

# **Coulomb's Law and Electric Field MCQ**

# SURI SIR IIT BOMBAY

ACCORDING TO PHYSICS...  
THE GLASS IS NEVER EMPTY



LIKE



SHARE



SUBSCRIBE



njoy\_suri



# Vedantu JEE 2021 Program

## - F E A T U R E S -

- **2500+ hours** of LIVE online teaching
- **45+ Teachers**; from Top IITs and 10+ years experience
- **750 Tests & 3000 Assignments** for Practical Application
- **Instant Doubt Solving** By Academic Mentors
- **Replay/Recording** of Classes If You've Missed
- **Rank Booster Quizzes**
- **Previous Paper** Analysis

**Boost your  
learning with  
Vedantu Pro**

**[vdnt.in/YTJEE21](https://vdnt.in/YTJEE21)**

**Enroll for FREE**

**Vedantu**  
Learn LIVE Online



**SUBSCRIBE**

A total charge  $Q$  is broken in two parts  $Q_1$  and  $Q_2$  and they are placed at a distance  $R$  from each other. The maximum force of repulsion between them occur, when

**A**  $Q_2 = \frac{Q}{R}, Q_1 = Q - \frac{Q}{R}$

**B**  $Q_2 = \frac{Q}{4}, Q_1 = Q - \frac{2Q}{3}$

**C**  $Q_2 = \frac{Q}{4}, Q_1 = \frac{3Q}{4}$

**D**  $Q_1 = \frac{Q}{2}, Q_2 = \frac{Q}{2}$

A total charge  $Q$  is broken in two parts  $Q_1$  and  $Q_2$  and they are placed at a distance  $R$  from each other. The maximum force of repulsion between them occur, when



Two point charges  $Q_1$  and  $Q_2$  placed at separation  $d$  in vacuum and force acting then is  $F$ . Now a dielectric slab of thickness  $d/2$  and dielectric constant  $K = 4$  is placed between them. The new force between the charges will be

**A**  $\frac{4F}{9}$

**B**  $\frac{2F}{9}$

**C**  $\frac{F}{9}$

**D**  $\frac{5F}{9}$





Two point charges  $Q_1$  and  $Q_2$  placed at separation  $d$  in vacuum and force acting then is  $F$ . Now a dielectric slab of thickness  $d/2$  and dielectric constant  $K = 4$  is placed between them. The new force between the charges will be





Three charges  $+Q$ ,  $q$ ,  $+Q$  are placed respectively, at distance,  $0$ ,  $d/2$  and  $d$  from the origin, on the  $x$ -axis. If the net force experienced by  $+Q$ , placed at  $x = 0$ , is zero, then value of  $q$  is

**A**  $-Q/4$

**B**  $+Q/2$

**C**  $+Q/4$

**D**  $-Q/2$

Three identical charges are placed at the vertices of an equilateral triangle. The force experienced by each charge (if  $k = 1/4\pi\epsilon_0$ ) is

**A**  $2k\frac{q^2}{r^2}$

**B**  $\frac{kq^2}{2r^2}$

**C**  $\sqrt{3}k\frac{q^2}{r^2}$

**D**  $\frac{kq^2}{\sqrt{2}r^2}$



Four charges equal  $-Q$  are placed at the four corners of a square and a charge  $q$  is at its centre. If the system is in equilibrium the value of  $q$  is

- A**  $-\frac{Q}{2} (1 + 2\sqrt{2})$       **B**  $\frac{Q}{4} (1 + 2\sqrt{2})$       **C**  $-\frac{Q}{4} (1 + 2\sqrt{2})$       **D**  $\frac{Q}{2} (1 + 2\sqrt{2})$



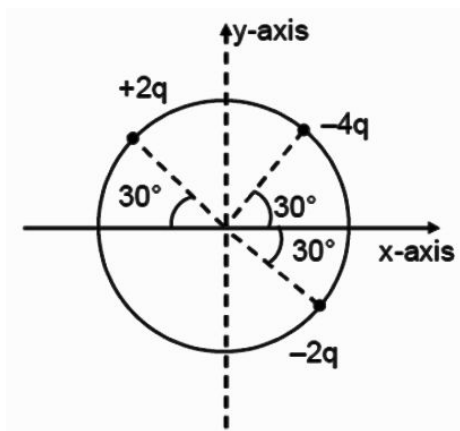
3 point charges are placed on circumference of a circle of radius 'd' as shown in figure. The electric field along x-axis at centre of circle is :

**A**  $\frac{q}{4\pi\epsilon_0 d^2}$

**B**  $\frac{q\sqrt{3}}{4\pi\epsilon_0 d^2}$

**C**  $\frac{q\sqrt{3}}{\pi\epsilon_0 d^2}$

**D**  $\frac{q\sqrt{3}}{2\pi\epsilon_0 d^2}$



Five point charges (+q each) are placed at the five vertices of a regular hexagon of side 2a. What is the magnitude of the net electric field at the centre of the hexagon?

**A**  $\frac{1}{4\pi\epsilon_0} \frac{q^2}{a^2}$

**B**  $\frac{q}{16\pi\epsilon_0 a^2}$

**C**  $\frac{\sqrt{2}q}{4\pi\epsilon_0 a^2}$

**D**  $\frac{5q}{16\pi\epsilon_0 a^2}$



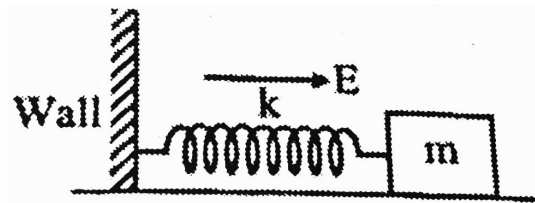
A point mass  $m$  and charge  $q$  is connected with massless spring of natural length  $L$ . Initially spring is in its natural length. If a horizontal uniform electric field  $E$  is switched on as shown in fig, then the maximum separation between the point mass and the wall is :  
(Assume all surface are frictionless)

**A**  $L + \frac{2qE}{K}$

**B**  $L + \frac{qE}{K}$

**C**  $L$

**D** None of these



Three charges  $+Q_1$ ,  $+Q_2$  and  $q$  are placed on a straight line such that  $q$  is somewhere in between  $+Q_1$  and  $+Q_2$ . If this system of charges is in equilibrium, what should be the magnitude and sign of charge  $q$ ?

**A**  $\frac{Q_1 Q_2}{(\sqrt{Q_1} + \sqrt{Q_2})}, \text{ positive}$

**B**  $\frac{Q_1 + Q_2}{2}, \text{ positive}$

**C**  $\frac{Q_1 Q_2}{(\sqrt{Q_1} + \sqrt{Q_2})^2}, \text{ negative}$

**D**  $\frac{Q_1 + Q_2}{2}, \text{ negative}$



# Join Vedantu JEE Telegram channel NOW!

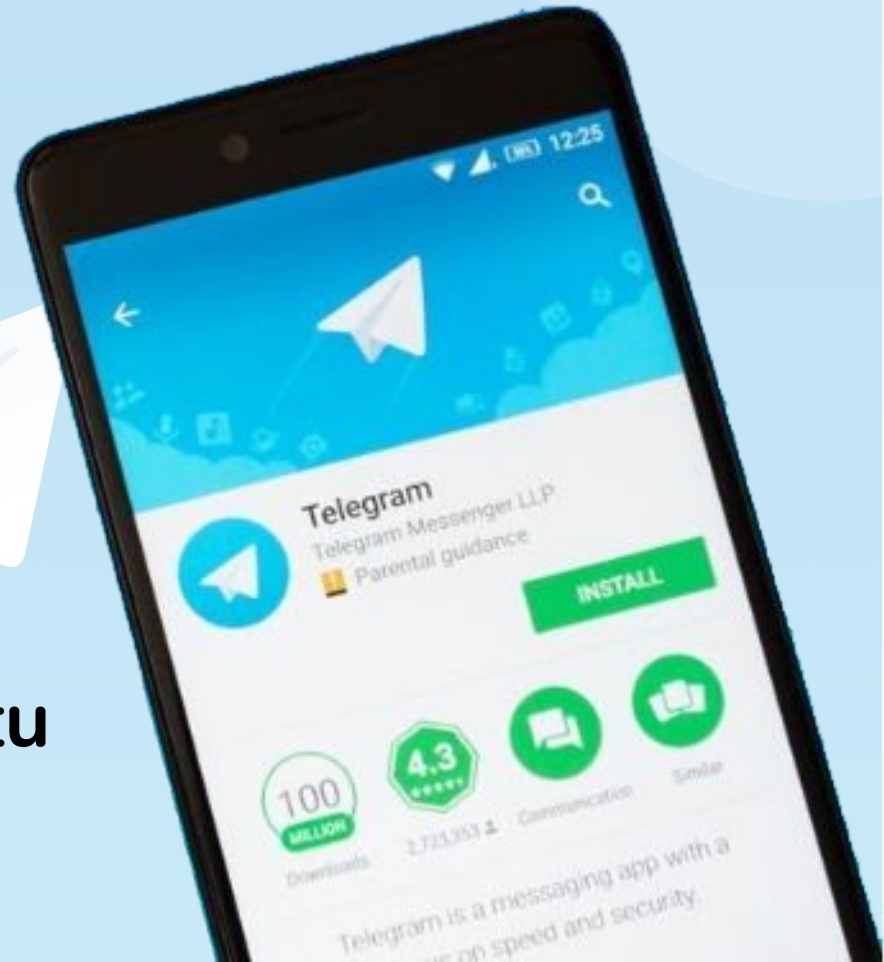
Assignments

Notes

Daily Update

<https://vdnt.in/JEEVedantu>

Link in Bio





# CRACK JEE



**#LearningWon'tStop**