

Grade-9 : Motion Questions. Class No. - 1

1. A body is said to be at rest when:

- a) It moves with a constant velocity
- b) Its position changes with time
- c) Its position does not change with respect to a reference point
- d) It moves in a circular path

2. Which of the following statements is true about motion?

- a) Motion is absolute
- b) Motion is relative to the observer
- c) Motion is always uniform
- d) Motion cannot be measured

3. The reference point with respect to which an object's position is described is called:

- a) Frame of motion
- b) Rest point
- c) Motion detector
- d) Origin

4. Which of the following best describes a reference frame?

- a) A scale to measure time
- b) A fixed point only in space
- c) A coordinate system relative to which motion is observed
- d) The center of mass of an object

5. A person sitting inside a moving bus appears at rest to:

- a) A person standing on the road
- b) A person sitting next to them in the bus
- c) A drone flying above the bus
- d) A tree beside the road

6. Which of these is NOT required to describe motion?

- a) Time
- b) Distance
- c) Reference point
- d) Mass

7. When an object changes its position with respect to a fixed point, it is said to be:

- a) Stationary
- b) At rest
- c) In motion
- d) At origin

8. An object is said to be in motion when:

- a) It is not visible to us
- b) It does not move for a short time
- c) It changes its position with time with respect to a reference point
- d) It makes sound

9. What is a reference point?

- a) A random point in space
- b) A fixed point used to determine the position of an object
- c) The direction of motion
- d) The speed of an object

10. An object is 5 meters to the right of a tree. The tree in this case is:

- a) The object in motion
- b) The origin
- c) A moving reference
- d) The direction of motion

11. To describe the position of a school bag lying on a table, what do you need?

- a) The time taken by the bag to reach the table
- b) The shape and size of the bag
- c) A reference point on the table and a direction
- d) The speed of the bag

12. Which of the following statements is correct about locating an object?

- a) You only need to know its speed
- b) You must compare its position to another fixed object
- c) You must measure its size
- d) You must touch the object

13. A boy says his school is 2 km north of the post office. What is the reference point here?

- a) His school
- b) 2 km
- c) Post office
- d) North direction

14. If no reference point is given, then:

- a) The object is definitely at rest
- b) The motion of the object cannot be described accurately
- c) The object moves faster
- d) The direction becomes negative

15. Which two things are necessary to describe the position of an object correctly?

- a) Speed and distance
- b) Distance and direction
- c) Direction and size
- d) Area and volume

16. Motion along a straight line is called:

- a) Circular motion
- b) Oscillatory motion
- c) Linear motion
- d) Random motion

17. Which of the following is an example of motion along a straight line?

- a) A car taking a U-turn
- b) A fan blade rotating
- c) A person walking on a straight road
- d) Earth revolving around the Sun

18. In linear motion, the direction of motion is:

- a) Always changing
- b) Circular
- c) Along a straight path
- d) Not important

19. Starting from a point O an object moves 10 m to the east and then 10 m to the west. its displacement is:

- a) 0 m
- b) 20 m
- c) 10 m
- d) 5 m

20. Starting from a point O an object moves 6 m to the north and then 8 m to the west. its displacement is:

- a) 0 m
- b) 10 m
- c) 14 m
- d) 7 m

21. Which quantity changes if the direction of motion changes, even if speed remains constant?

- a) Speed
- b) Velocity
- c) Time
- d) Mass

22. Displacement is:

- a) Always greater than distance
- b) Always less than distance
- c) Equal to or less than distance
- d) Always zero in straight-line motion

23. A boy walks 100 m north and then 100 m south. What is his total distance and displacement?

- a) 200 m, 100 m
- b) 200 m, 0 m
- c) 0 m, 0 m
- d) 100 m, 100 m

24. What is the SI unit of displacement?

- a) Kilometer
- b) Meter
- c) Centimeter
- d) Foot

Numericals

1. A car travels 150 km in 3 hours. What is its speed?
2. A cyclist covers a distance of 80 km in 4 hours. What is his speed?
3. A train runs at a constant speed of 60 km/h. How much distance will it cover in 5 hours?
4. A bus is moving at a uniform speed of 45 km/h. How long will it take to cover 180 km?
5. A person walks at a uniform speed of 5 km/h. How much distance will he walk in 2 hours 30 minutes?
6. A scooter moves with a uniform speed of 36 km/h. Find the distance it covers in 20 minutes.
7. A boy runs 1.5 km in 15 minutes at a uniform speed. Find his speed in km/h.
8. A car covers 120 km in 2 hours and another 60 km in 1.5 hours. What is the average speed of the car for the entire journey?
9. A bus moves with a uniform speed of 54 km/h. How much distance will it cover in 40 minutes?
10. A train travels 200 km in 4 hours. Another train travels 300 km in 5 hours. Which one has a higher speed?
11. A person walks 5 km at 5 km/h and then 10 km at 10 km/h. What is his average speed for the whole journey?
12. A bike travels 90 km in 2 hours. If it continues at the same speed, how long will it take to travel 135 km?
13. A car travels 60 km at 30 km/h and returns the same distance at 60 km/h. Find the average speed for the whole journey.
14. A train covers half the distance at 40 km/h and the remaining half at 60 km/h. What is the average speed for the whole journey?
15. A car covers $\frac{1}{3}$ of the journey at 30 km/h, next $\frac{1}{3}$ at 60 km/h, and the last $\frac{1}{3}$ at 90 km/h. What is the average speed?
16. A boy walks 3 km at 4 km/h, rides a bike for 8 km at 16 km/h, and returns 2 km at 2 km/h. What is his average speed?
17. A vehicle moves at a speed of 60 km/h for 1 hour, then at 30 km/h for 2 hours, and finally at 90 km/h for 30 minutes. Find the average speed.