INDIAN SCHOOLAL WADI AL KABIR

 DEPARTMENT OF SCIENCE

**UNIT TEST MARKING SCHEME**  MAXIMUM MARKS :30

1. The electric dipole moment is a vector quantity; it has a defined direction which is from the negative charge to the positive charge. P = Q.2I.

An ideal electric dipole is one in which the two charges are only infinitesimally separated

2. (I) CHARGE, E = ½ Q2/C

(II) POTENTIAL, E = ½ CV2

Or. the body of the vehicle in motion is charged due to air friction. If the charge accumulation is large, it can produce a spark and the inflammable material may catch fire.

3. Derivation of torque

Diagram

Maximum θ = 90

minimum θ = 0

4. total capacity, 10 µF and charge = 100 C

5. keeping total force on a charge = 0 and get, q = - Q/4

6. q = $σ$ x 4$πr$2 = 100µ x 4$π$ (1.25)2 and $∅=q/ϵ˳$

7. (a) sphere having radius 2R, As C$∝$ Radius

Energy/volume

8. Expression with diagram,

Or

EI = - $1/2ϵ˳ $($σ$ 1 +$ σ$ 2)

EII = $1/2ϵ˳ $($σ$ 1 - $ σ$ 2)

EIII = $1/2ϵ˳ $($σ$ 1 +$ σ$ 2)

9. Surface having same potential,

Perpendicular to field

Two diagrams.

10. 1.d 2.c 3.b

4.d

5.a