

CHAPTER-4 | Laws of Motion

QUIZ
PART-01

1. Which of the following is a non-contact force?
A. Frictional force B. Gravitational force
C. Push of a hand
D. Normal reaction (B)

Explanation : Non-contact forces act without physical contact. Gravitational force is one such example, unlike friction, push, or normal reaction, which require contact.

2. Inertia of a body is directly proportional to its:
A. Volume B. Weight
C. Mass D. Shape (C)

Explanation : Inertia increases with mass. A heavier object resists changes in motion more than a lighter one.

3. When a bus suddenly starts moving forward, a standing passenger falls backward due to:
A. Inertia of direction B. Inertia of rest
C. Inertia of motion
D. Lack of balance (B)

Explanation : The passenger's body tries to remain at rest while the bus moves forward, making them fall backward.

4. A body moving uniformly in a straight line requires:
A. Continuous external force
B. No external force
C. A force proportional to velocity
D. Force only when mass is large (B)

Explanation : Newton's first law states that no external force is required to keep a body in uniform motion. Force is only required to change its state.

5. Which example illustrates inertia of motion?
A. A stone tied to a string flies off tangentially when released.
B. A passenger pushed forward when a moving car stops suddenly.
C. A passenger falling backward when the bus suddenly starts.
D. A book staying at rest on a table. (B)

Explanation : The body tends to keep moving forward even when the car halts, demonstrating inertia of motion.

6. Which of the following best describes Aristotle's fallacy?
A. A force is needed only to stop a moving body.
B. A body at rest remains at rest unless disturbed.
C. Continuous force is needed to maintain uniform motion.
D. Objects fall due to their weight. (C)

Explanation : Aristotle believed motion could not continue without an external force, a misconception corrected by Newton.

7. What happens when a bus turns on a curved path and passengers tend to fall outward?
A. Inertia of rest B. Inertia of motion
C. Inertia of direction D. Lack of grip (C)

Explanation : The passengers tend to keep moving in a straight line while the bus changes direction, making them appear to fall outward.

8. Which of the following effects can a force produce?
A. Acceleration of a body
B. Change in size or shape
C. Retardation of a body
D. All of the above (D)

Explanation : Force can accelerate, decelerate, or deform a body depending on the conditions.

9. Why does a ball rolling on the ground eventually stop?
A. Because force is required to keep it moving
B. Because of friction acting against motion
C. Because of absence of mass
D. Because inertia ceases after some time (B)

Explanation : The stopping is due to external opposing forces like friction, not because motion naturally dies out.

10. Inertia is also called resistance to change because:
A. A body always needs a force to stay in motion
B. A body cannot change its state on its own
C. Mass decreases with acceleration
D. Energy is lost during motion (B)

Explanation : Inertia means a body cannot alter its rest, motion, or direction without an external influence.