$$\mathcal{R}_{ad} = \frac{l_{ad}}{\mu_0 \mu_f S_{ad}} = 1{,}77\,e{+}5\ H^{-1}$$

$$\mathcal{R}_{ab} = \mathcal{R}_{ed} = \frac{l_{ed}}{\mu_0 \mu_f S} = 5{,}30\,e{+}5\ H^{-1}$$

$$\mathcal{R}_e = \mathcal{R}_{ad} + 2\mathcal{R}_{ab} = 1{,}24\,e{+}6\ H^{-1} \ \text{(esquerda)} \ \circledast$$

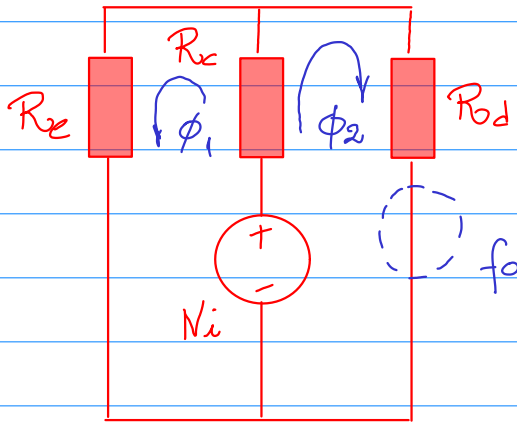
$$\mathcal{R}_c = \frac{l_{be}}{\mu_0 \mu_f S} = 5{,}30\,e{+}5\ H^{-1} \ \text{(central)} \ \circledast$$

$$\mathcal{R}_{bc} = \mathcal{R}_{fe} = \frac{l_{bc}}{\mu_0 \mu_f S} = 2{,}21\,e{+}5\ H^{-1}$$

$$\mathcal{R}_g = \frac{g}{\mu_0 S} = 3{,}98\,e{+}6\ H^{-1}$$

$$\mathcal{R}_{cf} = \frac{l_{cf-g}}{\mu_0 \mu_f S} = 5{,}26\,e{+}5\ H^{-1} \ \text{(apenas ferro)}$$

$$\mathcal{R}_d = 4{,}95\,e{+}6\ H^{-1} \ \circledast$$



$$\text{força} = 0{,}5 = \frac{B^2}{2\mu_0} \cdot S \ \therefore \ B = 0{,}035\ T$$

Logo, $\phi_2 = B \cdot S = 3{,}54\,e{-}5\ Wb$

Malha 1: $-Ni + \mathcal{R}_c(\phi_1 + \phi_2) + \mathcal{R}_e \phi_1 = 0$

Malha 2: $-Ni + \mathcal{R}_c(\phi_1 + \phi_2) + \mathcal{R}_d \phi_2 = 0$

$$-900i + (5{,}30\,e{+}5)(\phi_1 + 3{,}54\,e{-}5) + (1{,}24\,e{+}6)\phi_1 = 0$$

$$(1{,}77\,e{+}6)\phi_1 - 900i = -18{,}76$$

$$-900i + (5{,}30\,e{+}5)(\phi_1 + 3{,}54\,e{-}5) + (4{,}95\,e{+}6)(3{,}54\,e{-}5) = 0$$

$$(5{,}30\,e{+}5)\phi_1 - 900i = -193{,}91$$

$$\rightarrow 1{,}24\,e{+}6\,\phi_1 = 175{,}23 \ \therefore \ \phi_1 \cong 1{,}41\,e{-}4\ Wb$$

Com isso, $i = 0{,}3\ A$ ⊠

$W_g = \frac{B^2}{2\mu_0} g S = 2{,}44\ mJ$ ☒

$L = \frac{\lambda}{i} = \frac{N(\phi_1 + \phi_2)}{i}$

$= 0{,}53\ H$ ☒

$B_{ad} = \phi_1 / S_{ad} = 47\ mT$ ☒

2. a) E; $V_b^2 > V_c^2$.

b) C

c) E; de #c para #b (tanto autoindutância quanto indutância mútua).

d) E; $\Delta V = (L_1 + L_2 + 2M)\frac{di}{dt}$.

e) C; ou

f) C

g) E; deve-se levar em conta a f também para converter de J para W.

h) E; parâmetro que só pode ser positivo, pois depende apenas de características construtivas.

i) E; $\phi = B.S$ e $\mathcal{F} = Ni = Hl$

j) E;

$55 = A.40 + B.40^2$

$98 = A.60 + B.60^2$ $\Rightarrow P_h@50Hz = A.50 = 43W$

para $A = 0{,}86$

$B = 0{,}013$

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