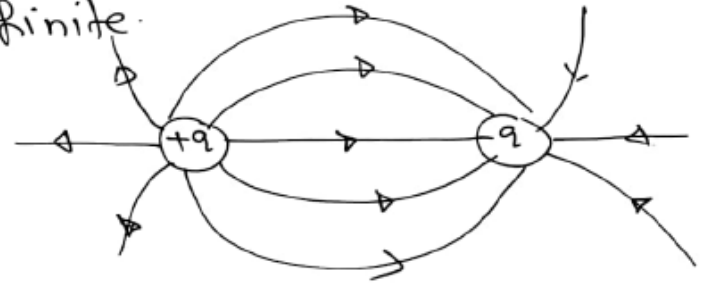


⇒ Electric field lines (E.F.L)

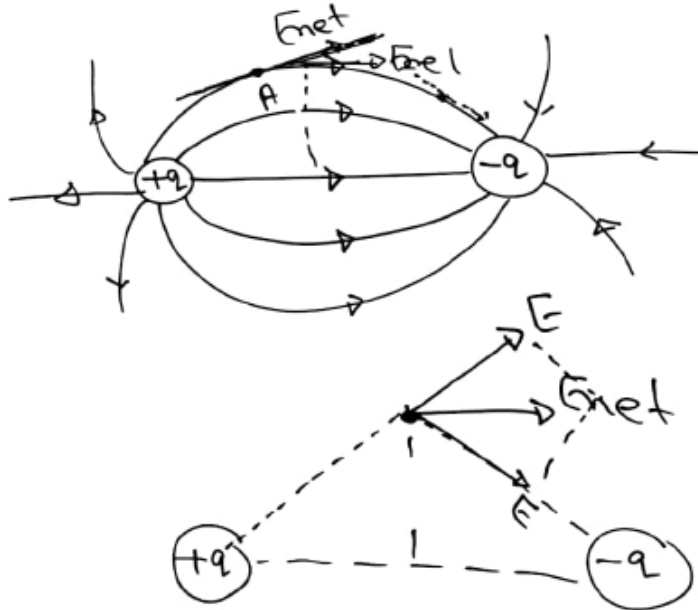
(a) It is a Imaginary Concept.

(b) Electric field lines originate from +ve charge or infinite & terminate on negative charge or infinite.

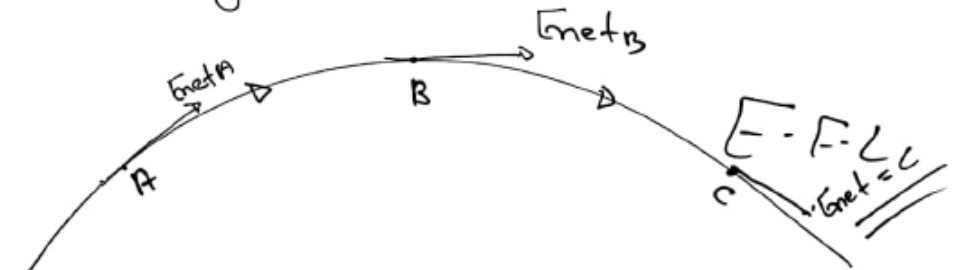


(c) Number of E.F.L $\propto |q|$

⇒ Electric field lines (E.F.L)



(d) ** Tangent on any point of E.F.L gives dirⁿ of Net electric field.



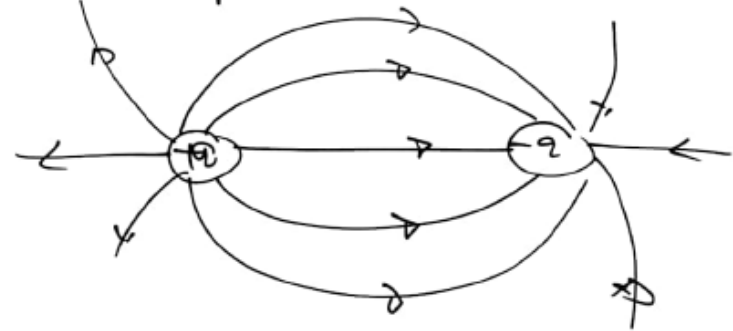
(e) no of electric field lines due to q charge
 $= \frac{q}{\epsilon_0}$

⇒ Electric field lines (E.F.L)

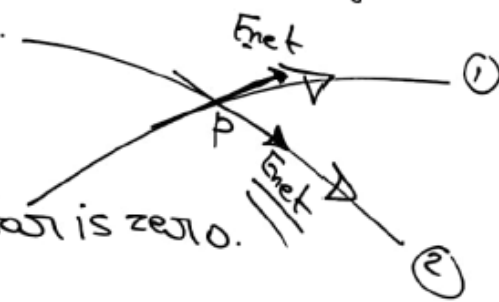
f) Electric field Lines can not make close loop.



$$\epsilon_0 = 8.85 \times 10^{-12} \frac{C^2}{N \cdot m^2}$$



g) E.F.L never cut each other bcz at intercept point, two dirn of net electric field.

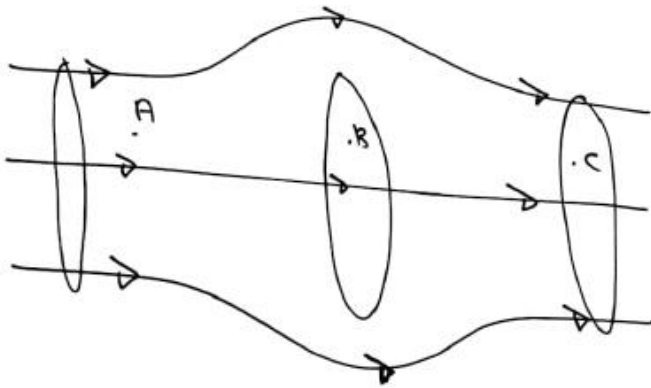


h) E.F.L inside Conductor is zero.



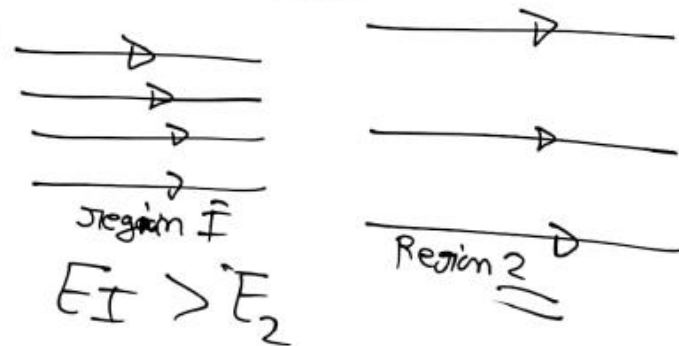
⇒ Electric field lines (E.F.L)

(H) Electric field strength is high at place where high electric field line density. & vice versa.

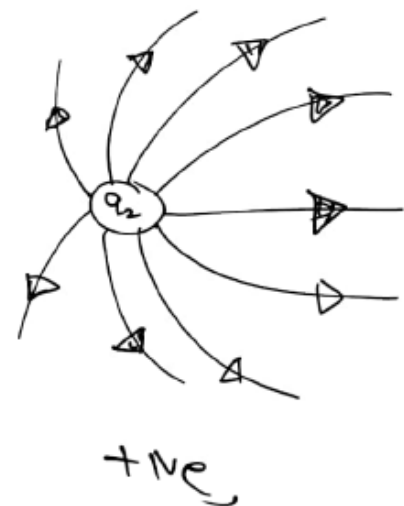
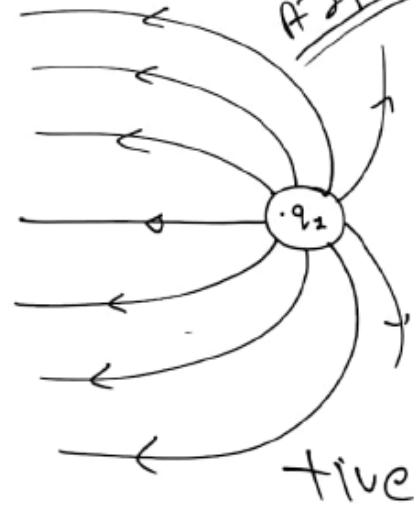
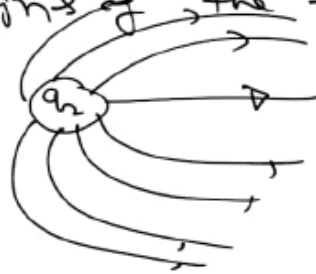
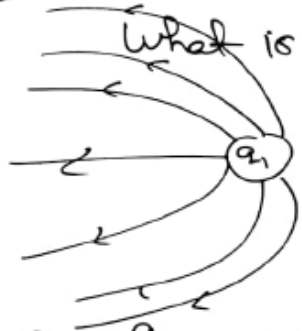


$$E_A = E_C > E_B$$

Ex



Q) The given figure shows electric field lines due to two charges q_1 & q_2 .
 What is the sign of the two charges.



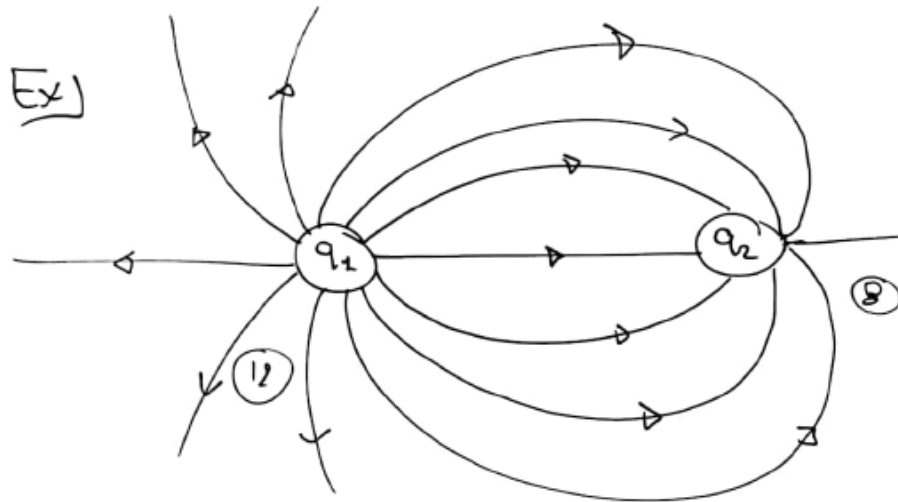
(a) $q_1 = +ve$ $q_2 = -ve$

(b) $q_1 = -ve$ $q_2 = +ve$

(c) $q_1 \text{ \& } q_2 = -ve$

~~(d) $q_1 \text{ \& } q_2 = +ve$.~~

AIPMT



- (a) $|q_1| > |q_2|$ if $q_1 = -ive, q_2 = +ive$
- (b) $|q_1| > |q_2|$ if $q_1 = +ive, q_2 = -ive$
- (c) $|q_1| < |q_2|$ if $q_1 = +ive, q_2 = -ive$
- (d) $|q_1| < |q_2|$ if $q_1 = -ive, q_2 = +ive$

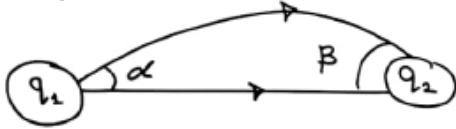
$q_1 = +ive$ $q_2 = -ive$ $|q_1| > |q_2|$

$|q_1| \propto 12$ (No of E.F.L) $\frac{|q_1|}{|q_2|} =$

$|q_2| \propto 8$ $\left[\frac{|q_1|}{|q_2|} = \frac{12}{8} = \frac{3}{2} \right]$ $\frac{|q_1|}{|q_2|} =$

3rd Q Question

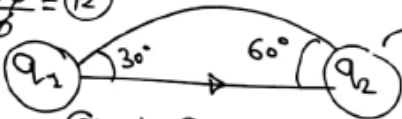
Q1 KVPY



clear bol sarkar $\frac{q_1}{q_2}$
 $|q_1| > |q_2|$

Q2 find ratio of q_1 & q_2 $\left[\frac{q_1}{q_2} \right]$

$\frac{36\phi}{3\phi} = 12$



$\frac{36\phi}{6\phi} = 6$

$\frac{q_1}{q_2} = \frac{12}{6} = 2:1$

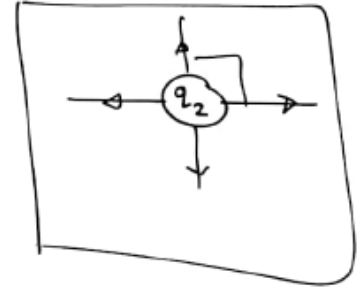
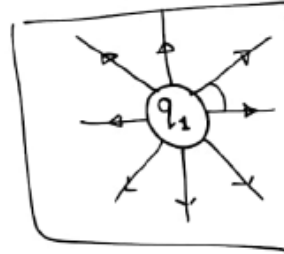
(A) 2:1

(C) 1:3

(B) 1:2

(D) N.O.T.

Hint



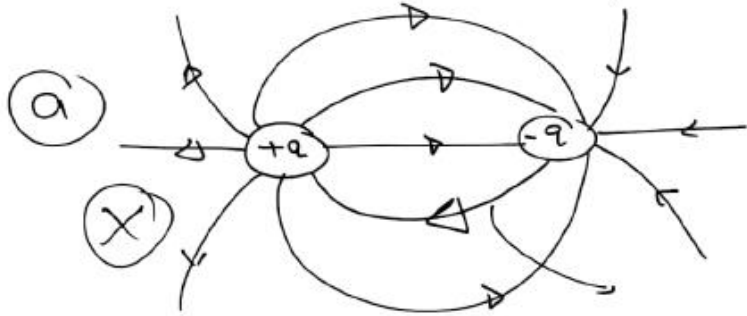
$|q_1| > |q_2|$

amp

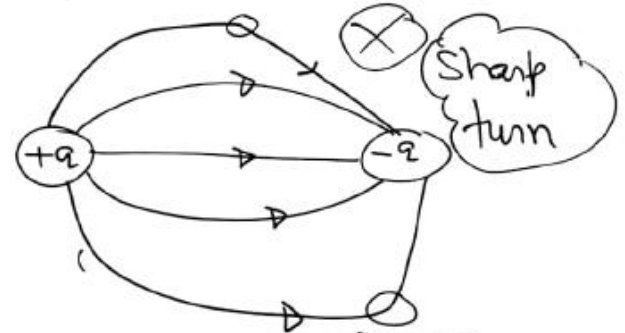
Angle b/w two E.F.L of q_1

Angle b/w two E.F.L in q_2

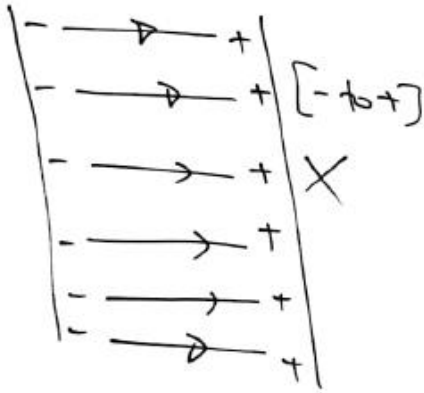
⇒ Find correct representation of E.F.L.



(b)



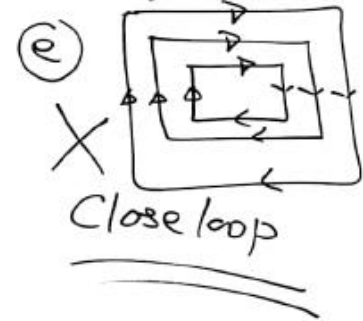
(c)

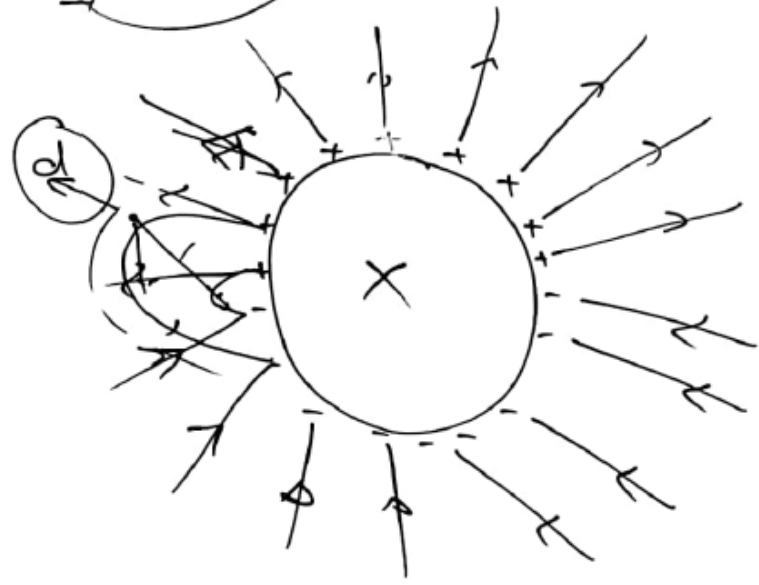
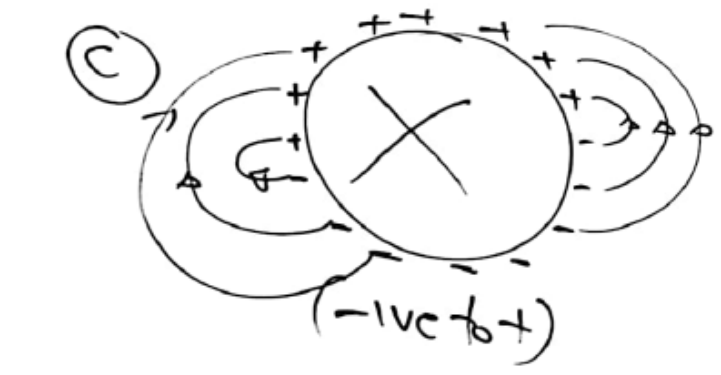
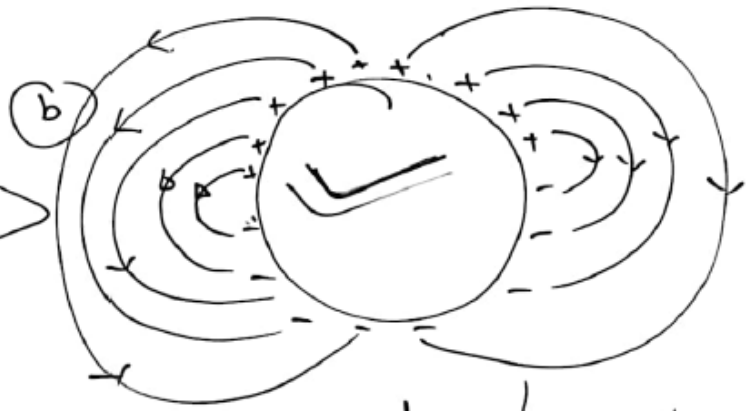
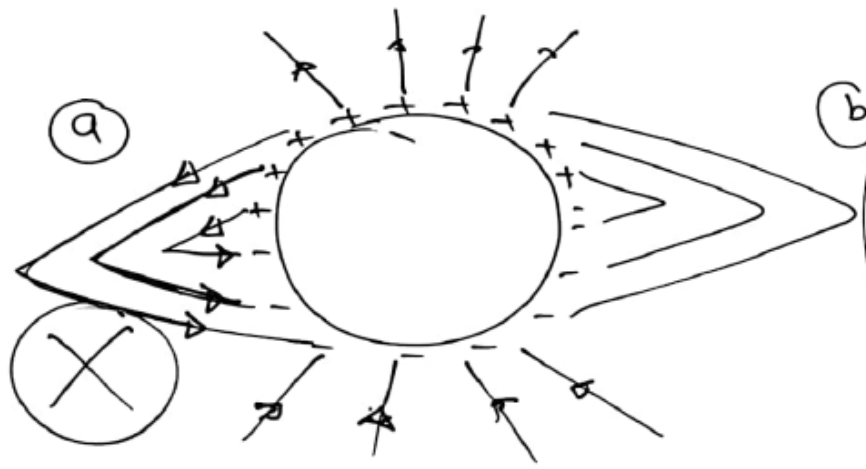


(d)

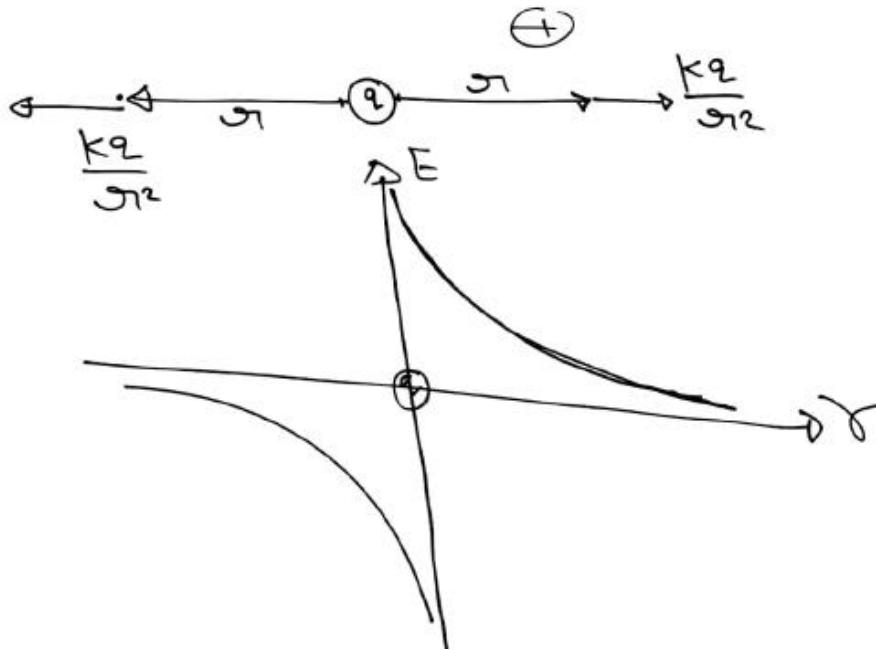


(e)



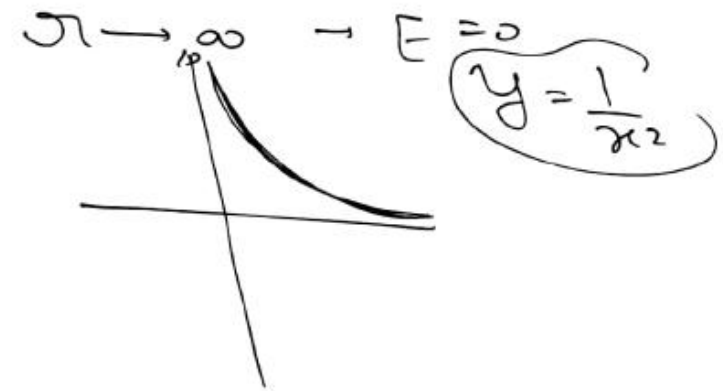


⇒ Graph :- of E & V :-



$$E \propto \frac{1}{r^2}$$

$$r \rightarrow 0^+ \rightarrow E = \infty$$



⇒ Graph :- of E & J :-

