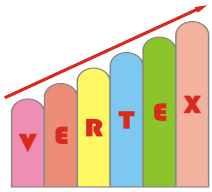

Work Energy Numerical

1. If power is 50 Watt and force is 25 N then find the velocity and kinetic energy if the mass is 200 kg.2
2. Calculate the kWh of the month of February of 2020 if two fans of 100 W for 10 hours, three lights of 60W for 10 hours, one refrigerator of 250W for 8 hours. also find the cost if per unit cost is 3rs. 4
3. A bullet of mass 20 gm is found to pass two points 30 m apart in 4 sec. find kinetic energy. 2
4. A truck weighing 5000N and a cart weighing 500 N are moving with the same speed. compare their kinetic energies. 2
5. A bullet of mass 5 gm travels with a speed of 500 m/s. if it penetrates a fixed target which offers a constant resistive force of 1000N to the motion of the bullet, find a) initial kinetic energy b) the distance through which the bullet has penetrated. 3
6. A spring is compressed by a toy cart of mass 150 gm. On releasing the cart, it moves with a speed of 0.2 m/s. calculate the elastic potential energy. 2
7. A ball of mass 1 kg is dropped from a height of 5 m. find the kinetic energy of the ball just before it reaches the ground. What is the speed at that instant? 2
8. A boy of mass 40 kg runs up a flight of 50 steps, each of which 10 cm high, in 5 second. Find the power developed by the boy. 3
9. Calculate the units of energy consumed by 100 W electric bulb in 5 hours. 2
10. What should be the power of an engine required to lift 90000kg of coal per hour from a mine whose depth is 200m? 2
11. A ball of mass 2kg is thrown up with a speed of 10 m/s. find the kinetic energy of the ball at the time of throwing. Also find the potential energy of the ball at the highest point? 3
12. A moving body of 30 kg has 60 J of kinetic energy. Calculate the speed. 2
13. A hammer of mass 1 kg falls freely from a height of 2m. calculate a) the velocity b) the kinetic energy of hammer just before it touches the ground. Does the velocity of hammer depend on the mass of hammer? 3
14. Calculate the change that should be affected in the velocity of a body to maintain the same kinetic energy. If mass of the is increased to 4 times. 2
15. The heart does 1.5 joule work in each heartbeat. How many times per minute does it beat if its power is 2 Watt? 2
16. A horse exerts a force of 200 N to pull the cart. If the horse cart system moves with velocity 36 km/h on the level road, the find the power of horse in term of horse power. 2

17. Am electric little of 500 W is used to heat water everyday for 2 hours. Calculate the number of unit of electrical energy consumed it in 10 days. 2

18. A water tank of size 1m* 2m*2m is lifted to a height of 4m. if the time taken is 30 minutes then find the power. 3

19. The power of a heart which beats 72 times in a minute is 1.2kw. calculate the work done by heart for each beat. 2

20. When loading a truck a man lifts boxes of 100N each through a height of 1.5 m.

    a) How much work does he do in lifting one box?

    b) How much energy is transferred when one box is lifted?

    c) If the man lifts 4 boxes per minutes, at which power is he working? 3

21. A cyclist comes to a skidding stop at 50 m. during this process, the force on the cycle due to the road is 1000N and is directed opposite to the motion. How much work does the road do on the cycle?

22. If the object is placed at the height of 8 m then it contains 120J of energy. calculate its potential energy if the object is at 14m. g=10m/s^2.

23. Ram and Shyam climb a tree of height 80m. the mass of Ram is 56 kg and Shyam is 74 kg. Ram climbs tree in 35 seconds while Shyam climbs it in 56 seconds. Calculate power of each.

24. A horse of mass 210 kg and a dog of mass 25kg are running at the same speed. Which of the two possesses more kinetic energy? How?

25. 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 energy?