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NEET ELECTROSTATIC POTENTIAL AND CAPACITANCE — POTENTIAL ENERGY IN AN EXTERNAL FIELD (DIPOLE) — PYQS

Max. Marks: 16 **Questions:** 4

Section A (MCQ) — 4 questions

Q.1 An electric dipole of dipole moment p is aligned parallel to a uniform electric field E. The energy required to rotate the dipole by 90° is [NEET 2013 (Karnataka)]

(1) p^2E (2) pE (3) infinity (4) pE^2

Scan or tap for the full solution

Q.2 An electric dipole of moment p is placed in an electric field of intensity E. The dipole acquires a position such that the axis of the dipole makes an angle θ with the direction of the field. Assuming the potential energy of the dipole to be zero when θ = 90°, the torque and the potential energy of the dipole will respectively be [AIPMT 2012 (Prelims)]

(1) $pE\sin\theta,\ -pE\cos\theta$ (2) $pE\sin\theta,\ -2pE\cos\theta$

(3) $pE\sin\theta,\ 2pE\cos\theta$ (4) $pE\cos\theta,\ -pE\sin\theta$

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Q.3 An electric dipole of moment $\vec{p}$ is lying along a uniform electric field $\vec{E}$. The work done in rotating the dipole by 90° is [AIPMT 2006]

(1) pE (2) $\sqrt{2}pE$ (3) pE/2 (4) 2pE

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Q.4 An electric dipole has the magnitude of its charge as q and its dipole moment is p. It is placed in a uniform electric field E. If its dipole moment is along the direction of the field, the force on it and its potential energy are respectively [AIPMT 2004]

(1) 2q.E and minimum (2) q.E and p.E

(3) zero and minimum (4) q.E and maximum

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ANSWER KEY

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