Magnetism

Questions

1.

When a substance is kept in a magnetic field, it gets weakly repelled by the field. Which of the following represents its susceptibility?

A. -0.0004

B. -4

C. 0.0004

D. 4

2.

The magnetic moment of a magnet of dimensions $(10\ \text{cm} \times 4\ \text{cm} \times 1\ \text{cm})$ is $4\ \text{A-m}^2$. Its intensity of magnetisation is :

A. $10^3\ \text{A/m}$

B. $10^2\ \text{A/m}$

C. $10^5\ \text{A/m}$

D. $10^4\ \text{A/m}$

3.

An ideal solenoid having 40 turns cm^{-1} has an aluminum core, and carries a current of $2.0\ \text{A}$. Calculate the magnetic field B at the centre. The susceptibility χ of aluminium $= 2.3 \times 10^{-5}$.

A. $3.2\pi \times 10^{-4}\ \text{T}$

B. $1.6\pi \times 10^{-4}\ \text{T}$

C. $0.8\pi \times 10^{-4}\ \text{T}$

D. $\pi \times 10^{-4}\ \text{T}$

4.

An iron rod of susceptibility 599 is subjected to a magnetizing field of $1200\ \mathrm{Am}^{-1}$. The permeability of the material of the rod is :

Take, $\mu_0 = 4\pi \times 10^{-7}\ \mathrm{TmA}^{-1}$

A. $2.4\pi \times 10^{-3}\ \mathrm{TmA}^{-1}$

B. $2.4\pi \times 10^{-5}\ \mathrm{TmA}^{-1}$

C. $2.4\pi \times 10^{-7}\ \mathrm{TmA}^{-1}$

D. $2.4\pi \times 10^{-4}\ \mathrm{TmA}^{-1}$

5.

A dip needle vibrates in the vertical plane perpendicular to the magnetic meridian. The time period of vibration is found to be 2 sec. The same needle is then allowed to vibrate in the horizontal plane and the time period is again found to be 2 sec. Then the angle of dip is

A. 0°

B. 30°

C. 45°

D. 90°

Answer Key

1. A 2. C 3. A 4. D 5. C