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SUBJECT:- PHYSICS

CLASS:- XTH

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SUBJECT TEACHER:- MR. NEEL NIRANJAN

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

* Commercial unit of electrical Energy

1 Kw.h = 1 unit

$$P = \frac{W}{t}$$

$$1 \text{ watt} = \frac{1 \text{ J}}{1 \text{ sec.}}$$

$$1000 \text{ watt} = \frac{1000 \text{ J}}{\frac{1}{3600} \text{ hr.}}$$

$$\Rightarrow 1 \text{ Kw.h} = 1000 \times 3600$$

$$\Rightarrow 1 \text{ Kw.h} = 3600000$$

1 Kw.h = 3.6×10^6 joule

* Heating Effects of an Electric Current \Rightarrow

$$W = V \times Q$$

$$\Rightarrow W = V \times Q \text{ --- (i)}$$

$\therefore V = I \cdot R$ (By ohm's law) (ii)

\therefore Electric Current ($I = \frac{Q}{t}$)

$$Q = I \times t \text{ --- (iii)}$$

Putting the value of (ii) & (iii) in (i)

$$\Rightarrow W = I \times R \times I \times t$$

$\Rightarrow W = H = I^2 \cdot R \cdot t$

Since work done = Heat produced.

* Factors on which heating effect depends

i) $H \propto I^2$ { $H \propto$ Square of Current }

ii) $H \propto R$ { $H \propto$ Resistance of Conductor }

iii) $H \propto t$ { $H \propto$ time period }

* Electric Fuse

↳ It is a safety device used to protect the ckt. & appliance.

↳ It is always connected in the terminal or live wire.

NOTE:- Chapter-1 (Electricity) is completed as a whole with pdf and live classes on Google meet and you tube videos. Proper pdf for numericals and exercises has been sent on respective class group as well as BVP App. When the classes will be offline then again these topics will be covered as per your doubts.