INDIAN SCHOOL DARSAIT
DEPARTMENT OF PHYSICS

Subject : Physics	Chapter :Motion in a Straight Line	Worksheet No. 2
Resource Person:Mrs. Jayalakshmi Ratish		Date : 08.05.19
Name of the Student :_____	Class & Division :XI A/B	Roll Number : __

1   A particle starts from the origin, goes along the x-axis to the point (20m, 0) and then returns along the same line to the point (–20m, 0). Find the distance and displacement of the particle during the trip.   1

2   When two bodies move towards each other, the distance between them decreases by 6 m/s. If both the bodies move in the same direction with their same speeds, the distance between them increases by 4 m/s. What are the speeds of the two bodies.   1

3   A runner runs 100 m in 10 s, then turns around and jogs 50m back toward the starting point in 30 s. Find the average speed of the runner.   2

4   An athlete completes one round of a circular track of radius, R in 40 s. What will be the maximum displacement at the end of 2 min 20 sec.?   2

5   Two cars A&B are running at velocities of 60km/h and 45 km/h respectively. Calculate the relative velocity of car A if:
(i)they are both travelling eastwards
(ii)Car A is travelling in eastwards & B is travelling westwards.   2

6   During a hard sneeze, your eyes might shut for 0.5s. If you are driving a car at 90km/h during such a sneeze, how far does the car move during that time?   2

7   If the meter stick falls 0.2 m before you catch it, what is your reaction time?   2

8   A car A is moving with a speed of 40 km/h and car B is moving with a speed of 60 km/h along parallel paths, starting from the same point. What is the position of car A with respect to car B after 15 minutes.   3

9   Suppose a swimmer completes the first 50 m of the 100-m freestyle in 38.2 s. Once she reaches the far side of the 50-m-long pool, she turns around and swims back to the start in 42.5 s. What are the swimmer's average velocity and average speed for
a) the leg from the start to the far side of the pool,
b) the return leg, and
c) the total lap?   3

10   From the top of a tower 100 m in height a ball is dropped and at the same time another ball is projected vertically upwards from the ground with a velocity of 25 m/s. Find when and where the two balls will meet.   3

11   A thief is running on a motorcycle at a constant speed of 25m/s. A police jeep starts   3
      chasing from a point 1.25 km behind him with a uniform acceleration of $2m/s^2$.
      a) After how much time will the police catch the thief?
      b) How much distance will the jeep cover to reach the thief?
      c) What should be the minimum acceleration of the thief to escape from police?

12   A body describes 10 m in the third second of motion and 28 m in the sixth second.   3
      What distance will be covered by the body in the seventh second of motion?

13   The speed-time graph of a particle moving   3
      along a fixed direction is shown in Fig.
      Obtain the distance traversed by the particle
      between
      (a) t = 0 s to 10 s,
      (b) t = 2 s to 6 s.
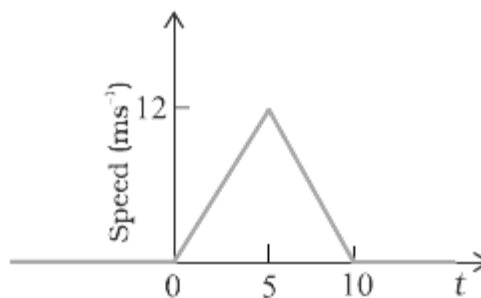
14   A ball thrown vertically upwards with a speed of 19.6 m/s from the top of a tower   3
      returns to the earth in 6s. Find the height of the tower.

15   A body covers half of its journey a speed of 40 m/s and other half with a speed of 60   3
      m/s. What is the average speed during the whole journey?