Maximum Time: 60 Minutes   Total Marks: 30
Marking Scheme: Step Marking in each question.

Name: _____   Roll Number:_____

1. What is uniform motion? Give some examples.   **1 Mark**

2. What is the nature of distance time graphs for uniform and non-uniform motion of an object?   **1 Mark**

3. A racer starts a car race from rest and finishes it with a velocity of 36 km/h. Assuming constant acceleration of 5 m/s^2, find the time it will take to finish the race.   **2 Marks**

4. On a 100 km track, a train travels the first 60 km at a uniform speed of 30 km/h. How fast must the train travel the next 40 km so as to average 20 km/h for the entire trip?   **2 Marks**

5. An insect moves along a circular path of radius 20 cm with a constant speed. It takes 1 min to move from a point on the path to the diametrically opposite point. Find   **3 Marks**
    I.   The distance covered (in cm).
    II. The speed (in cm/min).
    III. The average velocity (in cm/min).

6. I.   Define the term velocity. What is its SI unit?   **1 Mark**
    II. Velocity of a train changes from 10 m/s to 20 m/s, when it accelerates at 2 m/s^2. Find the distance covered by the train.   **2 Marks**

7. An ant climbs up a staircase, each stair of which has width 150 cm and height 150 cm. Find the distance covered and displacement of ant, if it starts from the bottom, and reaches the start of the sixth staircase.
                                                                               3 Marks

8. Study the speed-time graph of a body given here and answer the following questions: **5 Marks**

    I.   What type of motion is represented by OA?
    II. What type of motion is represented by AB?
    III. What type of motion is represented by BC?
    IV. Find out the acceleration of the body.
    V.   Calculate the retardation of the body.
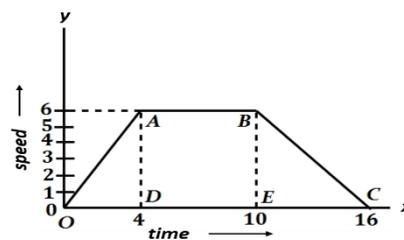
9. A car is moving on a straight road with uniform acceleration. The following table gives the speed of the car at various instants of time.

Speed (m/s)	5	10	15	20	25	30
Time (s)	0	10	20	30	40	50

    Draw the speed-time graph by choosing a convenient scale. Determine from it:
    I.   the acceleration of the car.
    II. the distance travelled by the car in 50 $seconds$.   **5 Marks**

10. Deduce the following equations of motion.   **5 Marks**
    I. $s = ut + \left(\frac{1}{2}\right)at^2$
    II. $v^2 = u^2 + 2as$