

Science

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(Chapter – 11) (Work And Energy)

(Class – IX)

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Question 1:

What is power?

Answer 1:

Power is the rate of doing work or the rate of transfer of energy. If W is the amount of work done in time t, then power is given by the expression,

$$\text{Power} = \text{Work/Time} = \text{Energy/Time}$$

$$P=W/T$$

It is expressed in watt (W).

Question 2:

Define 1 watt of power:

Answer 2:

A body is said to have power of 1 watt if it does work at the rate of 1 joule in 1 s,

i.e.,

$$1\text{W}=1\text{J/1s}$$

Question 3:

A lamp consumes 1000 J of electrical energy in 10 s. What is its power?

Answer 3:

Power is given by the expression,

$$\text{Power}=\text{Work done /Time}$$

$$\text{Work done} = \text{Energy consumed by the lamp} = 1000 \text{ J}$$

$$\text{Power}=1000 / 10 = 100 \text{ Js}^{-1}$$

$$= 100 \text{ W}$$

Question 4:

Define average power.

Answer 4:

A body can do different amount of work in different time intervals. Hence, it is better to find average power. Average power is obtained by dividing the total amount of work done in the total time taken to do this work.

$$\text{Average Power} = \text{Total work done} / \text{Total time taken}$$