2.4 Momentum & Impulse

Question Paper

Course	DP IB 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. $p = mv$

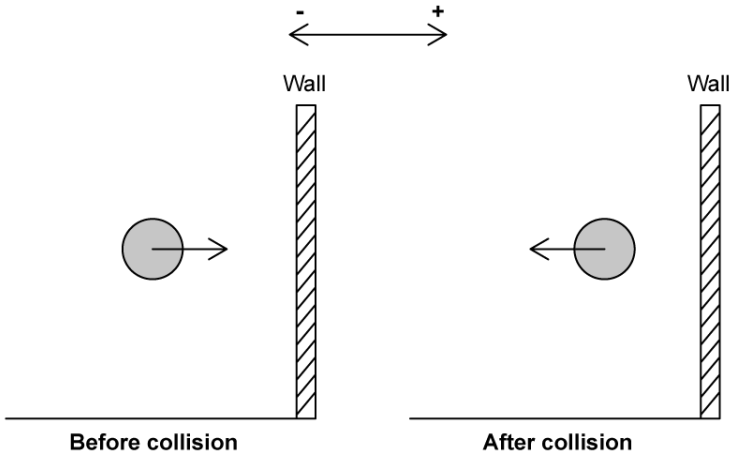
C. $p = \frac{1}{2}mv^2$

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 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 N

B. 1 700 000 N

C. 170 000 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]