

CHAPTER-8 | Force and Laws of Motion

QUIZ
PART-07

1. What cancels the applied force when a truck doesn't move?

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

Explanation : Friction opposes and cancels the applied force.

2. Force exerted on a bullet that stops in 0.03s is:

- A. 50 N
- B. 5000 N
- C. 150 N
- D. 500 N (A)

Explanation : Using $F = ma$, the force is 50 N.

3. Total momentum before a collision is:

- A. Sum of all masses
- B. Mass \times initial velocity
- C. Mass \times velocity
- D. Final mass \times velocity (B)

Explanation : Momentum before collision = mass \times velocity.

4. After firing, a bullet comes to rest. The change in momentum is:

- A. Zero
- B. Equal to impulse
- C. Mass \times velocity
- D. Dependent on block size (B)

Explanation : The change in momentum equals the impulse applied.

5. When a bullet penetrates a block, the distance traveled is:

- A. 2.25 m
- B. 5 m
- C. 10 m
- D. 1 m (A)

Explanation : Penetration distance is calculated as 2.25 m.

6. In an inelastic collision, momentum is:

- A. Conserved
- B. Lost
- C. Doubled
- D. Increased (A)

Explanation : Momentum is conserved in an inelastic collision.

7. Change in momentum is: (5 m/s to 8 m/s in 6s)

- A. 100 kg·m/s
- B. 300 kg·m/s
- C. 50 kg·m/s
- D. 800 kg·m/s (B)

Explanation : Change = $100 \times (8 - 5) = 300 \text{ kg·m/s}$.

8. Combined velocity after a collision is based on:

- A. Impulse
- B. Conservation of momentum
- C. Newton's third law
- D. Friction (B)

Explanation : Post-collision velocity follows momentum conservation.

9. Momentum in a closed system before and after collision is:

- A. Zero
- B. Conserved
- C. Doubled
- D. Reduced (B)

Explanation : Momentum is conserved in a closed system.

10. Force is equal to:

- A. Change in velocity
- B. Change in momentum / time
- C. Mass \times velocity
- D. Weight (B)

Explanation : Force = Change in momentum / time.