

DPP – 5 (20 MCQ + 5 Short Questions)

A. MCQ (20 Questions)

- At a point, $E = 0$. It means:
(A) net force is zero
(B) no charge present
(C) potential is zero
(D) both B & C
- 100 C charge in 5 N/C field experiences force:
(A) 500 N
(B) 5 N
(C) 20 N
(D) 100 N
- Linear charge density unit:
(A) C/m
(B) C/m²
(C) C/m³
(D) N/C
- Torque on dipole =
(A) $pE \sin\theta$
(B) p/E
(C) pE
(D) p/E^2
- Maximum flux occurs when:
(A) $\theta = 0^\circ$
(B) $\theta = 90^\circ$
(C) $\theta = 180^\circ$
(D) $\theta = 45^\circ$
- ϵ_0 dimension is:
(A) $M^{-1}L^{-3}T^4A^2$
(B) MLT^{-2}
(C) M^0
(D) none
- Electric field is:
(A) scalar
(B) vector
(C) tensor
(D) none

8. E of dipole at far point $\propto$

- (A) $1/r^3$
- (B) $1/r^2$
- (C) $1/r$
- (D) r

9. If angle decreases, flux:

- (A) increases
- (B) decreases
- (C) remains same
- (D) becomes zero

10. Electric flux is:

- (A) scalar
- (B) vector
- (C) tensor
- (D) none

11. $1\ \mu\text{C}$ is equal to:

- (A) 10^{-6}C
- (B) 10^{-9}C
- (C) 10^{-3}C
- (D) None

12. Electric field due to point charge is:

- (A) kq/r^2
- (B) kqr
- (C) kq/r
- (D) rq

13. If distance doubles, field becomes:

- (A) $1/4$
- (B) $1/2$
- (C) 2
- (D) 4

14. Unit of electric field:

- (A) N/C
- (B) Nm
- (C) J/C
- (D) Cm

15. Gauss law relates flux with:

- (A) total charge enclosed
- (B) field strength

- (C) area only
- (D) angle only

16. Electric flux formula:

- (A) $EA \cos\theta$
- (B) $EA \sin\theta$
- (C) $EA \tan\theta$
- (D) E/A

17. Dipole length is the distance between:

- (A) $+q$ and $-q$
- (B) two $+$ charges
- (C) two $-$ charges
- (D) none

18. Coulomb force is zero when:

- (A) charges are equal
- (B) charges are opposite
- (C) charges are far away
- (D) distance $\rightarrow \infty$

19. When $E \perp A$, flux =

- (A) 0
- (B) EA
- (C) E/A
- (D) infinite

20. Gauss law is applicable to:

- (A) any closed surface
- (B) only sphere
- (C) only cube
- (D) only rectangle

B. Short Questions

1. Write the expression for electric flux and explain each term.
2. State Gauss law. Why is it important?
3. Write two examples of quantisation of charge in daily life.
4. Write three characteristics of electric dipole.
5. Explain electric force and gravitational force (difference).