

JEE MAIN ELECTROSTATIC POTENTIAL AND CAPACITANCE — RELATION BETWEEN FIELD AND POTENTIAL — PYQS

Max. Marks: 20

Questions: 5

Section A (MCQ) — 4 questions

- Q.1** The electric potential as a function of x, y is given by $V = 5(x^2 - y^2)$ V. The electric field at a point $(2, 3)$ m is _____ V/m.

[JEE Main 2026 (Online) 6th April Evening Shift]

- (1) $(-20\hat{i} + 30\hat{j})$ (2) $(20\hat{i} - 30\hat{j})$
(3) $(20\hat{i} + 45\hat{j})$ (4) $(-4\hat{i} + 6\hat{j})$

Scan or tap for the full solution



- Q.2** Two metal plates (A, B) are kept horizontally with separation of $\left(\frac{12}{\pi}\right)$ cm, with plate A on the top. An atomizer jet sprays oil (density 1.5 g/cm^3) droplets of radius 1 mm horizontally. All oil droplets carry a charge 5 nC. The potentials V_A and V_B are required on plates A and B respectively in order to ensure the droplets do not descend. The values of V_A and V_B are _____.
(Neglect the air resistance to the droplets and take $g = 10 \text{ m/s}^2$)

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1) 100 V and 580 V (2) 580 V and 100 V
(3) 60 V and 400 V (4) 0 V and -200 V

Scan or tap for the full solution



- Q.3** Electric field in a region is given by $\vec{E} = Ax\hat{i} + By\hat{j}$, where $A = 10 \text{ V/m}^2$ and $B = 5 \text{ V/m}^2$. If the electric potential at a point $(10, 20)$ is 500 V, then the electric potential at origin is _____ V.

[JEE Main 2026 (Online) 22nd January Morning Shift]

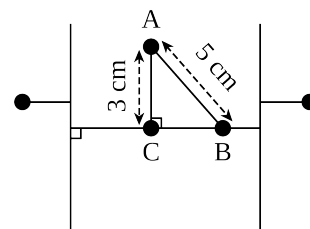
- (1) 1000 (2) 0 (3) 2000 (4) 500

Scan or tap for the full solution



- Q.4** Two large plane parallel conducting plates are kept 10 cm apart as shown in figure. The potential difference between them is V . The potential difference between the points A and B (shown in the figure) is :

[JEE Main 2025 (Online) 2nd April Evening Shift]



- (1) 1 V (2) $\frac{1}{4}$ V (3) $\frac{3}{4}$ V (4) $\frac{2}{5}$ V

Scan or tap for the full solution



Section B (Numerical) — 1 question

- Q.5** A three coulomb charge moves from the point $(0, -2, -5)$ to the point $(5, 1, 2)$ in an electric field expressed as $\vec{E} = 2x\hat{i} + 3y^2\hat{j} + 4\hat{k}$ N/C. The work done in moving the charge is _____ J.

[JEE Main 2026 (Online) 6th April Morning Shift]

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ANSWER KEY

Section A (MCQ) — 4 questions

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

Section B (Numerical) — 1 question

Ques.	5								
Ans.	186								