A. 2×10^8 m/s B.2.5×10^8 m/s C.3×10^8 m/s D.3.5×10^8 m/s

v. The SI unit of Electric Field Intensity is:

A. JC^{-1} B.NC^{-1} C.Nm^{-1} D. VC^{-1}

vi. The power rating of a lamp connected to a 15V source when it carries 2A current is:

A. 7.5W B.10W C. 20W D. 30W

vii. Which form of energy is converted into electrical energy by generator?

A. Chemical B. Nuclear C. Mechanical D. Thermal

viii. If magnetic field is applied perpendicular to the direction of electron beam, the electrons will be:

A. Speed up B. Slow down C. Deflected D. Undeflected

ix. The term E-mail stands for:

A. Emergency mail B. Electronic mail C. External mail D. Extra mail

x. The diameter of nucleus is approximately:

A. 10^{-10}m B. 10^{-12}m C. 10^{-15}m D. 10^{-18}m

xi. Release of energy by sun is due to:

A. Nuclear Fusion B. Nuclear Fission C. Burning of gases D. Chemical Reaction

xii. Two capacitors of 6μF are connected in series, the equivalent capacitance is:

A. 1μF B.2μF C.3μF D.4μF

Section-B

Time: 2 Hours 40 Minutes **Marks:** 32

1. Attempt any **EIGHT** of the following short questions. Each question carries 4 marks.

i. What happens to sound when it strikes a:
(a) Flat surface (b) Parabolic surface (c) Porous surface (d) Jagged Surface

ii. What is the effect of medium on speed of sound? In which medium sound travels faster? Justify your answer.

iii. Define the terms: Refraction, Normal, Angle of refraction, Angle of incidence.

iv. How does electrostatic induction differ from charging by friction?

v. State Ohm's Law and derive its mathematical form.

vi. Explain why it is possible for birds to perch safely on high tension wires without being electrocuted.

vii. A 2m long wire carries a current of 6A, at right angle to a uniform magnetic field of 0.04T. Determine the force exerted on the wire.

viii. What is CRO? Write its three uses.

ix. Explain the transmission of radio waves through space.

x. Cobalt-60 is a radioactive element with half-life of 5.25 years. What fraction of the original sample will be left after 26 years?

xi. Define radioactivity. Write the effect of alpha, beta and gamma emission on parent nucleus?

Section-C

Attempt any **three** of the following questions. **Marks:** 21

3. a. What is Simple Harmonic Motion? Show that simple pendulum executes Simple Harmonic Motion. 4
   b. Find the time period of simple pendulum having length 1m placed at the surface of moon. ($g= 1.63\ m/s^2$). 3

4. a. Using diagrams, explain under what condition total internal reflection occur? Construct equation for critical angle? 4
   b. Find the critical angle for light traveling from glass (n= 1.502) to air (n= 1.002). 3

5. a. Show that potential difference can be describe as energy transfer per unit charge between two points. Also define its unit. 4
   b. The potential difference between two points is 220V. When an unknown charge is moved between these two points, the work done is 750J. What is the magnitude of charge? 3

6. a. What is meant by electromagnetic induction? Which factors effect the magnitude of induced emf? 4
   b. A 20cm wire at 30° to uniform magnetic field of 0.08T is exerted by a force of 0.024N. What is the magnitude of current flowing through the wire? 3