

## CHAPTER-9 | Gravitation

QUIZ  
PART-01

1. Gravitational force is directly proportional to:

- A. Mass
- B. Distance
- C. Speed
- D. Time (A)

**Explanation:** Gravitational force depends on the masses of the objects.

2. Gravitational force is inversely proportional to:

- A. Mass
- B. Distance<sup>2</sup>
- C. Speed
- D. Time (B)

**Explanation:** Gravitational force decreases with the square of the distance.

3. The value of the gravitational constant (G) is:

- A.  $6.67 \times 10^{-11} \text{ N}\cdot\text{m}^2/\text{kg}^2$
- B.  $9.81 \text{ N}\cdot\text{m}^2/\text{kg}^2$
- C.  $6.67 \times 10^{-12} \text{ N}\cdot\text{m}^2/\text{kg}^2$
- D.  $9.81 \text{ N}\cdot\text{m}^2$  (A)

**Explanation:**  $G = 6.67 \times 10^{-11} \text{ N}\cdot\text{m}^2/\text{kg}^2$ .

4. Gravitational force is:

- A. Always attractive
- B. Always repulsive
- C. Varies with speed
- D. None of these (A)

**Explanation:** Gravitational force is always attractive.

5. The SI unit of gravitational force is:

- A.  $\text{N}\cdot\text{m}^2$
- B.  $\text{N}\cdot\text{m}^2/\text{kg}^2$
- C.  $\text{N}\cdot\text{kg}$
- D.  $\text{kg}\cdot\text{m}/\text{s}^2$  (B)

**Explanation:** Gravitational force's SI unit is  $\text{N}\cdot\text{m}^2/\text{kg}^2$ .

6. Increasing the mass of Earth increases the gravitational force between Earth and Moon. This is because of:

- A. Inverse law
- B. Universal law of gravitation
- C. Kepler's law
- D. Newton's third law (B)

**Explanation:** The universal law of gravitation explains this relationship.

7. Gravitational force acts along the:

- A. Path of motion
- B. Line joining the objects' centers
- C. Horizontal plane
- D. Vertical plane (B)

**Explanation:** Gravitational force acts along the line joining the centers of two masses.

8. The gravitational constant G was determined by:

- A. Isaac Newton
- B. Albert Einstein
- C. Johannes Kepler
- D. Henry Cavendish (D)

**Explanation:** G was experimentally determined by Henry Cavendish.

9. The formula for gravitational force is:

- A.  $F = G(m_1m_2/r^2)$
- B.  $F = ma$
- C.  $F = mgh$
- D.  $F = mv^2$  (A)

**Explanation:** The formula for gravitational force is  $F = G(m_1m_2/r^2)$ .

10. Newton's law of gravitation was proposed by:

- A. Albert Einstein
- B. Isaac Newton
- C. Galileo
- D. Kepler (B)

**Explanation:** Isaac Newton proposed the universal law of gravitation.