

NEET ELECTROSTATIC POTENTIAL AND CAPACITANCE — RELATION BETWEEN FIELD AND POTENTIAL — PYQS

Max. Marks: 28
Questions: 7

Section A (MCQ) — 7 questions

Q.1 In a certain region of space with volume 0.2 m^3 , the electric potential is found to be 5 V throughout. The magnitude of electric field in this region is :

[NEET (UG) 2020]

- (1) 0.5 N/C (2) 1 N/C (3) 5 N/C (4) zero

Scan or tap for the full solution



Q.2 If potential (in volts) in a region is expressed as $V(x, y, z) = 6xy - y + 2yz$, the electric field (in N/C) at point $(1, 1, 0)$ is

[AIPMT 2015]

- (1) $-(2\hat{i} + 3\hat{j} + \hat{k})$ (2) $-(6\hat{i} + 9\hat{j} + \hat{k})$
 (3) $-(3\hat{i} + 5\hat{j} + 3\hat{k})$ (4) $-(6\hat{i} + 5\hat{j} + 2\hat{k})$

Scan or tap for the full solution



Q.3 In a region, the potential is represented by $V(x, y, z) = 6x - 8xy - 8y + 6yz$, where V is in volts and x, y, z are in metres. The electric force experienced by a charge of 2 coulomb situated at point $(1, 1, 1)$ is

[AIPMT 2014]

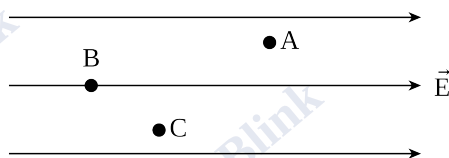
- (1) $6\sqrt{5} \text{ N}$ (2) 30 N (3) 24 N (4) $4\sqrt{35} \text{ N}$

Scan or tap for the full solution



Q.4 A, B and C are three points in a uniform electric field. The electric potential is

[NEET 2013]



- (1) maximum at C
 (2) same at all the three points A, B and C
 (3) maximum at A
 (4) maximum at B

Scan or tap for the full solution



Q.5 The electric potential V at any point (x, y, z) , all in metres in space is given by $V = 4x^2 \text{ volt}$. The electric field at the point $(1, 0, 2)$ in volt/metre, is

[AIPMT 2011 (Mains)]

- (1) 8 along negative X-axis
 (2) 8 along positive X-axis
 (3) 16 along negative X-axis
 (4) 16 along positive X-axis

Scan or tap for the full solution



Q.6 The electric potential at a point (x, y, z) is given by $V = -x^2y - xz^3 + 4$

The electric field at that point is [AIPMT 2009]

- (1) $\vec{E} = \hat{i}2xy + \hat{j}(x^2 + y^2) + \hat{k}(3xz - y^2)$
 (2) $\vec{E} = \hat{i}z^3 + \hat{j}xyz + \hat{k}z^2$
 (3) $\vec{E} = \hat{i}(2xy - z^3) + \hat{j}xy^2 + \hat{k}3z^2x$
 (4) $\vec{E} = \hat{i}(2xy + z^3) + \hat{j}x^2 + \hat{k}3xz^2$

Scan or tap for the full solution



Q.7 The electric potential at a point in free space due to charge $Q \text{ coulomb}$ is $Q \times 10^{11} \text{ volts}$. The electric field at that point is

[AIPMT 2008]

- (1) $4\pi\epsilon_0 Q \times 10^{20} \text{ volt/m}$ (2) $12\pi\epsilon_0 Q \times 10^{22} \text{ volt/m}$
 (3) $4\pi\epsilon_0 Q \times 10^{22} \text{ volt/m}$ (4) $12\pi\epsilon_0 Q \times 10^{20} \text{ volt/m}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7				
Ans.	4	4	4	4	1	4	3				