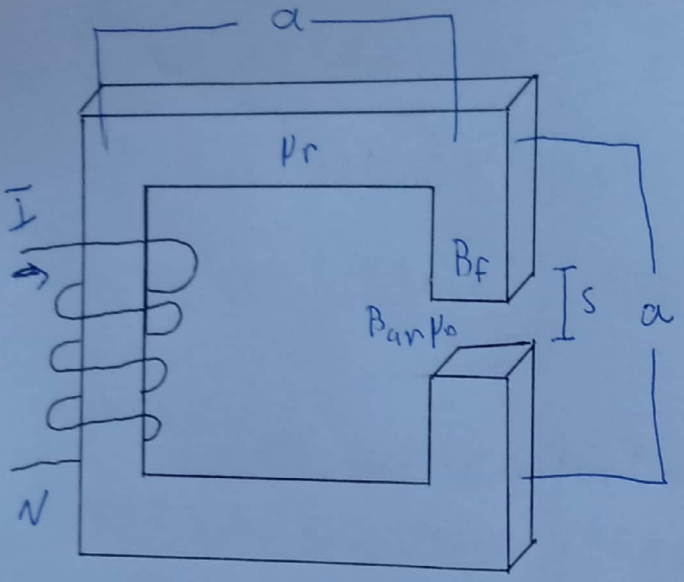

$\mu_0 = 4\pi \cdot 10^{-7}\ H/m$

$\oint H \cdot dl = \int J ds = NI$

$B_f = \mu_r \mu_0 H_f\ [T]$

$B_0 = \mu_0 H_{ar}\ [T]$

$B = NH$

$H_f(4a - s) + H_{ar} \cdot s = NI$

$N = 200 \quad I = 20 \quad a = 6cm \quad s = 0{,}2cm \quad \mu_r = 100 \quad B_f = B_0$

$$\frac{B_f}{\mu_r \mu_0}(4a - s) + \frac{B_f s}{\mu_0} = NI$$

$$\frac{B_f}{\mu_0}\left(\frac{4a - s}{\mu_r} + s\right) = NI \Rightarrow B_f = \frac{\mu_0 NI}{\left(\frac{4a - s}{\mu_r} + s\right)}$$

Aplicando os dados:

$$B_f = \frac{4\pi \cdot 10^{-7} \cdot 200 \cdot 20}{\left(\frac{0{,}238}{100} + 0{,}002\right)} = 85{,}68 \cdot 10^{-3}$$

$$\boxed{B_f = 85{,}68 \cdot 10^{-3}}$$