



CBSE Board

**PARISHRAM PUBLICATIONS  
PUNE**

NAME of Student : \_\_\_\_\_

Subject : Physics

Class : XII

Topic :- Electric charges and field

Max. Marks :- 25

**SECTION – A (3 Marks)**

1. Define electrostatic potential.
2. State Coloumb's law of electrostatics.
3. Give the S.I. unit of dipole moment. Is it a vector quantity or scalar quantity?

**SECTION – B (6 Marks)**

- 4 .The charges of a dipole are placed at A (-1,0,0) and B (1,0,0) .What will be the work done in moving a charge of  $-2\mu\text{C}$  from a point P (0,4,0) to a point Q (0,7,0) ?
5. Explain the relation between electric potential and electric field.
6. Derive the expression for electric potential due to multiple point charge system.

**SECTION – C (6 Marks)**

7. Derive the expression of energy stored in a system of four positive multiple charge system.
8. Derive the expression for electric field due to a dipole at a point on its axis.

**SECTION – D (10 Marks)**

9. The dependence of field on distance due to a short dipole and due to a point charge is different. Explain. A dipole of dipole moment  $3 \times 10^{-6}$  Cm is placed in a uniform electric field of a intensity  $10^4$  N/C. Calculate the work done for rotating the dipole from its stable equilibrium to its unstable equilibrium.
10. What should be taken care about while choosing a Gaussian surface?  
A charge of  $10\mu\text{C}$  is placed in a medium of relative permittivity 8. What will be the electric potential and electric field intensity and at a point at a distance of 3 cm from the charge?