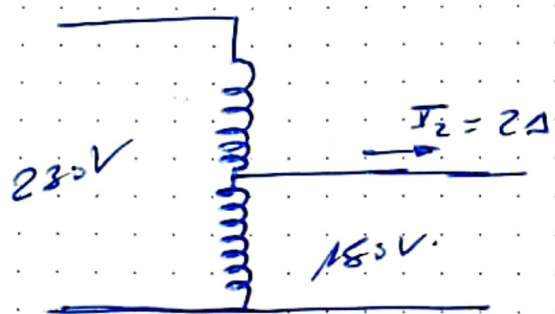


①  $S = 1 \text{ kVA}$   $230 / 150 \text{ V}$   $f = 50 \text{ Hz}$   $I_2 = 2 \text{ A}$



a)  $I_1$  ?

b)  $Z_2 \text{ max}$  ?

c)  $S_p$  ?

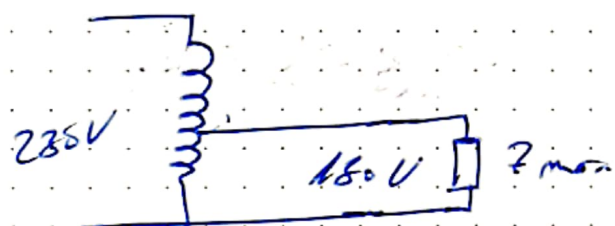
d)  $N_s$ ,  $N_c$ ,  $B_{\text{max}} = 1.2 \text{ T}$

e)  $d_{\text{core}}$ ,  $d_{\text{mean}}$  ( $\sigma_{\text{Fe}} = 80 \text{ mT/mm}^2$ )

N)  $m = \frac{230}{150} = 1.53 = \frac{N_1}{N_2} = \frac{U_1}{U_2} = \frac{I_2}{I_1}$

$I_1 = \frac{I_2}{m} = \frac{2}{1.53} = \underline{\underline{1.31 \text{ A}}}$

b).  $Z_2 \text{ max}$  ?



$S = 1 \text{ kVA} = I \cdot U = U^2 / Z_{\text{max}}$

$Z_{\text{max}} = \frac{150^2}{1000} = \underline{\underline{22.5 \Omega}}$

c)  $S_p = (U_1 - U_2) \cdot I_1 = (230 - 150) \cdot 1.31 = \underline{\underline{34.7 \text{ VA}}}$

$I_1 = 1000 / 230 = 4.35 \text{ A}$

$= (I_2 - I_1) \cdot U_2 = (6.67 - 4.35) \cdot 150 = \underline{\underline{34.8 \text{ VA}}}$

$I_2 = 1000 / 150 = 6.67$

d)  $N_{sc} = \frac{U_{sc}}{4.44 f \phi_{\text{max}}} = \frac{U_1 - U_2}{4.44 f \phi_{\text{max}}} = \frac{230 - 150}{4.44 \cdot 50 \cdot 2.24 \cdot 10^{-3}}$

$\phi_{\text{max}} = S_m B_{\text{max}} = 2.24 \text{ mWb}$

$S_m = \sqrt{S_p} = 18.66 \text{ cm}^2$

$B_{\text{max}} = \phi_{\text{max}} / S_m$

$N_{sc} = 161 \text{ espiras}$

$$N_{co} = \frac{U_{co}}{444 \cdot f \cdot l_{max}} = \frac{160}{444 \cdot 50 \cdot 2 \cdot 24 \cdot 10^{-3}} = \underline{\underline{302 \text{ explos}}}$$

4)  $S_{II} \quad d_{II} = 3A/\text{mm}^2$

$$S_{II} = \frac{I_{II}}{f} = \frac{I_1}{f} = \frac{4'35}{3} = 1'45 \text{ mm}^2$$

$$d_{II} = 2 \sqrt{\frac{S_{II}}{\pi}} = \underline{\underline{1'36 \text{ mm}}}$$

$$S_{co} = \frac{I_{co}}{f} = \frac{I_2 - I_1}{f} = \frac{6'67 - 4'35}{3} = 0'73 \text{ mm}^2$$

$$d_{co} = 2 \sqrt{\frac{S_{co}}{\pi}} = \underline{\underline{0'99 \text{ mm}}}$$