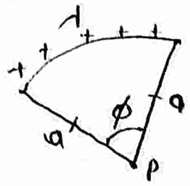
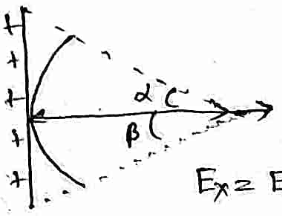
Electrostatics

\# electric field due of curved तार

$$\boxed{E_p = \frac{K\lambda}{a} 2\sin\frac{\phi}{2}}$$



\#



$E_x = \frac{K\lambda}{a}(\sin\alpha + \sin\beta)$

$E_x = E_c = \frac{K\lambda}{a} 2\sin\left(\frac{\alpha+\beta}{2}\right)$

field due to circular element is same as straigth wire elements.

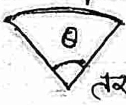
\# $\boxed{a_{com} = \frac{q_1E + q_2E}{2m}}$

\# E due hemi spherical shell

$$\boxed{E_p = \frac{\sigma}{4\varepsilon_0}}$$

\#. E due to ~~circular~~ part of कटोरा

$$\boxed{E = \frac{\sigma}{4\varepsilon_0}\cdot \sin\frac{\theta}{2}}$$



\# solide sphere of inside field

$$\boxed{\vec{E_p} = \frac{\rho \vec{x}}{3\varepsilon_0}}$$

\#. disc के कारण

$$\boxed{E = \frac{\sigma}{2\varepsilon_0}(1-\cos\phi)}$$

$\phi \infty \rightarrow \boxed{E = \frac{\sigma}{2\varepsilon_0}}$

$\Omega = \frac{A}{R^2}$

$\Omega = 2\pi(1-\cos\theta)$

V रिंग के कारण। —

$$\boxed{V_p = \frac{KQ}{\sqrt{R^2+x^2}}}$$

\# earth potential मानते zero

\# दो conductor ~~जोड़ते~~ जोड़ते पर उनका V_p same हो जाता है

\# अगर ||$^{h}_{l}$ plate में कोई एक earth है तो दोनों side 0, 0 charge होगा।

\# ~~charge~~ charge going in eart $\Sigma\theta_i$

\# charge in left – Right
↳ $\frac{\Sigma\theta_i}{2}$

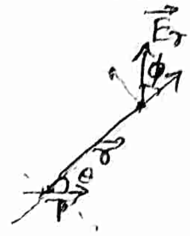
Dipole

axial → $\boxed{E = \frac{1}{4\pi\varepsilon_0}\cdot\frac{2\vec{P}}{x^3}}$ → distance from Centre of dipole

equal → $\boxed{E = \frac{1}{4\pi\varepsilon_0}\cdot\frac{-\vec{P}}{x^3}}$

अगर dipole θ angle पर है तो

$$\boxed{\begin{gathered} \vec{E_x} = \frac{KP}{x^3}\sqrt{1+3\cos^2\theta} \\ \tan\phi = \frac{\tan\theta}{2} \rightarrow \vec{P} \text{ vs } \vec{r} \\ \hookrightarrow \vec{E} \text{ vs } \vec{r} \end{gathered}}$$



विद्युत dipole $V_p = \frac{KP\cos\theta}{x^2}$

$\tau = PE\sin\theta \Rightarrow \vec{P}\times\vec{E}$

$U = -\vec{P}\cdot\vec{E}$ $U=0$ at $\theta = 90°$

दो के बीच बल !

$\boxed{\vec{F} = \vec{P}\cdot\frac{dE}{dx}}\cos\theta \rightarrow \vec{P}$ vs $\vec{E}$

dipole पर $\vec{E}$ से बल

$$\boxed{F = \frac{-6KP_1P_2}{x^4}}$$

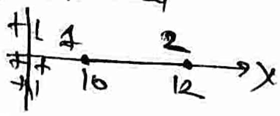
electrostatic pressure $= \frac{\sigma^2}{2\varepsilon_0}$] use not होगा for field Created by charge itself

Self energy   Hollow $= \frac{KQ^2}{2R}$

Solid $= \frac{3}{5}\frac{KQ^2}{R}$

\# अगर dipole बहुत छोटा है तो $\vec{F}$ का formula

$|\vec{F}| = q.(\vec{E_2}-\vec{E_1})$



\# Relation b/w E, ρ resistivity, $\vec{J}$

$$\boxed{E = \rho.J}$$

\# $\boxed{I \propto E^2}$

\# magnetic field at the axis of Ring $B = \frac{\mu_0 i R^2}{2(R^2+x^2)^{3/2}}$

\#. $P_H = P_{Ka} + \log\frac{[\text{ion}]}{[\text{Acid}]}$

Buffer mixture $[CH_3COOH] \Rightarrow \frac{\text{No. of millimoles } CH_3COOH}{\text{Vol. of total soln}}$

$\Rightarrow \frac{12.5\times 0.1}{25\,ml}$

\# Mistake

$$I = \frac{1}{2}C\varepsilon_0E^2$$