CBSE

MOTION WS 3

Class 09 - Science

Section A

1. A body moving with uniform acceleration has velocities 20 ms^{-1} and 30 ms^{-1}. when passing two points A and B. Then the velocity midway between A and B is: **[1]**

   a) 25.5 ms^{-1}

   b) 24 ms^{-1}

   c) 25 ms^{-1}

   d) $10\sqrt{6}$ ms^{-1}

2. If the v-t graph is a straight line inclined to the time axis, then: **[1]**

   a) a $\neq$ 0

   b) a = constant $\neq$ 0

   c) a $\neq$ constant $\neq$ 0

   d) a = 0

3. A person sitting in the truck projected a ball vertically upwards. The ball: **[1]**

   a) falls outside the truck

   b) falls by the side of truck

   c) falls back in his hand

   d) falls in front of the truck

4. If a moving body comes to rest, then it's acceleration is: **[1]**

   a) Negative

   b) Positive

   c) Constant

   d) Zero

5. For a uniformly accelerated body with initial and final velocities as u and v ms^{-1}, the average velocity is: **[1]**

   a) $\frac{u - v}{2}$

   b) $\frac{v}{2}$

   c) $\frac{u + v}{2}$

   d) $\frac{u}{2}$

6. If a body starts from rest, what can be said about the acceleration of the body? **[1]**

   a) Uniform accelerated

   b) Positively accelerated

   c) Negative accelerated

   d) Non-Uniform accelerated

7. A car accelerates uniformly from 18 km/h to 36 km/h in 5 sec. The acceleration is **[1]**

   a) 5 ms^{-1}

   b) 1 ms^{-2}

   c) 1 km/s^2

   d) 216 ms^{-2}

8. **Assertion (A):** A boy is enjoying a ride on a merry-go-round which is moving at a constant speed of 10 m/s. The boy is in uniform accelerated motion. **[1]**

   Reason (R): A body has a uniform acceleration if it travels in a straight line and its velocity first decreases then increases by equal amounts in equal intervals of time.

   a) Both A and R are true and R is the correct explanation of A.

   b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.
d) A is false but R is true.

9. **Assertion (A):** Motion of satellites around their planets is considered as accelerated motion. **[1]**
Reason (R): During their motion, the speed remains constant, while the direction of motion changes continuously.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

10. **Assertion (A):** When the displacement of a body is directly proportional to the square of the time. Then the body is moving with uniform acceleration. **[1]**
Reason (R): The slope of velocity-time graph with time axis gives acceleration.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

11. **Assertion (A):** The speed or velocity of a car running on a crowded city, road changes continuously. **[1]**
Reason (R): The movement of a car on a crowded city road is an example of non-uniform acceleration.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

12. The equation of motion is applicable for _____ acceleration motion. **[1]**

a) Uniformly
b) Non-uniformly
c) Variably
d) Zero

13. What do you mean by positive acceleration? **[1]**
14. When is the acceleration taken as negative? **[1]**
15. Define acceleration of a body. **[1]**
16. State SI unit of acceleration. **[1]**
17. What is negative acceleration? **[1]**
18. Give an example of non-uniform acceleration? **[1]**

Section B

19. A trolley, while going down an inclined plane, has an acceleration of 2 cm/s^2. What will be its velocity after 3 seconds? **[2]**
20. Find the initial velocity of a car if it can be stopped in 10 sec by applying brakes which provide it a retardation of 2.5 ms^{-2}. **[2]**
21. A train starting from a railway station and moving with uniform acceleration attains a speed 40 kmh^{-1} in 10 minutes. Find its acceleration. **[2]**
22. A bus decreases its speed from 80 kmh^{-1} to 60 kmh^{-1} in 5 s. Find the acceleration of the bus. **[2]**
23. A train is travelling at a speed of 90 kmh^{-1}. Brakes are applied so as to produce a uniform acceleration of -0.5 ms^{-2}. Find how far the train will go before it is brought to rest. **[2]**
24. A bus decreases its speed from 80 kmh^{-1} to 60 km h^{-1} in 5 s. Find the acceleration of the bus. **[2]**

25. When will you say a body is in **[2]**

i. uniform acceleration.

ii. non-uniform acceleration?

26. Define uniform velocity and uniform acceleration. **[2]**

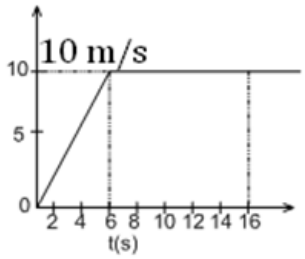
Section C

27. A ball starts from rest and rolls down 16 m down an inclined plane in 4 s. **[3]**

(a) What is the acceleration of the ball?

(b) What is the velocity of the ball at the bottom of the inclined plane?

28. The velocity time graph of runner is given in the graph. **[3]**



a. What is the total distance covered by the runner in 16s?

b. What is the acceleration of the runner at t = 11s?

Section D

29. **State True or False:** **[4]**

(a) The motion of the athlete moving along a circular path is an example of accelerated motion. **[1]**

(b) The motion of a freely falling body is an example of uniformly accelerated motion. **[1]**

(c) Negative acceleration is called retardation. **[1]**

(d) When the velocity of an object changes, we say that the object is accelerating. **[1]**

Section E

30. **Fill in the blanks:** **[5]**

(a) Acceleration is a _____ quantity. **[1]**

(b) Negative acceleration is called _____. **[1]**

(c) _____ of a body is defined as the rate of change of its velocity with time. **[1]**

(d) The change in velocity of the object for any time interval is _____. **[1]**

(e) The acceleration is taken to be _____ if it is in the direction of velocity. **[1]**