

CHAPTER-9 | Gravitation

QUIZ PART-02

1. Free fall occurs when an object falls under:

- A. Air resistance
- B. Gravitational force only
- C. Friction
- D. External force (B)

Explanation : Free fall happens when gravity alone acts on an object.

2. The acceleration due to gravity is denoted by:

- A. G
- B. g
- C. a
- D. F (B)

Explanation : The acceleration due to gravity is denoted by "g."

3. The value of 'g' near Earth's surface is approximately:

- A. 9.8 m/s
- B. 9.8 m/s²
- C. 10 m/s²
- D. 10 m/s (B)

Explanation : The value of g is approximately 9.8 m/s² near Earth's surface.

4. In free fall, the velocity of an object:

- A. Increases
- B. Decreases
- C. Remains constant
- D. Becomes zero (A)

Explanation : The velocity increases during free fall as the object accelerates under gravity.

5. An object is thrown upward. Its velocity decreases due to:

- A. Inertia
- B. Air resistance
- C. Gravity
- D. Friction (C)

Explanation : Gravity acts in the opposite direction, reducing the object's velocity as it moves upward.

6. The acceleration of an object in free fall is:

- A. Constant
- B. Zero
- C. Variable
- D. Decreasing (A)

Explanation : The acceleration due to gravity is constant for all objects in free fall.

7. The formula for calculating the velocity of a free-falling object is:

- A. $v = u + gt$
- B. $v = u - gt$
- C. $v = u + g$
- D. $v = u / g$ (A)

Explanation : The velocity formula for free fall is $v = u + gt$, where u is the initial velocity.

8. An object falls from rest. The distance traveled by the object is given by:

- A. $h = ut + 1/2 gt^2$
- B. $h = ut - 1/2 gt^2$
- C. $h = g^2t^2$
- D. $h = v^2 / 2g$ (A)

Explanation : The correct equation is $h = ut + 1/2 gt^2$, where $u = 0$ for free fall from rest.

9. The height from which an object is dropped is related to velocity by the equation:

- A. $v^2 = u^2 + 2gh$
- B. $v = u + gt$
- C. $h = u/g$
- D. $h = g^2t^2$ (A)

Explanation : The correct equation relating height and velocity is $v^2 = u^2 + 2gh$.

10. When an object is thrown upward, the velocity at the highest point is:

- A. Zero
- B. Maximum
- C. Constant
- D. Negative (A)

Explanation : At the highest point, the velocity of the object becomes zero before it starts falling.