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Class XII Physics

Chapter 2: Electrostatic Potential and Capacitance

Instructions: Choose the correct option. Each question has one correct answer.

Q1. The SI unit of electric potential is:

- A. Volt
- B. Newton
- C. Coulomb
- D. Farad

Correct Answer: A

Feedback: Electric potential is measured in volt (V).

Q2. Potential difference is defined as:

- A. Work done per unit charge
- B. Force per unit charge
- C. Charge per unit area
- D. Energy per unit mass

Correct Answer: A

Feedback: $V = W/q$, i.e. work done per unit charge.

Q3. The electric potential due to a point charge varies as:

- A. $1/r$
- B. r
- C. $1/r^2$
- D. r^2

Correct Answer: A

Feedback: $V = kQ/r$.

Q4. The surface on which potential is constant is called:

- A. Equipotential surface
- B. Electric field line
- C. Flux surface
- D. Polar surface

Correct Answer: A

Feedback: No work is done in moving a charge along an equipotential surface.

Q5. The electric field is always:

- A. Perpendicular to equipotential surface
- B. Parallel to equipotential surface
- C. At 45°
- D. Random

Correct Answer: A

Feedback: Electric field is normal to equipotential surfaces.

Q6. The dielectric constant of air is approximately:

- A. 1
- B. 2
- C. 5
- D. 10

Correct Answer: A

Feedback: Air behaves almost like vacuum.

Q7. The capacitance of a parallel plate capacitor increases when:

- A. Plate area increases
- B. Plate separation increases
- C. Charge decreases
- D. Voltage increases

Correct Answer: A

Feedback: $C = \epsilon A/d$.

Q8. In a series combination of capacitors:

- A. Equivalent capacitance is less than the smallest capacitor
- B. Equivalent capacitance is greater than all
- C. Charges are different
- D. Voltages are equal

Correct Answer: A

Feedback: Series combination reduces equivalent capacitance.

Q9. Energy stored in a capacitor is:

- A. $\frac{1}{2}CV^2$
- B. CV^2
- C. QV
- D. Q^2/C

Correct Answer: A

Feedback: Correct formula is $U = \frac{1}{2}CV^2 = \frac{1}{2}QV = Q^2/(2C)$.

Q10. Free charges in a conductor are located:

- A. They move freely throughout the conductor
- B. Fixed at lattice points
- C. Only at the centre
- D. Only at the surface

Correct Answer: A

Feedback: Free electrons move throughout the conductor.