

Work and Energy

1. What is work according to science and write its units. (AS1)
2. Give few examples where displacement of an object is in the direction opposite to the force acting on the object. (AS1)
3. Write few daily life examples in which you observe conservation of energy. (AS6)
4. Draw a diagram to show conservation of mechanical energy in case of a free falling body. (AS5)
5. Give some examples for renewable sources of energy (AS1)
6. A man carrying a bag of total mass 25kg climbs up to a height of 10m in 50 seconds. Calculate the power delivered by him on the bag. (AS1) (Ans : 49J)
7. A 10 kg ball is dropped from a height of 10m. Find (a) the initial potential energy of the ball , (b) the kinetic energy just before it reaches the ground, and (c) the speed just before it reaches the ground. (AS1) (Ans: 980J, 980J, 14m/s)
8. Calculate the work done by a person in lifting a load of 20 kg from the ground and placing it 1m high on a table. (AS1)
9. Find the mass of a body which has 5J of kinetic energy while moving at a speed of 2m/s. (AS1)
10. A cycle together with its rider weighs 100kg. How much work is needed to set it moving at 3 m/s. (AS1)
11. Which of the renewable sources of energy would you think suitable to produce in your native place. Why? (AS7)
12. What is potential energy? Derive an equation for gravitational potential energy of a body of mass 'm' at a height 'h'. (AS1)
13. What is kinetic energy? Derive an expression for the kinetic energy of a body of mass 'm' moving at a speed 'v'. (AS1)
14. When you lift a box from the floor and put it on an almirah the potential energy of the box increases but there is no change in its kinetic energy. Is it violation of conservation of energy? Explain. (AS7)
15. When an apple falls from a tree what happens to its gravitational potential energy just as it reaches the ground? After it strikes the ground? (AS7)

1. S.I. unit of work []

a) N-m b) Kg-m c) N/m d) N-m²

2. The energy possessed by a body by virtue of its motion is called as []

a) Potential energy b) Kinetic energy

c) Attractive energy d) Gravitational energy

3. Two objects with same masses have been dropped from same height at same time.

Which of the following will remain same in case of these objects []

a) Speed b) Gravitational force c) Potential energy d) Kinetic energy

4. A person is climbing a ladder with a suitcase on his head. Then the work done by that person on that suitcase is []

a) Positive b) Negative c) Zero d) Can not be defined

5. If you have lifted a suitcase and kept it on a table., then the work done by you will depend on []

a) The path of the motion of the suitcase b) The time taken by you to do the work

c) Weight of the suitcase d) Your weight.