

## DPP – 2 (Electric Field, Electric Field Lines, Point Charge)

### A. MCQ

1. SI unit of electric field is:  
(A) N/C  
(B) N-m  
(C) C/N  
(D) C/m<sup>2</sup>
  
2. Electric field is a:  
(A) scalar  
(B) vector  
(C) tensor  
(D) none
  
3. Electric field due to point charge varies as:  
(A) r  
(B) 1/r  
(C) 1/r<sup>2</sup>  
(D) r<sup>2</sup>
  
4. Direction of E for +Q charge is:  
(A) inward  
(B) outward  
(C) circular  
(D) neutral
  
5. Electric field lines never:  
(A) start  
(B) end  
(C) intersect  
(D) curve
  
6. Work done on an equipotential surface is:  
(A) zero  
(B) maximum  
(C) minimum  
(D) infinite
  
7. At the centre of an electric dipole, electric field is:  
(A) zero  
(B) infinite

(C) constant  
(D) none

8. Electric field due to system of charges is given by:  
(A) conservation rule  
(B) superposition rule  
(C) distribution rule  
(D) none

9. If  $E = 0$  at a point, potential must be:  
(A) zero  
(B) constant  
(C) not necessarily zero  
(D) infinite

10. Dimensional formula of electric field:  
(A)  $MLT^{-2}A^{-1}$   
(B)  $M^{-1}L^{-3}T^4$   
(C)  $ML^2T^{-3}$   
(D) None

---

#### **B. Short Questions**

1. Define electric field and write its SI unit.
2. What are electric field lines? Give two properties.
3. Derive the electric field due to a point charge.
4. Why can electric field lines never intersect?
5. What is linear charge density?

---

#### **C. Long Questions**

1. Derive expression for torque on an electric dipole placed in a uniform electric field.
2. Derive expression for electric field on equatorial line of dipole.