Q.1

## SECTION-3

Ans Given = Power = 250 kw, P = 6, V = 400 V,
Z = 720, $\theta_m = 2.5°$

1. Output current

$$I_a = \frac{250000}{400} = 625\ A$$

2. $$I = \frac{625}{6} = 104.17\ A$$

3. De-magnetizing ampere turns / Pole $\frac{AT_d}{Pole}$

$$= \frac{\theta_m}{360} 2I = \frac{2.5}{360} \times 720 \times 104.17$$

$$= 520.85\ AT$$

4. Cross-magnetizing ampere turns Per / Pole,

$$\frac{AT_c}{Pole}$$

$$= 2I \left( \frac{1}{2P} - \frac{\theta_m}{360} \right)$$

$$= 720 \times 104.17 \left( \frac{1}{2 \times 6} - \frac{2.5}{360} \right)$$

$$= \boxed{5729.35\ AT}$$ Ans