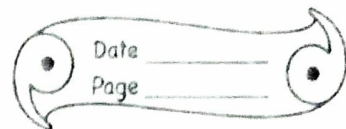


5/9/2021

Home Assignment



1) How is work related to energy?

Ans- "Energy is the capacity of doing work".

Every form of energy is work. That is work done on a body is stored in the form of Energy.

Energy is spent when a body does work. Thus to do more amount of work, more energy is needed.

2) What is potential energy? State its unit.

Ans- Potential Energy :- (P.E or U)

"The energy possessed by a body due to its state of rest or position."

The unit of P.E = Joule (J)

3) Give one example of a body that has potential energy, in each of the following:

a) due to its position at a height:

Ans- Water at a height has P.E. stored in it. Falling water from a height can be used to do

work like turning a wheel.

b) Due to its elongated stretched state.

Ans- P.E. due to stretched rubber band has potential energy. It does work in restoring itself to its original state. A pebble placed on the stretched rubber catapult, is thrown away when it is released to restore its original state.

4) State two factors on which the potential energy of a body at a certain height above the ground depends.

Ans- Potential energy = mgh

$$P.E = m \times h \times g$$

g is constant depends upon m and h

Two factors on which P.E. depends:

- i. Mass: Greater the mass, greater is P.E.
- ii. Height Above the Ground: Higher the height of body, greater is P.E.

5) A body of mass m is moved from ground to a height h . If force of gravity on mass of 1kg is g newton, find:

a. The force needed to lift the body,
Ans- When a body of mass m at A on ground is raised above ground through height h at B force is applied.

This force applied = weight of body
Force on mass $m = F = mg$
Where ' g ' is the force of gravity on a mass of 1kg .

b. The work done in lifting the body
Ans- Work done in lifting the body
= Force \times displacement h
 $\Rightarrow W = mg \times h$

c. The potential energy stored in the body.

Ans- This work done W is stored in body in the form of Potential energy P.E. mgh .

6) Name the type of energy (Kinetic or potential) possessed by the

following :

- a. A moving cricket ball: Due to motion possesses Kinetic Energy.
- b. A stone at rest on the top of a building: Possesses potential energy due to height above ground.
- c. A compressed spring: possesses potential energy due to changed position of spring.
- d. A moving bus: Possesses Kinetic energy.
- e. A bullet fired from a gun: Possesses Kinetic energy
- f. Water flowing in a river: Possesses Kinetic energy due to motion.
- g. A stretched rubber band: possesses potential energy due to changed position.

