

ST. XAVIER'S SCHOOL, PURULIA

SUB : PHYSICS

CLASS-VII

DATE : 15.05.2020

IMPORTANT POINTS

1. Energy is the ability to do work by a body.
2. The energy of the sun is the original source of most of the energy found on earth.
3. Work is the product of force and the distance moved by a body under this force.
4. $\text{Work} = \text{Force} \times \text{Distance}$
5. The standard unit of energy is joule (J) .
6. The standard unit of work is also joule (J) .
7. Work is said to be done by a body if it moves through a distance on applying a force.
8. 1 joule is defined as the amount of work done when 1 newton of force is applied over the distance of 1 metre.
9. Energy is also measured in calorie (Cal).
10. The calorie is defined as the amount of heat required to raise the temperature of one gram of water from 14.5°C to 15.5°C .
11. $1 \text{ calorie} = 4.186 \text{ joule}$ or 4.2 joule
12. A force is a power that causes an object or a body to move.

13. The Standard Unit of force is newton (N) .

14. There are different forms of energy. They are mechanical energy , sound energy , chemical energy , electromagnetic energy , electrical energy , nuclear energy , solar energy etc. The main source of all the energy is the sun.

15. Mechanical energy is of two types: Potential Energy and Kinetic Energy

16. According to the law of conservation of energy, energy can neither be created nor destroyed but can be changed from one form to another form. e.g chemical energy (torchlight battery) ----> electrical energy ----> light and heat energy

17. Change of energy in the following things:

i. Generator - mechanical energy -----> electrical energy

ii. Motor - electrical energy -----> mechanical energy

iii. Battery or fuel cells - chemical energy -----> electrical energy

iv. Plants- light energy of sunlight -----> chemical energy

v. Solar cells- light energy -----> electrical energy

vi. Electric bulb - electrical energy -----> light energy + heat energy

vii. Photo cell- light energy -----> electrical energy

viii. Primary cell - chemical energy -----> electrical energy

ix. Loud speaker- electrical energy -----> sound energy

x. Microphone - sound energy -----> electrical energy

xi. Car - chemical energy of fuel-----> heat energy -----> mechanical energy

A• SHORT ANSWER TYPE QUESTIONS [pg.no 32](#) (Work to be done in the notebook)

1. Water stored in a reservoir high up in the dams possesses potential energy. When this water is allowed to flow, the potential energy changes into Kinetic energy.

2. Chemical energy is converted into sound , light and heat energy while bursting firecrackers .

3. In a solar cell , light energy is converted into electrical energy.

4. Law of conservation of energy states that energy can neither be created nor destroyed but can only change its form.

5. The different forms of energy are :-

(i) mechanical energy (ii) sound energy (iii) chemical energy (iv) electrical energy (v) electromagnetic energy (vi) nuclear energy (vii) solar energy

B. LONG ANSWER TYPE QUESTIONS [pg.no.33](#)(Work to be done in the Notebook)

1. KINETIC ENERGY

i. Energy possessed by a body by virtue of its motion.

- ii. kinetic energy can be transferred from one moving object to another.
- iii. Flowing water possesses Kinetic energy.

POTENTIAL ENERGY

- i. Energy possessed by a body by virtue of its position.
- ii. Potential energy cannot be transferred between objects.
- iii. Water stored in the reservoir of dam possesses potential energy.

2. The law of the conservation of energy states that energy can neither be created nor destroyed. It can only change from one form of energy to another. The swinging of a pendulum leads into the inter-conversion of potential energy and Kinetic energy. At the extremes of its arc the pendulum is at rest and here the energy is potential. At the lowest point of its arc the energy of the pendulum is Kinetic.

3. Mechanical energy is the sum of potential energy and Kinetic energy. Its different forms are potential energy and Kinetic energy. Potential energy is the energy possessed by a body by virtue of its position. Kinetic energy is the energy possessed by a body by virtue of its motion.

5. Hydroelectricity is the electricity made from the energy of running water.

A hydroelectric power plant uses a dam on a river to store water in a reservoir. Stored water possessing potential energy is allowed to flow from a height on the turbine. The Kinetic energy of the flowing water spins the turbine, which in turn activates a generator connected to it to produce electricity.

Homework

E. Define the following terms (work to be done in the notebook)

Pg.no.33

Exercise D, E (pg.no.33) and H (pg.no.34)- Work to be done in the book

PROJECT WORK (To be done in the Physics notebook)

Explain any 5 forms of energy by giving one example of each along with a picture drawn beside it.