PHYSICS

CH: 11 WORK AND ENERGY

Name: _____ Date:_____ Class: IX Sec: ___

FILL IN THE BLANKS

1. The water stored in the reservoir of the tank possessed …….. Energy
2. Work done by the force can be ……. , ……. ,and …….
3. When the body falls freely towards earth ,potential energy of the body ……while kinetic energy of the body …… . The total remains …….. at all the point during the motion.
4. Power is the rate of doing …… And its unit is……

SHORT ANSWER TYPE

1 .Can any object has mechanical energy even if its momentum is zero? Explain

2. What is power? How do you differentiate kilowatt from kilowatt hour?

3. What kind of energy transformation takes place when a body is dropped from a certain height?

4. Write the form of energy (KE/PE) possessed by the body in the following situations:

a) A coconut falling from tree

b) An object raised to a certain height

c) Blowing wind

d) A child driving a bicycle on the road

5. Explain the work done by the constant force, when the direction of force and displacement may be

i) Same ii) Opposite iii) Perpendicular to each other iv) There may not be displacement at all.

6. Write the factors on which kinetic energy of the body depends

7. Which would have a greater effect on kinetic energy of an object, doubling the mass or doubling the velocity?

8. A girl writes 10 pages of a notebook in order to practice maths problems, yet she has not done work

in terms of science concept. Give reason.

NUMERICALS

1. The potential energy of a body is 39600J. How high is the body if its mass is 20kg?
2. 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?
3. A rocket is moving up with a velocity v. If the velocity of this rocket is suddenly tripled, what will be the ratio of two kinetic energies?
4. Calculate the work done in lifting 200 kg of water through a vertical height of 6 m.
5. A athlete weighing 60kg runs up a staircase having 10 steps each of 1m in 30 sec. Calculate power (g = 9.8ms-1
6. Calculate the time taken 60 w bulb to consume 3000 J of energy.
7. A bullet of mass 15 g has a speed of 400 m/s. What is its kinetic energy? The bullet strikes a thick target and is brought to rest in 2 cm, calculate the average net force acting on the bullet. What happens to kinetic energy originally in the bullet?
8. Two bodies A and B of equal masses are kept at height of h and 2h respectively. What will be the ratio of their potential energy?
9. A body of mass 2 kg is thrown vertically upward with an initial velocity of 20 m/s. What will be the potential energy at the end of 2s?
10. Two children A and B having the same weight climbing up a rope separately up to a height of 8m. If A takes 15 seconds while B takes 20 seconds to accomplish the task. Who has more power and why?
11. A crane is lifting the body to a height h in time t. Find the relation between power of the crane to the speed at which it is lifting the object.
12. If an iron box of 1600 W is used for 45 minutes every day. Find the electric energy consumed in the month of March.
13. The height of a person on a planet A is about half that on the earth. He can jump up to 0.4 m height on the surface of the earth. How high he can jump on the planet A.
14. The power of a motor pump is 2 KW. How much water per minute the pump can raise to a height of 10m?
15. Two women karuna and krishna each of mass 50 kg and 60 kg respectively climb up through a height of 10m. Karuna takes 20s while krishna takes 40 s to reach .Calculate the difference in the power expended by karuna and krishna. (take g=10 m/s^2)