CLASS 9 SCIENCE

CHAPTER 4 • DESCRIBING MOTION AROUND US

MCQs • Multiple-Choice Practice

1. What is linear motion?

A. Motion along a circular path

B. Motion in a straight line

C. Motion without time

D. Motion with changing mass

2. To describe the position of an object, we need to specify a:

A. Reference point

B. Mass only

C. Temperature

D. Force only

3. An object is said to be in motion when its position with respect to a reference point:

A. Does not change with time

B. Changes with time

C. Is always zero

D. Is always positive

4. Displacement is the:

A. Total path length travelled

B. Net change in position

C. Product of mass and time

D. Rate of change of distance

5. Which quantity has both magnitude and direction?

A. Distance

B. Speed

C. Displacement

D. Time

6. Average speed is calculated as:

A. Total distance ÷ total time

B. Displacement ÷ total time

C. Change in velocity ÷ time

D. Distance × time

CLASS 9 SCIENCE

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7. Average velocity is calculated as:

A. Total distance ÷ time

B. Displacement ÷ time interval

C. Time ÷ displacement

D. Distance × time

8. Average acceleration is:

A. Change in velocity ÷ time interval

B. Change in distance ÷ time

C. Distance ÷ velocity

D. Velocity × time

9. Which statement is correct?

A. Distance can be negative

B. Displacement can be zero even when distance is non-zero

C. Speed always has direction

D. Time has direction

10. If an object returns to its starting point, its displacement is:

A. Equal to the distance

B. Zero

C. Always negative

D. Greater than distance

11. A straight horizontal position-time graph generally represents an object that is:

A. At rest

B. Accelerating

C. Moving in a circle

D. Changing mass

12. A straight inclined line on a position-time graph indicates:

A. Constant velocity

B. Zero time

C. No position

D. Constant mass

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13. Graphical representation of motion can help us study changes in:

A. Position, velocity and acceleration

B. Mass only

C. Temperature only

D. Chemical composition

14. A velocity-time graph that is parallel to the time axis represents:

A. Constant velocity

B. Increasing velocity

C. Increasing acceleration

D. Zero time

15. The slope of a velocity-time graph represents:

A. Distance

B. Acceleration

C. Mass

D. Position

16. For constant acceleration, the equation v = u + at relates:

A. Final velocity, initial velocity, acceleration and time

B. Mass, force and distance

C. Distance, mass and time

D. Power, energy and time

17. Which is a kinematic equation for constant acceleration?

A. $v = u + at$

B. $F = ma$

C. $P = W/t$

D. $W = Fs$

18. Which equation relates displacement, initial velocity, acceleration and time?

A. $s = ut + \frac{1}{2}at^2$

B. $v = u + at$

C. $v^2 = u^2 + 2as$

D. $F = ma$

CLASS 9 SCIENCE

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19. Which equation relates velocities, acceleration and displacement?

A. $v^2 = u^2 + 2as$

B. $s = ut + \frac{1}{2}at^2$

C. $v = u + at$

D. $P = W/t$

20. In the kinematic equations, u represents:

A. Final velocity

B. Initial velocity

C. Acceleration

D. Displacement

21. In the kinematic equations, v represents:

A. Initial velocity

B. Final velocity

C. Time

D. Distance

22. In the kinematic equations, a represents:

A. Acceleration

B. Area

C. Average speed

D. Position

23. For a falling object near Earth, acceleration due to gravity is denoted by:

A. s

B. g

C. u

D. t

24. When solving a motion problem, after choosing the positive direction, it should:

A. Be changed whenever convenient

B. Remain consistent

C. Always point upward

D. Always point downward

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25. If velocity increases in the direction of motion, acceleration is:

A. Opposite to motion

B. In the direction of motion

C. Always zero

D. Perpendicular to motion

26. Uniform circular motion is motion in a circular path with:

A. Constant speed

B. Constant direction

C. Zero speed

D. Increasing mass

27. Which is an example of straight-line motion?

A. A car on a straight road

B. A stone tied to a string moving in a circle

C. Earth orbiting the Sun

D. A rotating fan blade

28. An object at rest has a position that:

A. Changes continuously with time

B. Does not change with respect to the reference point

C. Always becomes zero

D. Always increases

29. If two objects travel the same distance in different times, the one taking less time has:

A. Lower average speed

B. Greater average speed

C. Zero speed

D. Zero displacement

30. A velocity-time graph can be used to identify whether motion is:

A. Uniform or non-uniform

B. Made of matter or energy

C. Chemical or physical

D. Living or non-living

ANSWER KEY

Chapter 4 • Describing Motion Around Us

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	B	4	B	5	C
6	A	7	B	8	A	9	B	10	B
11	A	12	A	13	A	14	A	15	B
16	A	17	A	18	A	19	A	20	B
21	B	22	A	23	B	24	B	25	B
26	A	27	A	28	B	29	B	30	A

Quick Revision: Position • Motion • Distance • Displacement • Speed • Velocity • Acceleration • Motion graphs • Kinematic equations • Free fall • Uniform circular motion