CLASS—IX
WORKSHEET 1
Physics
WORK, ENERGY AND POWER

1. Under what conditions work is said to be done?
2. Derive the formula for work done by a constant force
3. Give few examples where energy is possessed by a body due to its change in shape.
4. State and prove the law of conservation of energy.
5. Is it possible that force is acting on a body but still work done is zero? Explain.
6. A rocket of mass $3x10^6$kg takes off from a launching pad and acquires a vertical velocity of 1km/s at an altitude of 25 km. calculate (a) the potential energy and (b) the kinetic energy. (g = 9.8m/s2)
7. If a man lifts a load up with the help of a rope such that it raises the load of mass 50kg to a height of 20m in 100 sec. Find the power of man
8. A ball is dropped from a height of 5m. Find the velocity of the ball just before it reaches the ground. Do you require the value of mass to find the velocity?
9. Two persons A and B do same amount of work. The person A does that work in $t_1$sec and the person b in $t_2$sec. Find the ratio of power delivered by them.
10. Why do our hands become warm when rubbed against each other? Explain.
11. The kinetic energy of a body of mass 15 kg is 30J. What is its momentum?
12. Give an example for each of the following energy conversion: (1) electrical energy to kinetic energy. (2) Chemical energy to electrical energy (3) sound energy to electrical energy
13. Two bodies have same momentum. Which will have greater kinetic energy heavier body or lighter body?
14. An electric bulb of 60w is used for 6h per day .Calculate the units of energy consumed in one day by the bulb.
15. A boy of mass 50kg runs up to a stair case of 45 steps in 9s. If the height of a step is15cm, find his power. (g= $10m/s^2$)
16. Two particles of masses 1g and 2g have equal momentum. Find the ratio between their kinetic energies?
17. What will be the work done by the string, when a stone is tied to a string and whirled in a circle?
18. A locomotive exerts a force of 7500N and pulls a train through 1.5 km. How much work is done by locomotive?
19. What work a boy of mass 50kg will do in order to increase running speed from 9km/h to 18km/h.
20. The speed of a moving body is halved. What is the change in its K.E.?
21. State the energy changes taking place in the following cases: (1) A car moves up a hilly road.(2) a stone projected vertically upward returns
22. When we cut a log of wood with a saw it becomes warm, why?
23. If an electric iron of 1200W is used for 30 minutes everyday, find electric energy consumed in the month of April.