

****PLEASE GIVE THE EXAMPLES, DIAGRAMS AND FLOW CHARTS WHEREVER APPLICABLE.**

1. What does $q_1 + q_2 = 0$ signifies in electrostatics?
2. A glass rod, when rubbed with silk cloth gets charge 1.6×10^{-13} C. What is the charge on the silk cloth?
3. Vehicles carrying inflammable materials usually have metallic ropes touching the ground during motion. Why?
4. What are the limitations of Coulomb's Law?
5. State and prove principle of superposition? What are its uses?
6. Two point charges q_1 and q_2 are 3m apart and combined charge is $20\mu\text{C}$. They are repelling each other with force of 0.075N, what are the two charges?
7. Define dielectric constant? What do you mean by the quantization of charge and additive nature of charge?
8. Why two electric lines of force never intersect each other?
9. Determine the magnitude of the electric field that will balance the weight of an electron.
10. A point charge q is placed at the origin. How does the electric field due to charge vary with distance r from the origin?
11. Derive an expression for electric field intensity at any point along the axial line of an electric dipole.
12. Derive an expression for the torque experienced by an electric dipole placed in a uniform electric field.
13. The test charge used for measuring electric field at a point should be vanishingly small. Why?
14. Derive Coulomb's law in vector form. Giving its significance.
15. Derive an expression for an electric field due to charged ring at its axis.
16. Four charges $+q, +q, -q, -q$ are placed respectively at the four corners of the square of side a . Find the magnitude and direction of the electric field at the center of the sphere.