TEST PAPER: PHYSICS

Time: 45 Minutes   **Class:** C.B.S.E. 9

Max. Marks: 30 Marks   **Date:** 3rd October 2018

Marking Scheme: *All questions carry 10 marks each. Subparts (A) and (B) carry 3 marks each and subpart (C) carries 4 marks.*

Question 1:

A. Fill in the blanks:
  i) Work is said to be done by a force only when _____
  ii) Kinetic energy = _____ (write the formula)
  iii) The SI unit of energy is _____

B. Answer the following:
  i) What is power? State its SI unit
  ii) What are the two kinds of mechanical energy? Define them
  iii) What is commercial unit of energy?

C. Answer the following:
  i) What is law of conservation of energy? Discuss energy is conserved when an object of mass m is made to fall freely from height h.
  ii) A bullet of mass 40g has its kinetic energy equal to 200 J. Find the speed of the bullet?

Question 2.

A. State true or false. If false write correct statement:
  i) The energy stored in water of a dam is the kinetic energy
  ii) A boy when doubles his speed, his kinetic energy becomes four times
  iii) No work is done if a man is pushing against a wall

B. Solve:
  i) Find the energy possessed by an object of mass 10kg when it is at a height of 6m above the ground. Give $g = 9.8$ m/s^2
  ii) A car is moving with a speed of 15 km/h and another identical car is moving with a speed of 30 km/h. Find out ratio of their kinetic energy.

C. Answer the following:
  i) Derive the expression for potential energy.
  ii) A force of 30 N acts on a body and moves it through a distance 5m in the direction of force. Calculate the work done by the force.

Question 3.

A. Answer the following:
  i) Give two conditions need to be satisfied for work to be done.
  ii) When is work done taken as negative?
  iii) Define 1 J of work

B. Answer the following:
  i) A battery lights a bulb. Describe the energy changes involved in the process
  ii) What are various energy transformations that occur when you are riding a bicycle?

C. Solve:
  i) A body of mass 5 kg is taken from a height of 3m to 6 m. Find the increase in the potential energy of the body. Take $g = 10$ m/s^2.
  ii) Find the increase in kinetic energy of a body of mass 500 g. When its speed increases from 2 m/s to 4 m/s.