Assignment 8 class 9 (Motion)

1. A man travels a distance of 1.5 m towards East, then 2.0 m towards South and finally 4.5 m towards East.
i. What is the total distance travelled?
ii. What is his resultant displacement?

2. A scooterist covers a distance of 3 kilometers in 5 minutes. Calculate his speed in :
a) centimetres per second (cm/s)
b) metres per second (m/s)
c) kilometers per hour (km/h)

3. The train 'A' travelled a distance of 120 km in 3 hours whereas another train travelled a distance of 180 km in 4 hours. Which train travelled faster?

4. A car travels 30 km at uniform speed of 40 km/h and the next 30 km at a uniform speed of 20 km/h. Find its average speed.

5. On a 120 km track, a train travels the first 30 km at a uniform speed of 30 km/h. How fast must the train travel the next 90 km so as to average 60 km/h for the entire trip?

6. A train travels at a speed of 60 km/h for 0.52 h, at 30 km/h for the next 0.24 h and then 70 km/h for the next 0.71 h. What is the average speed of the train?

7. A car travels a distance of 200 km from Delhi to Ambala towards North in 5 hours. Calculate
i. speed, and
ii. velocity, of the car for this journey.

8. A bus covers a distance of 250 km from Delhi to Jaipur towards West in 5 hours in the morning and returns to Delhi in the evening covering the same distance of 250 km in the same time of 5 hours. Find
a. average speed, and
b. average velocity, of the bus for the whole journey.

9. A driver decreases the speed of a car from 25 m/s to 10 m/s in 5 seconds. Find the acceleration of the car.

10. Change the speed of 6 m/s into km/h.

11. Bus X travels a distance of 360 km in 5 hours whereas bus Y travels a distance of 476 km in 7 hours. Which bus travels faster?

12. A train starting from Railway Station attains a speed of 21 m/s in one minute. Find its acceleration.

13. A snail covers a distance of 100 metres in 50 hours. Calculate the average speed of snail in km/h.

14. A tortoise moves distance of 100 metres in 15 minutes. What is the average speed of tortoise in km/h?

15. If a sprinter runs a distance of 100 metres in 9.83 seconds, calculate his average speed in km/h.

16. A motorcyclist drives froplace A to B with a uniform speed of 30 km h-1 and returns from place B to A with a uniform speeof 20 km h-1. Find his average speed.

17. A motorcyclist starts from rest and reaches a speed of 6 m/s after travelling with

uniform acceleration for 3 s. What is his acceleration?

18. An aircraft travelling at 600 km/h accelerates steadily at 10 km/h per second. Taking the speed of sound as 1100 km/h at the aircraft's altitude, how long will it take to reach the 'sound barrier'?

19. If a bus travelling at 20 m/s is subjected to a steady deceleration of 5 m/s2 , how long will it take to come to rest?

20. An ant travels a distance of 8 cm from P to Q and then moves a distance of 6 cm at right angles to PQ. Find its resultant displacement.

21. Convert a speed of 54 km/h into m/s.

22. The distance between Delhi and Agra is 200 km. A train travels the first 100 km at a speed of 50 km/h. How fast must the train travel the next 100 km, so as to average 70 km/h for the whole journey?

23. A train travels the first 15 km at a uniform speed of 30 km/h; the next 75 km at a uniform speed of 50 km/h; and the last 10 km at a uniform speed of 20 km/h. Calculate the average speed for the entire train journey.

24. A car is moving along a straight road at a steady speed. It travels 150 m in 5 seconds :
(a) What is its average speed?
(b) How far does it travel in 1 seconds?
(c) How far does it travel in 6 seconds?
(d) How long does it take to travel 240 m?

25. A particle is moving in a circular path of radius r. The displacement after half a circle would be :
(a) 0 (b) πr (c) 2r (d) 2πr

26. The speed of a moving object is determined to be 0.06 m/s. This speed is equal to :
(a) 2.16 km/h (b) 1.08 km/h (c) 0.216 km/h (d) 0.0216 km/h

27. A body is moving along a circular path of radius R. What will be the distance travelled and displacement of the body.