



Loreto Convent Intermediate College

Lucknow

Holiday Homework

Class- XII Science

Subject- Physics

1. Two point charges $q_1 = + 3 \mu\text{C}$ and $q_2 = - 3 \mu\text{C}$ are 20 cm apart in vacuum. Find the electric field at the mid-point of the line joining the two charges. If a negative charge of $1.5 \times 10^{-9} \text{ C}$ is placed at the centre, find the force experienced by the charge.
2. A charge of $17.7 \times 10^{-4} \text{ C}$ is distributed uniformly over a large sheet of area 200 m^2 . Calculate the electric field intensity at a distance 20 cm from it in air.
3. A stationary oil drop between two parallel plates has a charge of $3.2 \times 10^{-19} \text{ C}$ and a weight of $1.6 \times 10^{-14} \text{ N}$. Find the electric field acting on the drop.
4. An electric dipole, when held at 30° with respect to a uniform electric field of 10^4 N/C , experiences a torque of $9.0 \times 10^{-26} \text{ N-m}$. Calculate the moment of the dipole.
5. The intensity of the electric field at a point which is at a perpendicular distance of 5 cm from an infinite line charge is $2.7 \times 10^4 \text{ V/m}$. Calculate linear charge density on the line charge.
6. Write the content for the project given and collect pictures, graphs, observations, etc for the same.

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