



Holiday Homework /assignment

- Q.1 No Two Electric Lines of Force Can Intersect Each Other. Why?
- Q.2 A Charged Rod P Attracts a Rod R Whereas P Repels another Charged Rod Q. What Type of Force is Developed Between Q and R ?
- Q.3 A Free Proton and a Free Electron are Placed in a Uniform Field. Which of the Two Experiences Greater Force and Greater Acceleration?
- Q.4 Does the Force Between Two Point Charges Change if the Dielectric Constant of the Medium in Which they are Kept is Increased?
- Q.5 An Electric Dipole When Held at 30° with Respect to a Uniform Electric Field of 10^4 N/C Experiences a Torque of 9×10^{-26} N.m. Calculate Dipole Moment of the Dipole?
- Q.6 Explain the Meaning of the Statement 'Electric Charge of a Body is 'Quantized'.
- Q.7 Why Can One Ignore the Quantization of Electric Charge When Dealing With Macroscopic I.e., Large Scale Charge?
- Q.8 An Electric Field Line is a Continuous Curve. That is, a Field Line Cannot Have Sudden Breaks. Why Not?
- Q.9 Explain Why Two Field Lines Never Cross Each Other at Any Point?
- Q.10 Write vector form of coulombs law. Define one coulomb?
- Q.11 Define electrostatic shielding? Give any two examples?
- Q.12 What is the Force Between Two Small Charged Spheres Having Charges of 2×10^{-7} C and 3×10^{-7} C placed 30cm Apart in Air?
- Q.13 A Point Charge of $2.0 \mu\text{C}$ is Kept at the Center of a Cubic Gaussian Surface of Edge Length 9cm. What is the Net Electric Flux through the Surface? When edge length is doubled then new electric flux passes through the surface is ?
- Q.14 An Infinite Line Charge Produces a Field of Magnitude 9×10^4 N/C at a Distance of 2cm. Calculate the Linear Charge Density.
- Q.15 What Is an Equi-Potential Surface? Show That the Electric Field Is Always Directed Perpendicular to an Equi-Potential Surface.
- Q.16 Why does the electric field inside a dielectric decrease when it is placed in an external electric field?
- Q.17. What is the work done in moving a $2 \mu\text{C}$ point charge from corner A to corner B of a square ABCD when a $10 \mu\text{C}$ charge exists at the centre of the square?
- Q.18 The distance of the field point on the equatorial plane of a small electric dipole is halved. By what factors will the electric field due to the dipole changes?
- Q.19 Prepare formula chart include chapter 1 and 2.
- Q.20 State Gauss's Theorem in electrostatics? What is the direction of the electric field at every point on the Gaussian surface?
- Q.21. Three capacitors each of capacitance 9pF are connected in series (a) What is the total capacitance of the combination? (b) Determine the charge on each capacitor if the combination is connected to a 100V supply.
- Q.22 A 12pF capacitor is connected to a 50V battery. How much electrostatic energy is stored in the capacitor?
- Q.24 derive the formula for the potential at a point on the axial line of an electric dipole.