WORK AND ENERGY

Question 1.

When a body falls freely towards the earth, then its total energy

(a) increases

(b) decreases

(c) remains constant

(d) first increases and then decreases

Question 2.

A car is accelerated on a levelled road and attains a velocity 4 times of its initial velocity. In this process the potential energy of the car

(a) does not change

(b) becomes twice to that of initial

(c) becomes 4 times that of initial

(d) becomes 16 times that of initial

Question 3.

In case of negative work the angle between the force and displacement is (NCERT Exemplar) (a) 0°

(b) 45°

(c) 90°

(d) 180°

Question 4.

An iron sphere of mass 10 kg has the same diameter as an aluminium sphere of mass is 3.5 kg. Both spheres are dropped simultaneously from a tower. When they are lo m above the ground, they have the same.

(a) acceleration

(b) momenta

(c) potential energy

(d) kinetic energy

Question 5.

A girl is carrying a school bag of 3 kg mass on her back and moves 200 m on a levelled road. The work done against the gravitational force will be $(g = 10 \text{ ms}^2)$

(a) 6×10^3 J

(b) 6 J

(c) 0.6 J

(d) zero

Question 6. Which one of the following is not the unit of energy? (a) joule (b) newton metre

(c) kilowatt (d) kilowatt hour Question 7. The work done on an object does not depend upon the (a) displacement (b) force applied (c) angle between force and displacement (d) initial velocity of the object Question 8. Water stored in a dam possesses (a) no energy (b) electrical energy (c) kinetic energy (d) potential energy Question 9. A body is falling from a height h. After it has fallen a height h2, it will possess (a) only potential energy (b) only kinetic energy (c) half potential and half kinetic energy (d) more kinetic and less potential energy Question 10. The number of joules contained in 1 kWh is (a) 36×10^5 [(b) 3.6 × 10⁷ J (c) 36×10^8 J (d) 3.7×10^7 J Question 11. Two army persons A and B each of weight of 500 N climb up a rope through a height of 10 m. A takes 20 s while B takes 40 s to achieve this task. What is ratio of the powers of person A and B? (a) 1 : 2 (b) 1 : 4 (c) 2 : 1

(d) 14 : 1

Question 12.

Which of the following graphs best represents graphical relation between momentum P and kinetic energy K for a body in motion?



Question 13.

If speed of a car becomes 2 times, its kinetic energy becomes

- (a) 4 times
- (b) 8 times
- (c) 16 times
- (d) 12 times

Question 14.

Work done by friction

- (a) increases kinetic energy of body
- (b) decreases kinetic energy of body
- (c) increases potential energy of body
- (d) decreases potential energy of body.

Question 15.

When a coil spring is compressed, the work is done on the spring. The elastic potential energy

- (a) increases
- (b) decreases
- (c) disappears
- (d) remains unchanged

Question 16. One joule work is said to be done when (a) a force of 1 N displaces a body by 1 cm (b) a force of 1 N displaces a body by 1 m (c) a force of 1 dyne displaces a body by 1 m (d) a force of 1 dyne displaces a body by 1 cm.

Question 17. SI unit of power is (a) watt (b) joule (c) newton (d) metre Question 18.

Mechanical energy of a body includes

(a) kinetic energy only

(b) potential energy only

(c) kinetic energy and potential energy

(d) none of these

Question 19. Commercial unit of energy is (a) joule (b) kWh (c) watt (d) newton

Question 20. Potential energy of a body depends on its (a) position

(b) configuration

(c) position and configuration

(d) mass and velocity

Answers key

1.(c)2.(a)3.(d)4.(a)5.(d)6.(c)7.(d)8.(d)9.(c)10.(a)11.(c)12.(d)13.(a)14.(b)15.(a)16.(b)17.(a)18.(c)19.(b)20.(c)