

QUES 01:-

What is the force between two small charged spheres having charges of $2 \times 10^{-7}\text{C}$ and $3 \times 10^{-7}\text{C}$ placed 30 cm apart in air?

Sol. Here, $q_1 = 2 \times 10^{-7}\text{C}$, $q_2 = 3 \times 10^{-7}\text{C}$,

$$r = 30 \text{ cm} = 0.3 \text{ m}$$

$$\therefore F = \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{r^2}$$

$$= \frac{9 \times 10^9 \times 2 \times 10^{-7} \times 3 \times 10^{-7}}{(0.3)^2}$$

$$= 6 \times 10^{-3}\text{N (repulsive)}$$