

CHAPTER 1. (ELECTRICITY) (BASED ON NCERT PATTERN) (IMPORTANT QUESTIONS)

* Electric power :-
 ↳ The rate of doing electrical work.
 ↳ It is denoted by 'P'.
 ↳ $P = \frac{W}{t}$
 ↳ S.I unit → Watt
 ↳ $1 \text{ kW} = 10^3 \text{ Watt}$
 ↳ $1 \text{ Mw} = 10^6 \text{ Watt}$

Derivation :-
 $P = \frac{W}{t}$ (i)
 $\therefore V = \frac{W}{Q}$
 $W = V \times Q$ (ii)
 Putting the value of (ii) in (i)
 $\Rightarrow P = \frac{V \times Q}{t}$ (iii)
 Electric Current (I) = $\frac{Q}{t}$
 $\Rightarrow Q = I \times t$ (iv)
 Putting the value of (iv) in (iii)
 $\Rightarrow P = \frac{V \times I \times t}{t}$
 $P = V \times I$ (A)

By ohm's law
 $V = I \cdot R$
 Putting this value in equ. (A)
 $\Rightarrow P = I \times R \times I$
 $P = I^2 \times R$ (B)

By ohm's law
 $V = I \cdot R$
 $I = \frac{V}{R}$
 Putting this value in equ. (A)
 $P = V \times \frac{V}{R}$
 $P = \frac{V^2}{R}$ (C)