

$\mu_r = 1500$     profundidade = 6 cm    EM = 5%    N = 300V    I = 1A

$l_1 = 2(7+30) + (7+30) = 117 \text{ cm} = 1.17 \text{ m}$

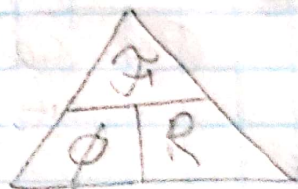
$l_2 = 7 + 30 = 37 \text{ cm} = 0.37 \text{ m}$

$l_3 = l_1$

$R_1 = \frac{l_1}{\mu_r \mu_0 A_1} = 56.07 \text{ K} \frac{\text{AV}}{\text{wb}}$      $R_2 = 168.25 \text{ K} \frac{\text{AV}}{\text{wb}}$      $R_4 = 319.32 \text{ K} \frac{\text{AV}}{\text{wb}}$

$R_3 = \frac{0.0007}{\mu_0 A_2 \cdot 1.5} = 151.57 \text{ K} \frac{\text{AV}}{\text{wb}}$      $R_5 = R_2$

$R_6 = \frac{0.0005}{\mu_0 A_3 \cdot 1.5} = 108.27 \text{ K} \frac{\text{AV}}{\text{wb}}$



$R_{eq} = 204.38 \text{ K} \frac{\text{AV}}{\text{wb}}$

$F = IN = 300 \text{ A V}$

$\phi_T = \frac{300 \text{ AV}}{204.38 \text{ K} \frac{\text{AV}}{\text{wb}}} = 1.47 \text{ mwb} \Rightarrow \phi_x = \phi_T \left( \frac{1/R_x}{1/R_1 + 1/R_2 + \dots + 1/R_n} \right)$

$\phi_1 = 1.47 \text{ mwb} \left( \frac{1/R_A}{1/R_A + 1/R_B} \right)$

$= 0.681 \text{ mwb}$

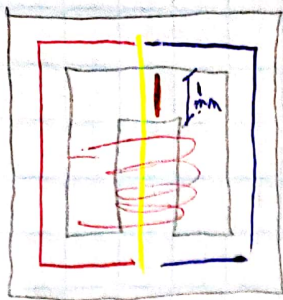
$\phi_2 = 0.788 \text{ mwb}$

$B_I = \frac{0.681 \text{ mwb}}{1.05(0.07 \text{ m} \cdot 0.05 \text{ m})} = 0.185 \text{ T}$

$B_D = \frac{0.788 \text{ mwb}}{1.05(0.07 \text{ m} \cdot 0.05 \text{ m})} = 0.214 \text{ T}$

$B = \frac{NI}{R_T A} = \frac{\phi}{A}$





$$\mu_r = 1000$$

$$l_3 = 250 \text{ mm}$$

$$H_T = ?$$

$$R = 199 \text{ mWb}$$

$$N = 800 \text{ vueltas}$$

$$A_3 = 4000 \text{ mm}^2$$

$$l_E = 1 \text{ mm}$$

$$A_E = 4000 \text{ mm}^2$$

$$l_1 = l_2 = 700 \text{ mm}$$

$$A_1 = A_2 = 2000 \text{ mm}^2$$

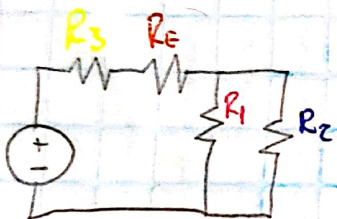
$$\Phi_T = 1 \text{ mWb}$$

$$H = \frac{NI}{l_m}$$

$$R_1 = \frac{0.7 \text{ m}}{1000 (4\pi \times 10^{-7}) (0.002)} = 278.52 \text{ K} \frac{\text{AV}}{\text{Wb}}$$

$$R_2 = R_1, \quad R_3 = \frac{0.25}{1000 (4\pi \times 10^{-7}) (0.004)} = 49.74 \text{ K} \frac{\text{AV}}{\text{Wb}}$$

$$R_E = \frac{0.001}{(4\pi \times 10^{-7}) (0.006)} = 198.94 \text{ K} \frac{\text{AV}}{\text{Wb}}$$



$$R_T = (R_3 + R_E) + \left( \frac{R_1 R_2}{R_1 + R_2} \right) = 387.99 \text{ K} \frac{\text{AV}}{\text{Wb}}$$

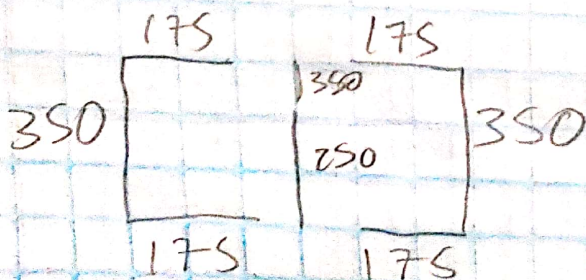
$$\Rightarrow \mathcal{F} = \Phi R = 387.99 \text{ Fmm}$$

$$\frac{\mathcal{F}}{N} = I$$

$$I = 0.485 \text{ A}$$

$$H = \frac{N}{l_m} \left( \frac{\mathcal{F}}{N} \right) = \frac{\mathcal{F}}{l_m}; \quad H = \frac{N}{l_m} \left( \frac{\Phi l_m}{\mu N A} \right) = \frac{\Phi}{\mu A}$$

$$\Rightarrow H = \frac{NI}{l_m} = \frac{800 (0.485)}{2} = 194 \frac{\text{AV}}{\text{m}}$$

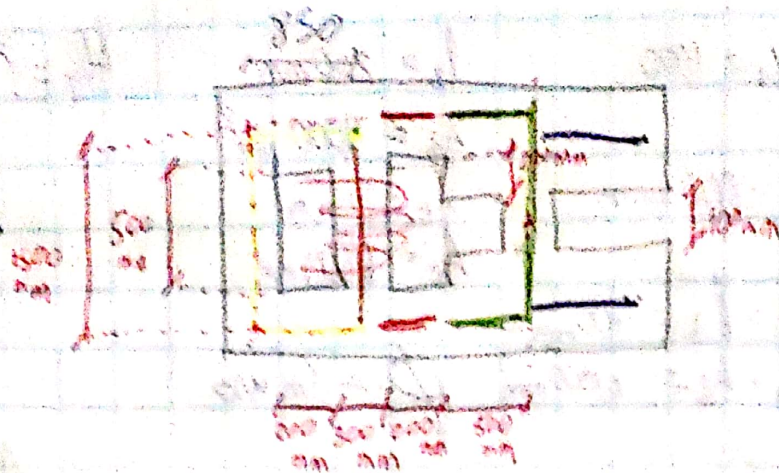




$$\mu_r = 800$$

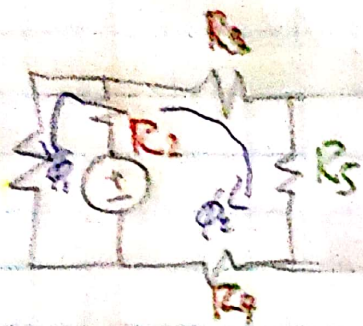
$$N = 1500 \text{ V}$$

$$\Phi_r = 1.7 \text{ Wb}$$



$$\Phi_m = ?$$

$$F_m = ?$$



$$l_1 = 3200 \text{ mm} = 3.2 \text{ m}$$

$$l_2 = 1500 \text{ mm} = 1.5 \text{ m}$$

$$l_3 = l_4 = 200 \text{ mm} = 0.2 \text{ m}$$

$$l_5 = 500 \text{ mm} = 0.5 \text{ m}$$

$$A_3 = A_4$$

$$R_1 = \frac{3.2}{500 \times 10^{-7} \text{ A}_1} = \frac{5092.95}{A_1}$$

$$R_2 = \frac{2387.32}{A_2}$$

$$R_3 = \frac{318.31}{A_3}$$

$$R_4 = \frac{318.31}{A_4}$$

$$R_5 = \frac{5978.87}{A_5}$$

$$R_T = \frac{(R_3 + R_4 + R_5) R_4}{(R_3 + R_4 + R_5) + R_4} + R_2$$

$$\Phi_1 = \Phi_r \left( \frac{1/R_1}{1/R_1 + 1/(R_3 + R_4 + R_5)} \right) \quad \Phi_2 = \Phi_r - \Phi_1$$

$$F_1 = \Phi_1 R_1 \quad F_3 = \Phi_2 \left( \frac{R_3}{R_3 + R_4 + R_5} \right) = F_4$$

$$F_5 = \Phi_2 \left( \frac{R_5}{R_3 + R_4 + R_5} \right)$$