

NCERT/CBSE PHYSICS CLASS 12 textbook

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Answers to NCERT/CBSE PHYSICS Class 12(Class XII)textbook Exercise and Additional exercise

CHAPTER TWO

ELECTRIC POTENTIAL AND CAPACITANCE

EXERCISES

(For simplicity in numerical calculations, take $g = 10 \text{ m s}^{-2}$)

2.8 In a parallel plate capacitor with air between the plates, each plate has an area of $6 \times 10^{-3} \text{ m}^2$ and the distance between the plates is 3 mm. Calculate the capacitance of the capacitor. If this capacitor is connected to a 100 V supply, what is the charge on each plate of the capacitor?

2.8 **Given** $6 \times 10^{-3} \text{ m}^2$, $d = 3 \times 10^{-3} \text{ m}$

Key Idea $C = \epsilon_0 \frac{d}{A}$

Solution a) $C = 8.85 \times 10^{-12} \times \frac{6 \times 10^{-3}}{3 \times 10^{-3}} = 17.70 \text{ pF}$

b) $Q = CV = 17.7 \times 10^{-12} \times 100 = 17.7 \times 10^{-10} \text{ C}$

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