ICSE Sample Papers for Class 10 on WORK

FOCUSED TOPIC-WORK

Maximum marks-30 Time :-50 mins

GENERAL INSTRUCTIONS:

- All the questions are done from the topic "Work"
- All the questions are compulsory .
- No overall choices are given.
- Use of calculator is not allowed

Questions on Work

Section-A (20 Marks)

Question-1

(a) Define work and write its S.I unit. **[2 Mark]**

(b) Define energy and establish relationship between S.I unit & commercial unit of energy. **[2 Mark]**

(c) Two bodies A and B of masses 1 kg and 4 kg respectively have equal momenta.find ratio of their K.E. **[2 Mark]**

(d) Which form of mechanical energy can only be put to do work? **[1 Mark]**

(e) What is principle of conversation of energy?What are the energy changes talking place in following cases- **[3 Mark]**

i) Electric motor (iii) Electomagnet

(ii) Nuclear power plant (iv) Photograpic film.

Question-2

(a) The work done by the heart for each beat is 1 joule.calculate the power of heart if it beats 72 times in a minute. **[3 Mark]**

(b) The engine of train has yo apply a force of 5000 N to overcome friction to run at a uniform rate of 90 km/hr. What is the power developed by the engine? **[3 Mark]**

(c) Differentiate between renewable and non-renewable form of energy resource **[2 Mark]**

(d) What is the ultimate source of energy on the earth?Name the other forms of energy obtained from it. **[2 Mark]**

Section-B (60 marks)

Question-3

(a) Find the work done in carrying a load of 5 kg **[2 Mark]**
(b) In the horizontal plane in a frictionless media through a distance of 5 m. **[2 Mark]**
(c) Vertically through 1000 cm. (g= 10 N/kg). **[2 Mark]**
(d) Give an example of a body placed on the earth surface containing potential energy and state the kind of P.E. possessed by it. **[2 Mark]**
(e) State the conditions in which force applied on a body does no work. **[2 Mark]**

Question-4

(a) Water is falling on the blades of a turbine at rate of 6 x (10 to the power 3) kg/minute.The height of the fall is 10 m.Calculate the power given to the turbine (g = 10 to the power -2 ms). **[2 Mark]**
(b) Write two advantage and two disadvantage of wind energy. **[2 Mark]**
(c) What are the two different types of nuclear reactions ? Write two differences between them.**[3 Mark]**
(d) State the law of conservation of energy. **[3 Mark]**

Question-5

(a) A 280 gram toy does 12 push-ups in a minute, displacing its centre of mass by a distance of 5.5 cm for each push-up. Determine the total work done by the toy while moving downward. **[2 Mark]**
(b) How much work is done by a force of 100 N which moves an object through a distance of 5 m in the direction of force applied. **[4 Mark]**
(c) How much work is done by the object to moves an another object at a distance of 5 m in the opposite direction of force applied. **[4 Mark]**

Question-6

(a) State work energy theorem with suitable examples. **[4 Mark]**
(b) A 40 newton object is released from a height of 10 m. Just before it hits the ground. By which amount its kinetics energy decreased in joules. **[2 Mark]**
(c) Work done is a measure of ? **[4 Mark]**

Question-7

(a) A force of 10 N displaces a body through a distance of 10 m at an angle of 50° from its own direction. Calculate the amount of work done by the object. **[2 Mark]**
(b) The kinetic energy of a body is 250J. Find work done to move a body of mass 20kg up-to a height of 5 m. **[4 Mark]**
(c) A 78-kg skydiver has a speed of 62 m/s at an altitude of 870 m above the ground.

i. Determine the kinetic energy possessed by the skydiver.
ii. Determine the potential energy possessed by the skydiver.
iii. Determine the total mechanical energy possessed by the skydiver. **[4 Mark]**

Question-8

(a) Calculate the work done in lifting 100 kg of water through a vertical height of 5 m. **[2 Mark]**
(b) How much work is done by a force of 10 N in moving an object through a distance of 4 m in the direction of the force**.** **[4 Mark]**
(c) What kind of energy transformation takes place when a body is dropped from a certain height? **[4 Mark]**

Question-9

(a) What is the work done by a light object to move a three times heavy object having the same momentum. also find out the ratio of their potential energies? **[2 Mark]**
(b) A jumper has a mass of 52 kg. She is moving with a speed of 2 m/s at a height of 54.6 meters above the ground. Determine the total mechanical energy of the jumper and work done to throw a shot put of weight 2.5 kg upto the height 20 m **[4 Mark]**
(c) Calculate the work done in lifting 200 kg of water through a vertical height of 6 m? **[4 Mark]**