

2). I- ϕ x-men has 350 Primary 1050 Secondary winding, Primary is connected to 400V 50Hz. Ac of net cross-sectional Area of core is 50 cm². calculate max flux density & induced EMF in Secondary winding.

\Rightarrow Given,

$$E_1 = 400V$$

$$f = 50 \text{ Hz}$$

$$N_1 = 350$$

$$N_2 = 1050$$

$$A_1 = 50 \text{ cm}^2$$

$$E_2 = ?$$

$$B_m = ?$$

$$\therefore \frac{E_2}{E_1} = \frac{N_2}{N_1}$$

$$E_2 = \frac{N_2}{N_1} \times E_1 = \frac{1050}{350} \times 400$$

$$E_2 = 1200$$

$$\therefore E_1 = 4.44 f N \phi_m$$

$$\frac{400}{4.44 \times 50 \times 350} = \phi_m$$

$$\phi_m = 5.148 \times 10^{-3}$$

$$\therefore B_m = \frac{\phi_m}{A_1} = \frac{5.148 \times 10^{-3}}{50}$$

$$B_m = 1.02 \times 10^{-4} \text{ wb/cm}^2$$