



Octahedral classes, kharadi
2nd floor, yashwant plaza, near bank of India,

Class 09 - Science

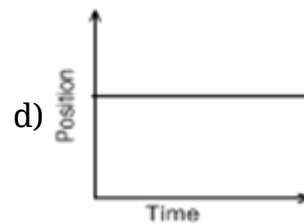
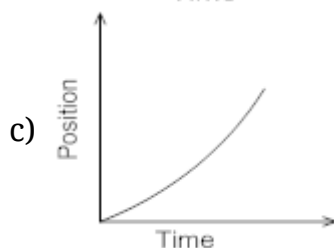
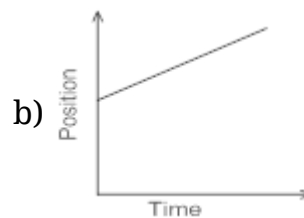
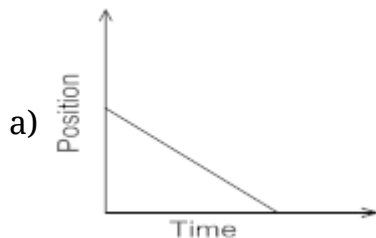
Motion

Maximum Marks: 30

Time Allowed: 1 hour and 30 minutes

Section A

1. What does the slope of velocity-time graph gives? 1
 - a) acceleration
 - b) force
 - c) displacement
 - d) distance
2. Which of the following is the position-time graph for a body at rest? 1



3. Which of the following is the characteristic of distance travelled by an object? 1
 - a) It has only magnitude and no specific direction
 - b) It has magnitude as well as specific direction
 - c) It can be zero
 - d) The distance travelled by an object is less than the magnitude of the displacement of the object
4. What is the quantity which is measured by the area occupied below the velocity-time graph? 1
5. When is the acceleration taken as negative? 1
6. Which of the following is true for displacement? 1
 - (a) It cannot be zero.
 - (b) Its magnitude is greater than the distance travelled by the object.
7. A farmer moves along the boundary of a square field of side 10 m in 40 s. 3

What will be the magnitude of displacement of the farmer at the end of 2 minutes and 20 seconds?

8. A stone is thrown in a vertically upward direction with a velocity of 5 ms^{-1} . If the acceleration of the stone during its motion is 10 ms^{-2} in the downward direction, what will be the height attained by the stone and how much time will it take to reach there? 3
9. A body is moving with a uniform velocity of 10 ms^{-1} . Find its velocity after 10 s? 3
10. Express average velocity when the velocity of a body changes at non-uniform rate and at uniform rate. 3
11. An electron moving with a velocity of $5 \times 10^4 \text{ ms}^{-1}$ enters into a uniform electric field and acquires a uniform acceleration of 10^4 ms^{-2} in the direction of its initial motion. 3
 - i. Calculate the time in which the electron would acquire a velocity double of its initial velocity.
 - ii. How much distance the electron would cover in this time?
12. A body travels along a circular path of radius 70m. After travelling half a revolution in 20 s, find the (i) average velocity (ii) average speed, 3
13. An object is dropped from rest at a height of 150 m and simultaneously another object is dropped from rest at a height 100 m. What is the difference in their heights after 2 s if both the objects drop with same accelerations. How does the difference in heights vary with time? 3
14. The average time taken by a normal person to react to an emergency is one fifteenth of a second and is called the 'reaction time'. If a bus is moving with a velocity of 60 kmh^{-1} and its driver sees a child running across the road, how much distance would the bus had moved before he could press the brakes? The reaction time of the people increases when they are intoxicated. How much distance had the bus moved if the reaction time of the driver were $1/2 \text{ s}$ under the influence of alcohol? 3