

# SATISH CHANDRA MEMORIAL SCHOOL

## MOTION

Class: 9

### Questions

1. When is a body said to be at rest?
2. When is a body said to be in motion?
3. What do you mean by motion in one direction?
4. Define displacement. State its units.
5. Differentiate between distance and displacement.
6. Can displacement be 0 even if distance is not 0? Give one example to explain your answer.
7. When is the magnitude of displacement equal to the distance?
8. Define velocity. State its units.
9. Define speed. What is its SI unit?
10. Distinguish between speed and velocity.
11. Which of the quantity speed or velocity, give the direction of motion of body?

### Numerical

1. The speed of a car is 72km/hr. Express it in m/s.
2. Express 15 m/s in km/hr.
3. Arrange the following speeds in increasing order: 10m/s, 1km/min, 18km/hr.
4. A train takes 3hrs to travel from Agra to Delhi with a uniform speed of 65 km/hr. Find the distance between the two cities.

5. A car travels first 30 km with a uniform speed of 60 km/hr and the next 30 km with a uniform speed of 40 km/hr. Calculate: (i) the total time of journey, (ii) the average speed of the car.
6. A train takes 2 hrs to reach station B from station A, and then 3hrs to return from station B to station A. The distance between the two stations is 200 km. Find: (i) average speed, (ii) average velocity of the train.
7. A car moving on a straight path covers a distance of 1 km due east in 100s. What is the speed of the car? What is its velocity?
8. A body starts from rest and acquires a velocity 10 m/s in 2s. Find the acceleration.
9. A car starting from rest acquires a velocity 180 m/s in 0.05 hr. Find the acceleration.
10. A toy car initially moving with a uniform velocity of 18 km/hr comes to a stop in 2s. Find the retardation of the car in SI units.
11. A car accelerates at a rate of 5 m/s. Find the increase in its velocity in 2s.