PHYSICS

BOOKS - R G PUBLICATION

WORK ENERGY AND POWER

Exercise

1. What is perfectly inelastic collision?

Watch Video Solution

2. A light and a heavy body have the same momentum. Which one has larger kinetic energy?

Watch Video Solution

3. What is conservation force?

Watch Video Solution

4. The momentum of a body is given by $\vec{P} = \left(10t^2\hat{i} + 5t\hat{j}\right)kg - m/s$. Find the force acting on the body at t = 2s.

Watch Video Solution

5. Show that power= force X velocity

Watch Video Solution

6. State and prove work-energy theorem.

Watch Video Solution

7. Distinguish between elastic and inelastic collisions.

Watch Video Solution

8. The total work done on a particle is equal to the change in its kinetic energy

Watch Video Solution

9. Show that the total linear momentum of a system of particles is equal to the product of the total mass of the system and the velocity of its centre of mass.

Watch Video Solution

10. Find the potential energy of a system of four particles each of mass m place at the vertices of a square fo side l. Also obtain the potential at the centre of the square.

Watch Video Solution

11. Show that the amount of kinetic energy always decreases in perfectly inelastic collision in one dimension.

Watch Video Solution

12. Verify the law of conservation mechanical-energy for a freely falling body.

Watch Video Solution

13. Distinguish between elastic and inelastic collisions.

Watch Video Solution

14. Show that work done on a body or by the body is equal to the net change in its kinetic energy.

Watch Video Solution

15. Distinguish between elastic and inelastic collisions.

Watch Video Solution

16. Is it practically possible have $(E - V) < 0$

Watch Video Solution

17. What should be the angle between the force and displacement for minimum and

maximum work.

Watch Video Solution

18. When an air bubble rise in water, what happens to its potential energy?

Watch Video Solution

19. In which motion, momentum changes but K.E does not.

Watch Video Solution

20. Name the largest and smallest unit of energy.

Watch Video Solution

21. Is it possible to have a collision in which the whole of K.E is lost.

Watch Video Solution

22. The momentum of a body is doubled. Its K.E will

Watch Video Solution

23. What type of energy is stored in a spring of watch?

Watch Video Solution

24. Can a body posses momentum without KE?

Watch Video Solution

25. Two masses one n times heavier than the other are dropped from same height. How do their momentum compare just before they hit the ground.

Watch Video Solution

26. State and prove work-energy theorem.

Watch Video Solution

27. What is collision? Discuss types of collision.

Watch Video Solution

28. Obtain an expression for gravitational potential energy of a body.

Watch Video Solution

29. Find the work done in moving a particle along a vector $\overline{S} = \left(4\hat{i} - \hat{j} + 7\hat{k}\right)$ m if applied ofrce $\left(\overline{F} = \left(\hat{i} + 2\hat{j} - \hat{k}\right)\right.$ N.

Watch Video Solution

30. A particle is moving along x-axis from x = 0 to x = 5 under the influence of force $F = 7 - 2x + 3x^2$.

Watch Video Solution

31. What is co-efficient of restitution. Proved that for elastic colision e = 1.

Watch Video Solution

32. A pump lifts 20 kg of water in one minute to a vertical height of 30m.Find the power of the pump.

Watch Video Solution

33. Prove that the momentum is conserved in collision

Watch Video Solution

34. A ball moving with a speed of 9m.s strikes an identical ball at rest, such that direction fo eahc ball makes an angle 30° with the original line. Find the speed of two ball after collision.

Watch Video Solution

35. The distance x of a particle moving in one dimension, under the action of constant force is related to time t by equation. t = $\sqrt{x}+3$ where x in metre and t in second. Find the displacement of the particle when its velicity is zero.

Watch Video Solution

36. If the momentum of a partical increased by 50%,what is corresponding increases kinetic

engery?

Watch Video Solution

37. Show that power= force X velocity

Watch Video Solution

38. Verify the law of conservation mechanical-energy for a freely falling body.

Watch Video Solution

39. What percentage of K.E. of moving particle is transferred to a stationary particle when it strike the stationary particle of 4 times its mass.

Watch Video Solution

40. Calculate the potential energy in a spring.

Watch Video Solution

41. What is the form of momentum in two dimensional collision?

Watch Video Solution

42. Show that angular momentum is conserved.

Watch Video Solution

43. Obtain graphically and mathematically work done by a variable force.

 Watch Video Solution