DR. VIRENDRA SWARUP PUBLIC SCHOOL, KALYANPUR

SESSION: 2023 – 24
CLASS – IX
SUBJECT – PHYSICS
HOLIDAY HOMEWORK

1. Define the term displacement. Is it a vector quantity or a scalar quantity?
2. What is circular motion? Is circular motion an acceleration motion?
3. Derive mathematically the first equation of motion V=u + at?
4. A boy runs for 20 min. at a uniform speed of 18km/h. At what speed should he run for the next 40 min. so that the average speed comes 24km/hr.
5. A train accelerated from 10km/hr to 40km/hr in 2 minutes. How much distance does it cover in this period? Assume that the tracks are straight?
6. A train starts from rest and accelerate uniformly at the rate of 5 m/s^2 for 5 sec. Calculate the velocity of train in 5 sec.
7. A bullet leaves a rifle with a muzzle velocity of 1042 m/s. While accelerating through the barrel of the rifle, the bullet moves a distance of 1.680 m. Determine the acceleration of the bullet (assume a uniform acceleration)
8. A bike riding at 22.4 m/s skids to come to a halt in 2.55 s. Conclude the skidding distance of the bike.
9. A race scooter is seen accelerating uniformly from 18.5 m/s to 46.1 m/s in 2.47 seconds. Determine the acceleration of the scooter and the distance travelled.
10. A car is travelling with a speed of 36 km/h. The driver applied the brakes and retards the car uniformly. The car is stopped in 5 sec. Find (i) The acceleration of car and (ii) Distance before it stops after Appling breaks?
11. Can displacement be zero? If yes, give two examples of such situations.
12. What is one Hz?
13. What is the time period of sound wave?
14. What is the minimum distance required to hear distinct echo?
15. Why does sound become faint with distance?
16. Give two applications of echo.
17. Distinguish between tone, note, and noise.
18. Define work.
19. What is the unit of work done?
20. Name 2 types of potential energy.
21. Name the energy stored when a rubber band is stretched?
22. What is gravitational potential energy?
23. Differentiate between potential energy and kinetic energy.
24. How is work and energy related to each other?
25. What is potential energy? Explain different types of potential energy.
26. Explain the following:
    (a) An object increases its energy when raised through a height.
    (b) Energy is neither created nor destroyed then from where dowe get energy.
    (c) When we push the wall, the wall does not move and no work is done.
27. State and explain one example where (i) Kinetic energy is present in a body and is used; and (ii) Potential energy is present in a body is used.
28. What do you mean by law of conservation of momentum?
29. Why do roads on mountains have inward inclination at sharp turns?
30. Why is it dangerous to jump out of a moving bus?
31. How do safety belts of cars help in preventing accidents?
32. Explain how momentum gets conserved in collision of two bodies?
33. How are Newton's three laws of motion related?
34. Explain inertia and momentum in detail.
35. Define force and its various types. What is its unit?
36. Give three examples exhibiting inertia in our daily life
37. What change will a force bring in a body?