Anshuman Agrawal ; 18CH10071

Q.36) transmission = 0.98
sample thickness = 200 mm.

$I' = I_0 \exp(-\beta l)$

$I' = 0.98 I_0$, $l = 200$ mm.

$0.98 I_0 = I_0 \exp(-\beta \times 20\,cm)$

$\ln(0.98) = -\beta \times 20$

$\Rightarrow \beta = \frac{-0.02}{20} = 0.001\ cm^{-1}$

↳ Absorption coefficient.

Q.24) Magnetic field strength = $H = 2 \times 10^3$ A/m.

$\varepsilon_r = 1.01$

30 Sunday

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Sunrise - 04-54 A.M.

MONDAY

25) density = 8.9 g/cm^3, atomic weight = 58.71 g/mol.

a) saturation magnetization given by = $\mu_B N$

$$\mu_B = \frac{eh}{4\pi m_e} = 9.27 \times 10^{-24} \text{ Am}^2$$

$$N = \frac{\rho N_A}{A.W.} = \frac{8.9 \times 6.023 \times 10^{23}}{58.71} = 9.13 \times 10^{22} \text{ /cm}^3$$

saturation magnetization $= 9.27 \times 10^{-24} \times 9.13 \times 10^{22} \times 10^6$

$= 8.5 \times 10^5$ A/m.

b) saturation flux density $= \mu_0 M_S B$

$\mu_0 = 1.257 \times 10^{-6}$ H/m

saturation flux density $= 1.257 \times 10^{-6} \times 8.5 \times 10^5$

$= 1.064$ tesla.

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