

## Kinematics – Objective Questions (MCQs)

**1. A body is said to be in uniform motion if:**

- A) It is moving in a straight line
  - B) It covers equal distances in equal intervals of time
  - C) Its acceleration is zero
  - D) It moves with constant velocity
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**2. Which of the following is a vector quantity?**

- A) Speed
  - B) Distance
  - C) Velocity
  - D) Time
- 

**3. The area under a velocity-time graph gives:**

- A) Acceleration
  - B) Displacement
  - C) Speed
  - D) Distance
- 

**4. A car accelerates from 5 m/s to 25 m/s in 5 seconds. What is the acceleration?**

- A)  $4 \text{ m/s}^2$
  - B)  $5 \text{ m/s}^2$
  - C)  $10 \text{ m/s}^2$
  - D)  $20 \text{ m/s}^2$
- 

**5. Which of the following statements is true for displacement?**

- A) It is always equal to distance
  - B) It is always greater than distance
  - C) It is a scalar quantity
  - D) It can be zero even when distance is not
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**6. If the displacement-time graph is a straight line, the object is:**

- A) Moving with uniform velocity
  - B) Accelerating
  - C) At rest
  - D) Moving in a circle
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**7. SI unit of acceleration is:**

- A) m/s
  - B) m/s<sup>2</sup>
  - C) km/h
  - D) cm/s
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**8. A body thrown vertically upward reaches maximum height when:**

- A) Acceleration becomes zero
  - B) Velocity becomes zero
  - C) Both velocity and acceleration become zero
  - D) Displacement becomes zero
- 

**9. A particle is moving with constant speed. Which of the following may be true?**

- A) Acceleration is zero
  - B) Acceleration is constant
  - C) Acceleration is non-zero and changing
  - D) Velocity is increasing
- 

**10. A train moves with a uniform acceleration of 2 m/s<sup>2</sup>. What distance will it cover in 5 seconds starting from rest?**

- A) 10 m
  - B) 15 m
  - C) 25 m
  - D) 50 m
- 

**11. Which of the following is not a correct equation of motion?**

- A)  $v = u + at$
  - B)  $s = ut + \frac{1}{2}at^2$
  - C)  $v^2 = u^2 + 2as$
  - D)  $s = vt + \frac{1}{2}at^2$
- 

**12. The slope of a displacement-time graph gives:**

- A) Speed
  - B) Acceleration
  - C) Velocity
  - D) Distance
- 

**13. A ball is thrown up. What is the direction of acceleration?**

- A) Upward
  - B) Downward
  - C) Changes with motion
  - D) Zero
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**14. If velocity-time graph is a horizontal line, the acceleration is:**

- A) Zero
  - B) Constant
  - C) Increasing
  - D) Decreasing
- 

**15. Which graph represents an object at rest?**

- A) A sloped s-t graph
  - B) A horizontal s-t graph
  - C) A curved s-t graph
  - D) A linear v-t graph
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**16. The motion of a body thrown vertically upward is:**

- A) Uniform motion
  - B) Uniform circular motion
  - C) Uniform acceleration motion
  - D) Non-uniform acceleration motion
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**17. The velocity of a body is the derivative of:**

- A) Speed
  - B) Distance
  - C) Acceleration
  - D) Displacement
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**18. A scalar quantity from the following is:**

- A) Velocity
  - B) Displacement
  - C) Distance
  - D) Acceleration
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**19. If a body travels in a circle with constant speed, then:**

- A) Velocity is constant
- B) Acceleration is zero

- C) It is in uniform motion
  - D) Velocity is changing
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**20. The acceleration due to gravity on Earth is approximately:**

- A)  $8.9 \text{ m/s}^2$
  - B)  $9.0 \text{ m/s}^2$
  - C)  $9.8 \text{ m/s}^2$
  - D)  $10.2 \text{ m/s}^2$
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 **Answer Key**

- 1. B
- 2. C
- 3. B
- 4. A
- 5. D
- 6. A
- 7. B
- 8. B
- 9. A
- 10. D
- 11. D
- 12. C
- 13. B
- 14. A
- 15. B
- 16. C
- 17. D
- 18. C
- 19. D
- 20. C