

CHAPTER-5 | Measurement of Length and Motion

QUIZ
PART-03

1. What defines the state of motion for an object?
 A. Its size compared to nearby objects
 B. A change in position with time relative to a reference point
 C. The force acting on it at any instant
 D. The material it is made of (B)

Explanation: Motion is identified by a change in position over time with respect to a chosen reference point.

2. What describes an object at rest?
 A. Its position does not change with time relative to a reference point
 B. It is very heavy
 C. No forces act on it
 D. It is fixed to the ground (A)

Explanation: Rest means the position remains unchanged over time with respect to the reference point.

3. What is a reference point?
 A. A device used to measure time
 B. A fixed object or location used to judge motion or rest
 C. Any moving object in the surroundings
 D. The midpoint of an object (B)

Explanation: A reference point is a fixed location against which changes in position are compared.

4. Passengers in a moving bus appear how when observed from inside the bus?
 A. In motion
 B. Accelerating
 C. At rest
 D. Rotating (C)

Explanation: Taking the bus interior as the reference point, the passengers' positions do not change, so they are at rest.

5. The same passengers, viewed from a building on the roadside, appear:
 A. At rest
 B. In motion
 C. Slower than the bus
 D. Randomly changing direction (B)

Explanation: With the building as the reference point, their positions change with time, so they are in motion.

6. A ship moves at constant speed on a calm sea with no window to look outside. What can be said about detecting motion?
 A. Easy to detect using only feeling
 B. Detectable only at night
 C. Always detectable using the ship's engine sound
 D. Impossible to detect without an external reference (D)

Explanation: Without an external reference point, there is no way to judge whether position is changing.

7. Which statement best captures the nature of motion?
 A. Motion is absolute and the same for all observers
 B. Motion is relative to the observer's reference point
 C. Motion depends only on the object's mass
 D. Motion exists only when speed changes (B)

Explanation: The same object can appear at rest or in motion depending on the chosen reference point.

8. Which choice is the most suitable reference point to judge a car's motion on a road?
 A. A bird flying overhead
 B. A cloud drifting in the sky
 C. A milestone fixed beside the road
 D. A passing motorcycle (C)

Explanation: A fixed, stationary object like a milestone serves as a reliable reference point.

9. Which pairing correctly matches the observer's reference point with what is seen for bus passengers?
 A. Inside the bus → at rest
 B. Building outside → at rest
 C. Inside the bus → in motion
 D. Building outside → invisible (A)

Explanation: Inside the bus they appear at rest; with an external fixed point they appear in motion.

10. Which statement is true about identifying a state of rest or motion?
 A. It can be decided without any reference
 B. It depends only on the speedometer reading
 C. It requires comparing position relative to a fixed point
 D. It is determined by the object's shape (C)

Explanation: Rest or motion is determined by whether position changes with time relative to a fixed reference point.