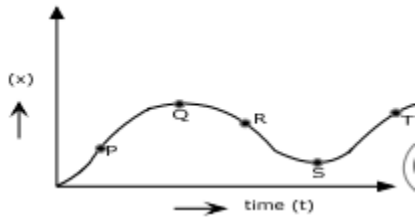
Test Chapter 3

Motion in Straight Line

Marks: 20 Duration: 1 Hour

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. Establish s = ut + 0.5*a*t*t from velocity time graph for a uniform accelerated motion? [2]
8. (a) Define the term relative velocity? (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? [3]
9. 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? [3]

10. Derine (i) v = u + at (ii) v*v-u*u= 2as by calculus method [3]

ALL THE BEST

Pritesh Modi