CBSE TEST PAPER-03

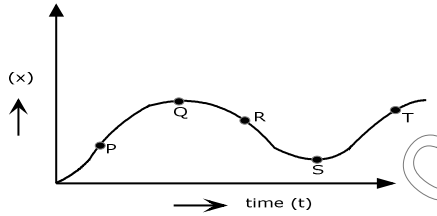
CLASS - XI PHYSICS (Kinematics)

Topic: - Motion in Straight Line

1. Under what condition the displacement and the distance of a moving object will have the same magnitude? [1]

2. What is the shape of the displacement time graph for uniform linear motion? [1]

3. Figure shows a displacements time graph. Comment on the sign of velocities at point P, Q, R, S and T. [1]



4. Draw displacement time graph for a uniformly accelerated motion? What is its shape? [2]

5. The displacement x of a particle moving in one dimension under the action of constant force is related to the time by the equation where x is in meters and t is in seconds. Find the velocity of the particle at (1) t = 3s (2) t = 6s. [2]

6. A balloon is ascending at the rate of 4.9m/s. A pocket is dropped from the balloon when situated at a height of 245m. How long does it take the packet to reach the ground? What is its final velocity? [2]

7. A car moving on a straight highway with speed of 126km/hr. is brought to stop within a distance of 200m. What is the retardation of the car (assumed uniform) and how long does it take for the car to stop? [2]

8. Establish $s = ut + \frac{1}{2}at^2$ from velocity time graph for a uniform accelerated motion? [3]

9. (a) Define the term relative velocity? [3]

   (b) Write the expression for relative velocity of one moving with respect to another body when objects are moving in same direction and are moving in opposite directions?

   (c) A Jet airplane traveling at the speed of 500km/hr ejects its products of combustion at the speed of 1500km/h relative to the Jet plane. What is the speed of the latter with respect to an observer on the ground?

10. Define (i) $v = u + at$ (ii) $V^2 - u^2 = 2as$ by calculus method [3]