

Guru Gobind Singh public school Chas
Class 12 sub -physics
Assignment 2020

1. What is quantization of electric charge?
2. Give four properties of electric charge?
3. State coulomb's law and express in vector form?
4. What is electric dipole moment? Is it a vector or scalar quantity?
5. find an expression for the electric field on axial line and on the equator line due to an electric dipole.
6. Give two properties of electric field lines.
7. Derive an expression for the force and torque acting on electric dipole in uniform dimensional electric field. In which situation torque on the dipole is 1) maximum and 2) minimum
8. Derive an expression for electric potential at any point due to an electric dipole.
9. What is electric flux? write its unit. is it a scalar or vector quantity?
10. Draw the electric field lines due to an electric dipole
11. Define equipotential surface. draw equipotential surface due to an electric dipole.
12. Write the four properties of equipotential surface.
13. State and prove gauss's theorem in electrostatic.
14. Using gauss's theorem derive an expression for electric field due to charged spherical shell 1) on the surface of the sphere 2) outside the sphere and inside the sphere .draw graph between E Vs R .
15. Deduce coulomb's law using Gauss's theorem.
16. Find electric field intensity due to thin infinite plane sheet of charge using gauss law.
17. Derive an expression for the energy stored in a charged parallel plate capacitor. what is the form of this energy and where from it comes ? find the expression for energy density of a charged capacitor.
18. Define capacitance of a conductor .obtain an expression for capacity of an isolated spherical conductor.
19. Find the expression for capacitance of a parallel plate capacitor when 1) dielectric slab is inserted in between the plates. 2) a thin conducting slab is inserted in between the plates. 3) a dielectric slab filled the entire space between the plates
20. Two point charge $+6q$ and $-8q$ are placed in the vertices B and C of an equilateral triangle ABC of side a .obtain an expression for the magnitude and direction of resultant electric field at the vertex A due to these two charges.
21. Three charges each equal to q are placed at three corners of a square of side a .find the electric field at the fourth corner?
22. Two charges $3 \mu\text{C}$ and $-2 \mu\text{C}$ are located 15 cm apart. at what point on the line joining the two charges is the electric potential zero ? Take the potential at infinity to be zero.

