

2.4 Momentum & Impulse

Question Paper

Course	DPIB Physics
Section	2. Mechanics
Topic	2.4 Momentum & Impulse
Difficulty	Easy

Time allowed: 20
Score: /10
Percentage: /100

Question 1

What is the equation for momentum?

A. $p = Fs$

B. $p = mv$

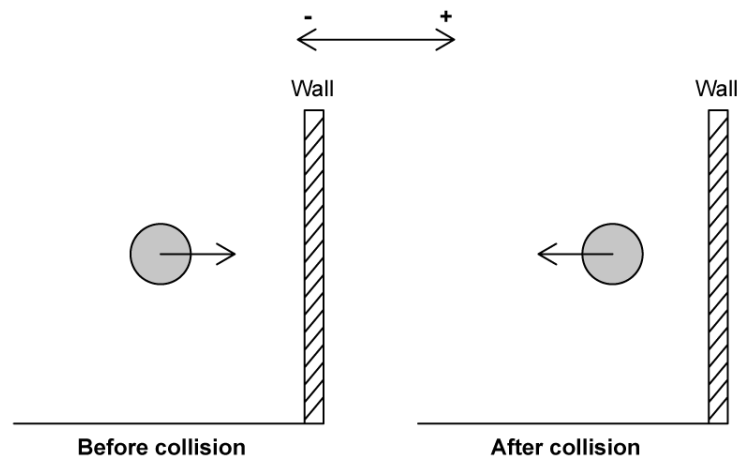
C. $p = \frac{1}{2}mv^2$

D. $p = F\Delta t$

[1 mark]

Question 2

A tennis ball is thrown at a wall and then bounces off.



Which row states the correct directions for the velocity, v , before and after hitting the wall?

	Before collision	After collision
A.	-	-
B.	-	+
C.	+	-
D.	+	+

[1 mark]

Question 3

A car drives into a wall. The change in momentum is $17\,000\text{ kg ms}^{-1}$ and the time of impact is 0.1 seconds.

What is the force acting on the car as a result of the collision?

- A. $17\,000\text{ N}$
- B. $1700\,000\text{ N}$
- C. $170\,000\text{ N}$
- D. 1700 N

[1 mark]

Question 4

Which of the following is the correct equation for impulse?

- A. $I = mv - mu$
- B. $I = F\Delta p$
- C. $I = \Delta t$
- D. $I = \frac{F}{\Delta t}$

[1 mark]

Question 5

Which feature on a force-time graph represents the impulse?

- A. Gradient
- B. y-intercept
- C. Area
- D. x-intercept

[1 mark]

Question 6

Before a collision object A is stationary and object B is travelling at 1 ms^{-1} .

What is the correct symbol and value for the initial velocity of object A?

- A. $u_B = 0$
- B. $u_A = 0$
- C. $v_A = 0$
- D. $u_A = 1$

[1 mark]

Question 7

What is the definition of an external force?

- A. Forces that act on a system from outside of it
- B. Forces exchanged by the particles in a system
- C. Every action has an equal and opposite reaction
- D. The rate of change of momentum on a body

[1 mark]

Question 8

What is the definition of an inelastic collision?

- A. A collision where kinetic energy is conserved
- B. A collision where the momentum is conserved
- C. A collision where both objects are stationary after the collision
- D. A collision where kinetic energy is not conserved

[1 mark]

Question 9

What is the main purpose of the crumple zone in a car?

- A. To decrease the contact time over which a collision occurs.
- B. To increase the contact time over which a collision occurs.
- C. To reduce the mass of the car involved in the collision.
- D. To reduce damage to the rest of the car in a collision.

[1 mark]

Question 10

What type of collision are explosions?

- A. Elastic
- B. Conserved
- C. Inelastic
- D. Impulsive

[1 mark]