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SUBJECT:- PHYSICS

CLASS:- IXTH

DATE:-30/12/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 4. (WORK, ENERGY AND POWER REVISION)(BASED ON NCERT PATTERN)

Question 1. Find the energy in kWh consumed in 10 hours by four devices of power 500 W each.

Ans:- Power rating of each device, $P = 500 \text{ W} = 0.50 \text{ kW}$

Time for which each device runs, $t = 10 \text{ h}$

Work done = Energy consumed by each device (E)

We know, power = Energy consumed / Time

Energy consumed by each device = Power \times Time

$$E = P \times t$$

$$= 0.50 \times 10 = 5 \text{ kWh}$$

Hence, the energy consumed by four devices of power 500 W each in 10 h will be

$$4 \times 5 \text{ kWh} = 20 \text{ kWh} = 20 \text{ units}$$

Question 2. A freely falling object eventually stops on reaching the ground. What happens to its kinetic energy?

Ans:- As the object hits the hard ground, its kinetic energy gets converted into

(i) heat energy (the object and the ground become slightly warm)

(ii) sound energy (sound is heard when the object hits the ground)

(iii) potential energy of configuration of the body and the ground (the object and the ground get deformed a little bit at the point of collision).

Question 3.. An object of mass, m is moving with a constant velocity, v. How much work should be done on the object in order to bring the object to rest?

Ans:- Kinetic energy of an object of mass m moving with a velocity v is given by the expression $\frac{1}{2}mv^2$. To bring the object to rest, an equal amount of work i.e. $\frac{1}{2}mv^2$ is required to be done on the object.