INDIAN SCHOOL MUSCAT
DEPARTMENT OF PHYSICS
CLASS IX
WORK SHEET: 4 WORK AND ENERGY

CONCEPTUAL QUESTIONS

1.	Can any object have mechanical energy even if its momentum is zero? Explain.
2.	Name the transformation of energy involved in these cases. a. Electric heater b. Microphone c. Electric Cell d. Headphone e. Photoelectric Cell
3.	Is it possible that a body is in accelerated motion under a force and no work is being done by the force?
4.	Give one example where a] work done on an object is negative and b] work done on an object is zero
5.	Which will have more impact on kinetic energy – doubling mass or velocity?
6.	What is the work done by the centripetal force on an object moving along a circular path?
7.	Write the expression for the work done by a force when the applied force and the direction of displacement are (i) in the same direction (ii) in opposite directions.
8.	What is the commercial unit of electricity consumed? How it is related to S.I. unit of energy?
9.	What will happen to the kinetic energy of an object if its velocity is doubled?
10.	State law of conservation of energy. The Potential energy of a freely falling object decreases progressively. Does this violate the law of conservation of energy?

NUMREICALS

1.	Calculate the work done in pushing a cart through a distance of 50 m against the force of friction equal to 250 N.
2.	Calculate the power of an electric motor that can lift 800 kg of water to store in a tank at a height of 1500 cm in 20 s.
3.	A 3000 kg truck moving at a speed of 90 m/s stops after covering some distance. The force applied by brakes is 27000 N. Compute the distance covered and work done by this force.
4.	What is the work done to increase the velocity of car from 36 km/h to 72km/h, if the mass = 1500Kg.
5.	An object of mass 40 kg is raised to a height 5 m above the ground. What is its P.E.? If object is allowed to fall, find its K.E. just before touching the ground
6.	A man of mass 60 kg runs up a flight of 30 steps in 15 seconds. If each step is 20 cm high, calculate his power.
7.	An electric bulb of 100 W works for 4 hrs a day. Calculate the units of energy consumed in 15 days.
8.	A car weighing 1200 kg is uniformly accelerated from rest and covers a distance of 40 m is 5 seconds. Calculate the work done by the engine of car during this time.
9.	A pump is used to raise water to a height of 20 m .It transfers 2000kg of water in 15 minutes. Calculate the power o the pump.
10.	An object of mass 12 Kg is at a certain height above the ground. If the gravitational P.E. is 480 J, find the height at which the object is with respect to the ground.