Model Question Paper 2

Magnetism 2

11th Standard

Physics

Reg.No. : | | | | | | |

Answer all the Questions

Time : 00:45:00 Hrs

Total Marks : 40

Part A

5 x 1 = 5

1) For which of the following substance, the magnetic susceptibility is independent of temperature?

   (a) Diamagnetic (b) Paramagnetic (c) Ferromagnetic (d) Diamagnetic and paramagnetic

2) At curie point, a ferromagnetic material becomes

   (a) non-magnetic (b) diamagnetic (c) paramagnetic (d) strongly ferromagnetic

3) Electromagnets are made of soft iron because soft iron has

   (a) low susceptibility and low retentivity (b) high susceptibility and low retentivity (c) high susceptibility and high retentivity (d) low permeability and high retentivity

4) Who suggested that earth behaves as a gaint bar magnet?

   (a) Maxwell (b) Hertz (c) Gilbert (d) Faraday

5) Who laid the foundation for magnetism?

   (a) Newton (b) Gilbert (c) Malus (d) Huygens

Part B

8 x 2 = 16

6) Distinguish between dia,para and ferro magnetic substances.Give one example for each.

7) Explain the hysteresis cycle.

8) What are poles of the magnet?

9) What is a natural magnet?

10) What is an artificial magnet?

11) What is a bar magnet?

12) Define magnetic moment. Give its unit.

13) What is called a magnetic field?

Part C

3 x 3 = 9

14) The magnetic moment of a bar magnet of length 10 cm is $9.8 \times 10^{-1} Am^2$.Calculate the magnetic field at a point on its axis at a distance of 20 cm from its midpoint.

15) Two mutually perpendicular line are drawn on a table. Two small magnets of magnetic moments 0.108 and $0.192 Am^2$ respectively are placed on these lines.If the distance of the point of intersection of these lines is 30 cm and 40 cm respectively from these magnets, find the resultant magnetic field at the point of intersection.

16) A magnetic intensity of $2 \times 10^3 A/m$produces a magnetic induction of $4\pi Wb/m^2$in a bar of iron. calculate the relative permeability and susceptibility.

    Given data.

    Magnetic intensity $(H) = 2 \times 10^3 A/m$

    Magnetic induction$(B) = 4\pi Wb/m^2$

Part D

2 x 5 = 10

17) The intensity of magnetization of an iron bar of mass 72 g, density.$7200 \quad kg \quad m^{-1}$ Calculate the magnetic moment

    Given data.

    Mass of iron bar =72g

    Density of iron bar $= 7200 \quad kgm^{-3}$

    Intensity of magnetization $I = 0.72 \quad Am^{-1}$

18) A magnet of volume $25cm^3$has a magnetic moment of $12.5 \times 10^{-4} Am^2$.Calculate the intensity of magnetization

    Given data.

    Volume of the magnet $V = 25cm^3 = 25 \times 10^{-6} m^3$

    Magnetic moment=$12.5 \times 10^{-4} Am^2$

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