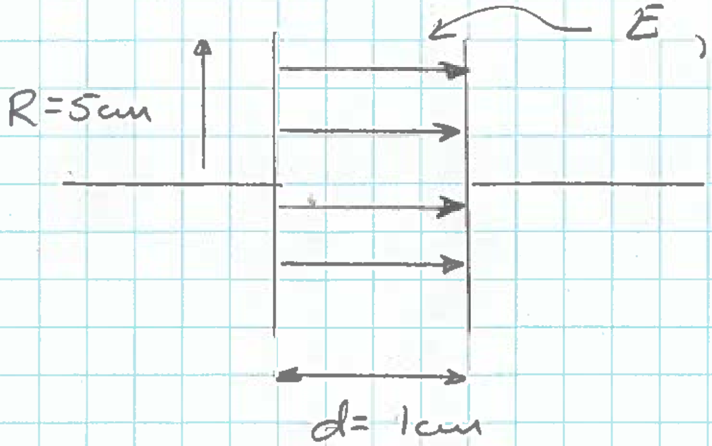
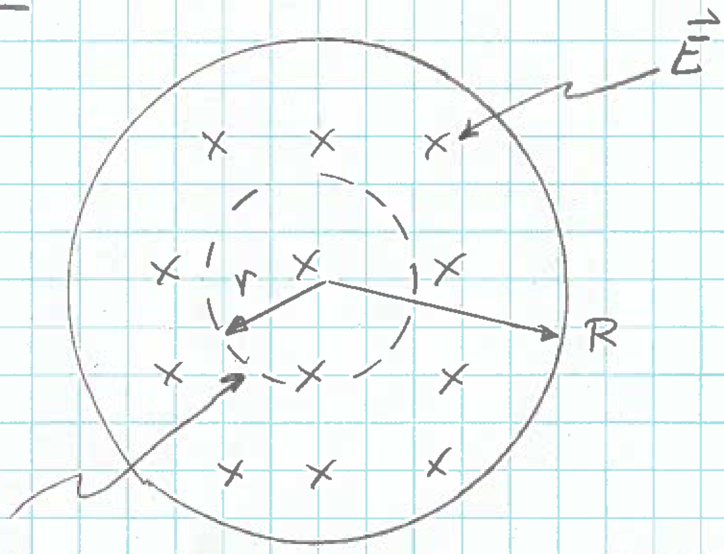
$\vec{E}$, $\dfrac{dE}{dt} = 1\times10^{6}\,\dfrac{V}{ms}$



Parts a & b:

For $r<R$:



Apply the Ampere-maxwell Law to this path and area:

$$\oint \vec{B}\cdot d\vec{s} = \mu_0 \cancel{I_{thru}} + \varepsilon_0\mu_0 \frac{d\Phi_e}{dt}$$

$$B2\pi r = \varepsilon_0\mu_0 \frac{d}{dt}(EA)$$

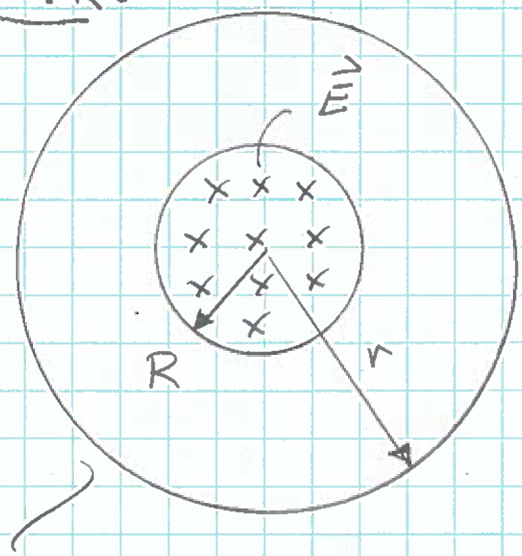
$$= \varepsilon_0\mu_0 \pi r^2 \frac{dE}{dt}$$

So:

$$B = \varepsilon_0\mu_0 \frac{r}{2}\frac{dE}{dt} \Rightarrow \quad B(r=0) = 0$$

$$B(r=3\,cm) = 1.67\times10^{-13}\,T$$

c.) for $r > R$:



Apply Ampere-Maxwell Law to this path and area

$$\oint \vec{B} \cdot d\vec{s} = \mu_0 \cancel{I_{thru}} + \varepsilon_0 \mu_0 \frac{d\Phi_e}{dt}$$

$$B\, 2\pi r = \varepsilon_0 \mu_0 \frac{d}{dt}(EA)$$

$$= \varepsilon_0 \mu_0 \pi R^2 \frac{dE}{dt}$$

So $$B = \varepsilon_0 \mu_0 \frac{R^2}{2r} \frac{dE}{dt}$$

$$B(r = 7\,\text{cm}) = 1.986 \times 10^{-13}\ \text{T}$$