Motion

1. Distinguish between speed and velocity. (AS1)

2. Briefly explain about constant acceleration?

3. How can you say that a body is in motion? Is it a common property? (AS1)

4. Are average speed and average velocity are same? If not explain why? (AS1)

5. How do you measure instantaneous speed? (AS1)

6. Explain acceleration with an example ? (AS1)

7. What do you mean by acceleration ? (AS1)

8. A body leaving a certain point " O" moves with a constant acceleration. At the end of the 5 th second its velocity is 1.5 m/s. At the end of the sixth second the body stops and then begins to move backwards. Find the distance traversed by the body before it stops. Determine the velocity with which the body returns to point " O " ? (27m, -9 m/s)(AS1)

9. A train of length 50m is moving with a constant speed of 10m/s. Calculate the time taken by the train to cross an electric pole and a bridge of length 250 m. (5s , 30s) (AS1)

10. Draw the distance vs time graph when the speed of a body increases uniformly. (AS5)

11. Draw the distance – time graph when its speed decreases uniformly.(AS5)

12. What is the average speed of a Cheetah that sprints 100m in 4sec. ? What if it sprints 50m in 2sec? (25 m/s)(AS7)

13. A car travels at a speed of 80 km/h during the first half of its running time and at 40 km/h during the other half. Find the average speed of the car. (60 km/h) (AS7)

14. A particle covers 10m in first 5s and 10m in next 3s. Assuming constant acceleration. Find initial speed, acceleration and distance covered in next 2s. (AS7)
(7/6 m/s, 1/3 m /s2, 8.33m)

15. When the velocity is constant, can the average velocity over any time interval differ from instantaneous velocity at any instant? If so, give an example; if not explain why. (AS2)

16. You may have heard the story of the race between the rabbit and tortoise. They started from same point simultaneously with constant speeds. During the journey, rabbit took rest somewhere along the way for a while. But the tortoise moved steadily with lesser speed and reached the finishing point before rabbit. Rabbit wokeup and ran, but rabbit realized that the tortoise had won the race. Draw distance vs time graph for this story. (AS5)

17. A man is 48m behind a bus which is at rest. The bus starts accelerating at the rate of 1 m/s2, at the same time the man starts running with uniform velocity of 10 m/s.
What is the minimum time in which the man catches the bus? (8s)(AS7)

1. The distance travelled by an object in a specified direction is [ ]
(a) Speed (b) Displacement
(c) Velocity (d) Acceleration

2. If an object is moving with constant velocity then the motion is [ ]
(a) Motion with Non uniform acceleration
(b) Motion with Uniform Acceleration
(c) Uniform Motion (d) Non uniform Motion

3. If there is change in the velocity of the object then the state of object with respect to motion is [ ]
(a) State of Constant Speed (b) State of Constant velocity
(c) State of Uniform Motion (d) State of Non uniform Motion

4. If the acceleration of a moving object is constant then the motion is said to be [ ]
(a) Motion with Constant Speed (b) Motion with Uniform Acceleration
(c) Motion with Uniform Velocity (d) Motion with Non Uniform acceleration