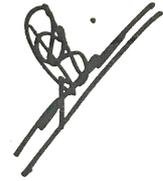


PHYSICS (GRADE-6)

CH-1.1 Introduction to Energy



Mrs. Ruksana & Mrs. Farhana

Define

- i) Energy: The ability to do work is energy. The unit of energy is Joule (J).
- ii) Kinetic energy (K.E.): Kinetic energy is the energy that an object possesses due to its motion.
- iii) Potential energy (P.E.): Potential energy is the energy that an object possesses due to its position and shape.

Q/A

1. Explain the two types of potential energy.

Ans.

There are two types of P.E.: gravitational P.E. and elastic P.E.

Gravitational P.E. is the potential energy an object possesses because of its position in a gravitational field. A vase on a shelf has gravitational P.E. If the vase is knocked off the shelf, its P.E. is released and the vase moves downwards.

Elastic P.E. is the P.E. an object possesses because of deformation (change of shape) of the object. A stretched elastic band has elastic P.E. When the energy is released, the elastic band can be made to fly through the air. Springs also store elastic P.E. when they are squashed or stretched.

2. How does energy transfer?

Ans.

Energy can be changed from one form to another.

For example:

- a) The wax in a candle contains chemical energy. When the candle burns, the chemical energy is transferred into thermal energy and light energy.

Chemical energy

 →

heat energy

 +

light energy

- b) A guitar transfers K.E. into sound energy. Plucking a string makes it vibrate and the K.E. is changed into sound energy.

K.E.

 →

sound energy

- c) Water stored behind a dam has gravitational potential energy. When water is released, it flows downwards and gains kinetic energy. This energy can then be transferred to electrical energy in a hydroelectric power station.

P.E.

 →

K.E.

 →

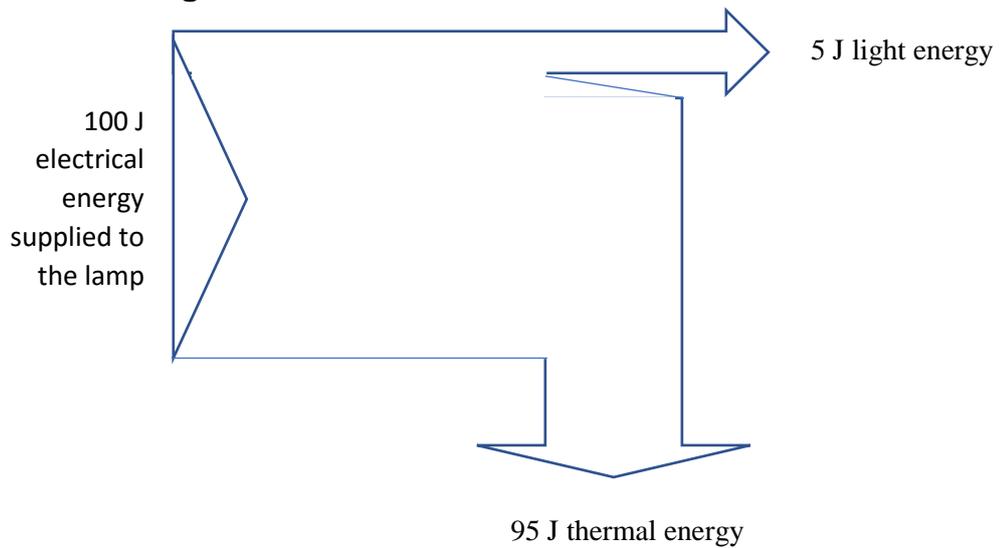
electrical energy

3. What is meant by conservation of energy?

Ans.

Energy cannot be created or destroyed. It can only be transferred from one form to another.

4. For every 100 J of electrical energy supplied to a light bulb, 5 J is transferred as useful light energy and 95 J is transferred as unwanted thermal energy. Draw the Sankey diagram for the light bulb.



5. For every 100 J of electrical energy supplied to a coal-fired power station, 30 J is transferred as electrical energy and the rest is transferred as unwanted thermal energy. Draw the Sankey diagram for the coal-fired power station.

