Chapter-4

Worksheet-2

Section 1

Q1. Is it possible that some force is acting on a body but still the work done is zero? Explain

Q2. A force of 7 N acts on an object. The displacement is, say 8 m, in the direction of the force. Let us take it that the force acts on the object through the displacement. What is the work done in this case?

Q3. A pair of bullocks exert a force of 140 N on a plough. The field being ploughed is 15 m long. How much work is done in ploughing the length of the field?

Q4. Define 1 watt of power.

Q5. Define energy.

Q6. When an arrow is shot from its bow, it has kinetic energy. From where does it get the kinetic energy?

Q7. State the relation between kW h and joule. Define 1 watt.

Q8. What is the work done by the force of gravity in the following cases ?
(a) Satellite moving around the earth in a circular orbit of radius 35000 km.
(b) A stone of mass 250 g is thrown up through a height of 2.5 m

Q9. An object of mass, m is moving with a constant velocity, v. How much work should be done on the object in order to bring the object to rest?

Q10. How are kinetic energy and momentum related?

Section 2

Q11. When a body falls freely towards the earth, then its total energy

    a) Decreases
    b) Increases
    c) First Increases then decreases
    d) Remains Constant
    Answer: d

Q12. When a body like earth is moving in a circular path the work done in that case is zero because:

    a) Centripetal force acts in the direction of motion of the body
    b) Centripetal force acts along the radius of circular path
    c) Gravitational force acts along the radius of circular path
    d) Centripetal force acts perpendicular to the radius of circular path
    Answer: b

Q13. A car is accelerated on a leveled road and attains a velocity 4 times of its initial velocity. In this process, the kinetic energy of the car

    a) Becomes twice to that of the initial
    b) Becomes four times to that of the initial
    c) Remains the same
    d) Becomes 16 times to that of the initial
    Answer: d

Q14. The momentum of a bullet of mass 20 g fired from a gun is 10 kg m/s. The kinetic energy of this bullet in kJ will be:

    a) 25

b) 2.5
c) 0.25
d) 5

Answer: b

Q15. Which one of the following is not the unit of energy?

a) KW
b) KW-h
c) Joule
d) Newton meter
Answer: a

Q16. The form of energy possessed by a flying bird is:

a) Kinetic Energy
b) Potential energy
c) Both Kinetic and Potential energy
d) Can't say
Answer: c

Q17. In dams' water is stored in the high reservoirs and then made to fall down. This falling water then rotates the turbines to generate electricity. In this energy conversion process can you tell the initial and final energies respectively?

a) Kinetic Energy and electrical energy
b) Potential energy and Kinetic Energy
c) Potential energy and electrical energy
d) Kinetic Energy and potential energy
Answer: c

Q18. A man of mass 50 kg jumps to a height of 1 m. His potential energy at the highest point is($g = 10$ m/s^2):

a) 50 J
b) 500 J
c) 5 J
d) 5000 J
    Answer: b

Q19. A body is falling from a height h. After it has fallen to a height of $h/2$, it will possess:

a) Only Kinetic Energy
b) Half Kinetic and Half Potential Energy
c) Only Potential Energy
d) More Kinetic and less Potential Energy
    Answer: b

Q20. An iron sphere of mass 10 kg has the same diameter as an Aluminium sphere of mass 3.5 kg. Both spheres are dropped simultaneously from a tower. When they are 10 m above the ground, they have the same:

a) Potential energy
b) Momentum
c) Acceleration
d) Kinetic Energy
    Answer: c