



## Class 12 Physics | Electrostatic Potential And Capacitance

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

**1. Potential due to point charge  $Q$  at distance  $r$  in vacuum is:**

- A.  $Q/(kr)$  B.  $kQ/r$  C.  $kQ/r^2$  D.  $kQr$

**2. The SI unit of electric potential is:**

- A. J C B. J/C C. N/C D. C/J

**3. A +2 C charge moves through a potential rise of 3 V. Its potential-energy change is:**

- A. +1.5 J B. +6 J C. -1.5 J D. -6 J

**4. On an equipotential surface, electrostatic work for displacement of a charge is:**

- A. Dependent on path length  
B. Always positive  
C. Always negative  
D. Zero

**5. Electric field is directed toward:**

- A. Increasing charge magnitude  
B. Decreasing potential  
C. Increasing potential  
D. Constant potential necessarily

**6. At the midpoint of equal and opposite point charges, potential is:**

- A. Negative B. Infinite C. Positive D. Zero

**7. Capacitance is defined by:**

- A.  $QV$  B.  $Q/V^2$  C.  $V/Q$  D.  $Q/V$

**8. A 4  $\mu\text{F}$  capacitor is charged to 12 V. Charge is:**

- A. 0.33  $\mu\text{C}$  B. 48  $\mu\text{C}$  C. 16  $\mu\text{C}$  D. 3  $\mu\text{C}$

**9. Parallel-plate capacitance in vacuum is:**

- A.  $\epsilon_0 Ad$  B.  $\epsilon_0 d/A$  C.  $\epsilon_0 A/d$  D.  $Ad/\epsilon_0$

**10. Plate separation doubles at fixed area. Capacitance becomes:**

- A. Four times B. Unchanged C. Half D. Twice

**11. Two 6  $\mu\text{F}$  capacitors in series have equivalent capacitance:**

- A. 3  $\mu\text{F}$  B. 36  $\mu\text{F}$  C. 12  $\mu\text{F}$  D. 6  $\mu\text{F}$

**12. Capacitors 2  $\mu\text{F}$  and 3  $\mu\text{F}$  in parallel give:**

- A. 1.2  $\mu\text{F}$  B. 1  $\mu\text{F}$  C. 5  $\mu\text{F}$  D. 6  $\mu\text{F}$

**13. Energy stored in a 2  $\mu\text{F}$  capacitor at 10 V is:**

- A. 10  $\mu\text{J}$  B. 20  $\mu\text{J}$  C. 100  $\mu\text{J}$  D. 200  $\mu\text{J}$

**14. A dielectric of  $K=4$  completely fills an isolated charged capacitor. Voltage becomes:**

- A. Four times B. Unchanged  
C. Twice D. One-fourth

**15. The same dielectric fills a capacitor connected to an ideal fixed-voltage battery. Charge becomes:**

- A. Half B. Unchanged  
C. Four times D. One-fourth

**ANSWER KEY — check after completing all 15 questions**

**1.B 2.B 3.B 4.D 5.B 6.D 7.D 8.B 9.C 10.C 11.A 12.C 13.C 14.D 15.C**

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