CBSE EXAMINATION PAPER-2024

PHYSICS

(Solved)

Time allowed : 3 hours | Maximum Marks : 18

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **9 questions.** All questions are **compulsory.**

ii. This question paper is divided into **3 sections.**

iii. **Section A** – questions number **1 to 3** are multiple choice questions Each question carries **1 marks.**

iv. **Section B** – questions number **4 to 6** are very short answer Each question carries **2 marks.**

v. **Section C** – questions number **7 to 9** are short answer Each question carries **3 marks.**

vi. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.

vii. Use of calculator is NOT allowed.

Section A

Question 1.

The quantum nature of light explains the observations on photoelectric effect as-

[1 Marks]

(A) the photoelectric current is independent of the intensity of incident radiation.

(B) when the metal surface is illuminated, electrons are ejected from the surface after

sometime.

(C) the maximum kinetic energy of photoelectrons depends only on the frequency of incident radiation.

(D) there is a minimum frequency of incident radiation below which no electrons are emitted.

Question 2.

A straight wire is kept horizontally along east-west direction. If a steady current flows in wire from east to west, the magnetic field at a point above the wire will point towards.

[1 Marks]

(A) South

(B) West

(C) North

(D) East

Question 3.

The magnetic susceptibility for a diamagnetic material is

[1 Marks]

(A) small and positive

(B) large and negative

(C) small and negative

(D) large and positive

Section B

Question 4.

Draw the circuit diagram of a p-n junction diode in

(i) forward biasing and (ii) reverse biasing. Also draw its I-V characteristics in the two cases.

[2 Marks]

Question 5.

Two electric heaters have power ratings P_1 and P_2 at voltage V. They are connected in series to a dc source of voltage V. Find the power consumed by the combination. Will they consume the same power if connected in parallel across the same source?

[2 Marks]

Question 6.

An air bubble is trapped at point B (CB = 20 cm) in a glass sphere of radius 40 cm and refractive index 1.5 as shown in figure. Find the nature and position of the image of the bubble as seen by an observer at point P.

[2 Marks]

Section C

Question 7.

Find the current in branch BM in the network shown.

[3 Marks]

Question 8.

Name the electromagnetic waves with their wavelength range which are

used for

i) FM radio broadcast

ii) detection of fracture in bones

iii) treatment of muscular strain

[3 Marks]

Question 9.

(b) What are ferromagnetic materials? Explain ferromagnetism with the help of suitable diagrams, using the concept of magnetic domain.

[3 Marks]
