

PYQSide

JEE MAIN ELECTROSTATIC POTENTIAL AND CAPACITANCE — POTENTIAL ENERGY OF A SYSTEM OF CHARGES — PYQS

Max. Marks: 16

Questions: 4

Section A (MCQ)

- Q.1** Two point charges of 1 nC and 2 nC are placed at the two corners of equilateral triangle of side 3 cm. The work done in bringing a charge of 3 nC from infinity to the third corner of the triangle is ____ μJ .

$$\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ N m}^2/\text{C}^2$$

[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) 3.3 (2) 27 (3) 2.7 (4) 5.4

Scan or tap for the
full solution



- Q.2** Two charges $7 \mu\text{C}$ and $-2 \mu\text{C}$ are placed at $(-9, 0, 0)$ cm and $(9, 0, 0)$ cm respectively in an external field $E = \frac{A}{r^2} \hat{r}$, where $A = 9 \times 10^5 \text{ N m}^2 \text{ C}^{-1}$.

Considering the potential at infinity is 0, the electrostatic energy of the configuration is ____ J.

[JEE Main 2026 (Online) 23rd January Evening Shift]

- (1) 49.3 (2) 1.4 (3) 24.3 (4) -90.7

Scan or tap for the
full solution



- Q.3** Consider two identical metallic spheres of radius R each having charge Q and mass m . Their centers have an initial separation of $4R$. Both the spheres are given an initial speed of u towards each other. The minimum value of u , so that they can just touch each other is:

(Take $k = \frac{1}{4\pi\epsilon_0}$ and assume $kQ^2 > Gm^2$ where G is the Gravitational constant)

[JEE Main 2026 (Online) 21st January Evening Shift]

(1) $\sqrt{\frac{kQ^2}{4mR} \left(1 + \frac{Gm^2}{kQ^2}\right)}$

(2) $\sqrt{\frac{kQ^2}{2mR} \left(1 - \frac{Gm^2}{2kQ^2}\right)}$

(3) $\sqrt{\frac{kQ^2}{2mR} \left(1 - \frac{Gm^2}{kQ^2}\right)}$

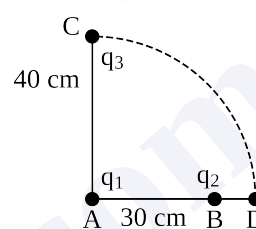
(4) $\sqrt{\frac{kQ^2}{4mR} \left(1 - \frac{Gm^2}{kQ^2}\right)}$

Scan or tap for the
full solution



- Q.4** Two charges q_1 and q_2 are separated by a distance of 30 cm. A third charge q_3 initially at 'C' as shown in the figure, is moved along the circular path of radius 40 cm from C to D. If the difference in potential energy due to movement of q_3 from C to D is given by $\frac{q_3 K}{4\pi\epsilon_0}$, the value of K is :

[JEE Main 2025 (Online) 7th April Morning Shift]



- (1) $6q_2$ (2) $6q_1$ (3) $8q_1$ (4) $8q_2$

Scan or tap for the
full solution



ANSWER KEY

Ques.	1	2	3	4										
Ans.	3	1	4	4										