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Jars Education

Shop no. 2,3,4 hendre pada Badlapur west thane

Time : 1 hour 30 Minute

STD 9 Science
Chapter Based Test

Total Marks : 50

section A

*** Choose the correct option from the given options** [7]

1. Velocity, being a vector quantity, positive velocity means:

   (A) That the body is moving away from the reference point | (B) That the body is moving towards the reference point | (C) That the body is stationary | (D) Nothing specifically

2. If an object moves 4km in a straight line then the value of displacement is....?

   (A) 4km | (B) 8km | (C) 12km | (D) 0km

3. The accelerated motion of a body changes due to change in:

   (A) Speed | (B) Direction of motion. | (C) Velocity. | (D) All of the above

4. Suppose a boy is enjoying a ride on a merry-go-round which is moving with a constant speed of 10m s^{-1}. It implies that the boy is:

   (A) At rest. | (B) Moving with no acceleration. | (C) In accelerated motion. | (D) Moving with uniform velocity.

5. If body having initial velocity zero is moving with uniform acceleration 8m/ sec2.The distance travelled by it in fifth second will be:

   (A) 36 metres | (B) 40 metres | (C) 100 metres | (D) Zero

6. Length of the straight line joining the initial to the final positions of a moving body is known as its:

   (A) Distance | (B) Displacement | (C) Position | (D) None of these

7. 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) $2\pi r$

*** Fill in the blank with correct answer** [3]

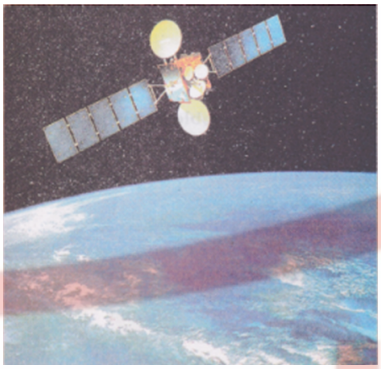
8. Fill in the blanks.
   _____ is the term used for negative acceleration.

9. Distance and speed are _____ quantities.

10. Fill in the blanks with suitable words:
    A motorcycle has a steady _____ of 3m/s^2. This means that every _____ its _____ increases by _____.

*** Do as directed** [3]

11. What do the following measure in a car?
    a. Speedometer.
    b. Odometer.
12. Area under the velocity-time graph line is 40m. What physical quantity does this area represent?
13. A satellite goes round the earth in a circular orbit with constant speed. Is the motion uniform or accelerated?



This photograph shows a man-made 'communication satellite' going round the earth in a circular orbit (or circular path). We can see the dish antennae and solar panels (made of solar cells) clearly in this photograph.

This photograph shows a watch. The tip of seconds 'hand of this watch moves rapidly on the dial of the watch. The tips of minutes' hand and hours' also move on the dial but they move slowly.

section B

* **Answer the Questions in brief** [10]

1. A person moves a distance of 3km towards east, then 2km towards north and 3.5km towards east. Find:
    a. Distance covered by the person.
    b. Displacement.
2. What is the difference between ‘distance travelled’ by a body and its ‘displacement’? Explain with the help of a diagram.
3. What do you understand by a uniform circular motion?
4.

State an important characteristic of uniform circular motion. Name the force which brings about uniform circular motion.

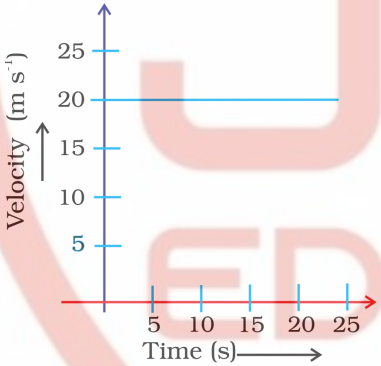
5. The velocity-time graph for part of a train journey is a horizontal straight line. What does this tell you about (a) the train's velocity, and (b) about its acceleration?

section C

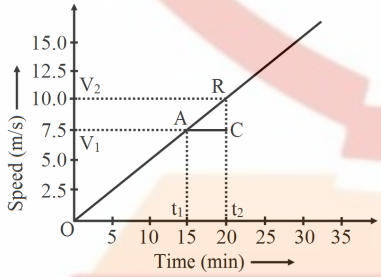
*** Answer the Questions in detail** **[12]**

1. A driver of a car travelling at 52km/ h^{-1} applies the brakes and accelerates uniformly in the opposite direction. The car stops in 5s. Another driver going at 3km/ h^{-1} in another car applies his brakes slowly and stops in 10s. On the same graph paper, plot the speed versus time graphs for the two cars. Which of the two cars travelled farther after the brakes were applied?

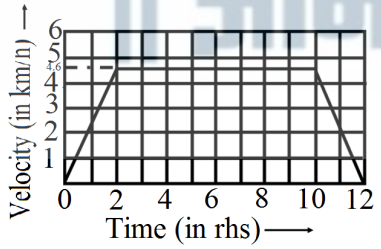
2. The velocity-time graph shows the motion of a cyclist. Find
   i. Its acceleration
   ii. Its velocity and
   iii. The distance covered by the cyclist in 15 seconds.



3. Given below is the velocity-time graph for the motion of the car. What does the nature of the graph show? Also, find the acceleration of the car.



4. The speed-time graph of an ascending passenger lift is given alongside.
   What is the acceleration of the lift:



   i. During the first two seconds?
   ii. Detween second and tenth second?
   iii. During the last two seconds?

section D

*** Answer the Questions in detail [5 marks each]** **[15]**

1. Show by means of graphical method that:
   $v = u + at$
   where the symbols have their usual meanings.
2. A car travels 100km at a speed of 60km/h and returns with a speed of 40km/h. Calculate the average speed for the whole journey.
3. A body starting from rest travels with uniform acceleration. If it travels 100m in 5s, what is the value of acceleration?

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