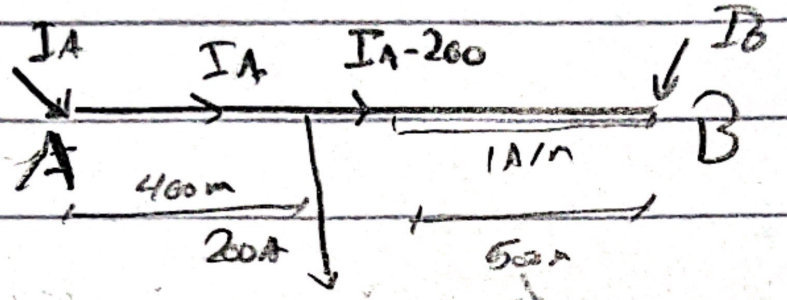
موضوع الدرس ..... التاريخ / /

9221285 [redacted]

EP Assigment

Q5



$I_B = -(I_A - 200 - 500) = -(I_A - 700)$

$V_{BA} = 2 = V_{BC} + V_{CE} + V_{EA}$

$2 = ((250 I_B + 250(I_B - 500)) + (I_B - 500) \times 100 + 400 \times (I_B - 700)) \times 10^{-4}$

$\rightarrow I_B = 475\,A \quad I_A = 225\,A$

$V_{AC} = (225 \times 400 + 25 \times 100) \times 10^{-4} = 9.25\,V$

$V_C = V_A - V_{AC} = 230.75$

Scanned with CamScanner

min Potential occurs At x

$$\rightarrow x = \frac{V_B - V_C}{iL} + \frac{L}{2} = \frac{242 - 230\ 75}{10^{-4} \times 500} + 25$$

$= 475$ m from B

$$\Delta V_{min} = 10^{-4}\left(225 \times 400 + 25 \times 100 + \left(\frac{25^2}{2}\right)\right) = 9.23$$

$$\rightarrow V_{min} = V_A - \Delta V_{min} = 230.71875\ V$$

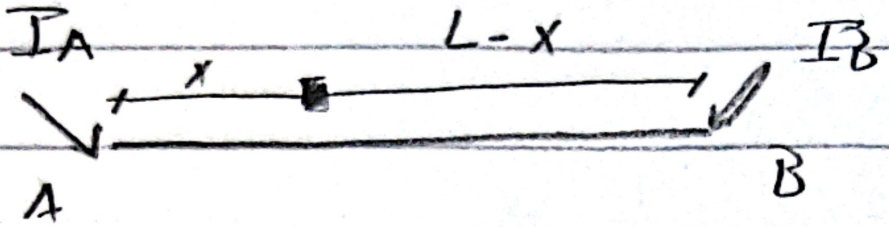
Q6 Mistake in the question

Q7 $V_{D\,max} = V_D$ at half distance $= \left(\frac{1}{2}\frac{iL}{2}\right)\left(\frac{VL}{2}\right)$

$$= \frac{1}{8} IR$$

Scanned with CamScanner

Q8



$dP = I^2 dR, \quad I = \frac{iL}{2} - ix$

$dP = \gamma dx = \left(\frac{iL}{2} - ix\right)^2 \gamma dx = i^2\gamma\left(\frac{L}{2} - x\right)^2 dx$

$\int dP = \int_0^L i^2\gamma \left(\frac{L}{2} - x\right)^2 dx$

$\therefore P = i^2\gamma \left[\frac{L^3}{4} - \frac{Lx^2}{2} + \frac{x^3}{3}\right]\Big|_0^L$

$P = \frac{i^2\gamma L^3}{12}$

Scanned with CamScanner