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NEET LAWS OF MOTION — IMPULSE — PYQS

Max. Marks: 36 **Questions:** 9

Section A (MCQ) — 9 questions

Q.1 A ball of mass 0.5 kg is dropped from a height of 40 m. The ball hits the ground and rises to a height of 10 m. The impulse imparted to the ball during its collision with the ground is (Take g = 9.8 m/s^2) [NEET (UG) 2025]

(1) 0 (2) 84 N s (3) 21 N s (4) 7 N s

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Q.2 A ball of mass 0.15 kg is dropped from a height 10 m, strikes the ground and rebounds to the same height. The magnitude of impulse imparted to the ball is (g = 10 m/s^2) nearly : [NEET (UG) 2021]

(1) 1.4 kg m/s (2) 0 kg m/s
(3) 4.2 kg m/s (4) 2.1 kg m/s

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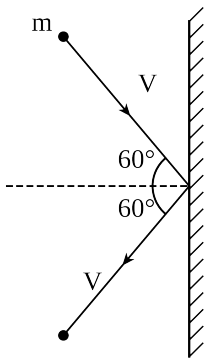
Q.3 A rigid ball of mass m strikes a rigid wall at 60° and gets reflected without loss of speed as shown in the figure. The value of impulse imparted by the wall on the ball will be : [NEET 2016 (Phase 2)]



(1) mV (2) 2 mV (3) $\frac{mV}{2}$ (4) $\frac{mV}{3}$

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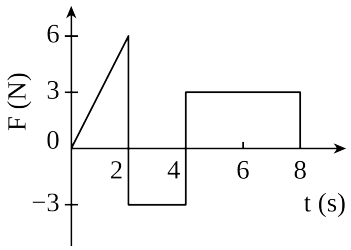
Q.4 The force F acting on a particle of mass m is indicated by the force-time graph shown below. The change in momentum of the particle over the time interval from zero to 8 s is : [AIPMT 2014]



(1) 24 N s (2) 20 N s (3) 12 N s (4) 6 N s

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Q.5 A body of mass M hits normally a rigid wall with velocity V and bounces back with the same velocity. The impulse experienced by the body is [AIPMT 2011 (Prelims)]

(1) MV (2) 1.5 MV (3) 2MV (4) zero

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Q.6 A 0.5 kg ball moving with a speed of 12 m/s strikes a hard wall at an angle of 30° with the wall. It is reflected with the same speed at the same angle. If the ball is in contact with the wall for 0.25 seconds, the average force acting on the wall is : [AIPMT 2006]

(1) 96 N (2) 48 N (3) 24 N (4) 12 N

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Q.7 An object of mass 3 kg is at rest. Now a force of $\vec{F} = 6t^2\hat{i} + 4t\hat{j}$ is applied on the object then velocity of object at t = 3 sec. is [AIPMT 2002]

(1) $18\hat{i} + 3\hat{j}$ (2) $18\hat{i} + 6\hat{j}$ (3) $3\hat{i} + 18\hat{j}$ (4) $18\hat{i} + 4\hat{j}$

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Q.8 A cricketer catches a ball of mass 150 g in 0.1 s moving with speed 20 m/s, then he experiences a force of [AIPMT 2001]

(1) 300 N (2) 30 N (3) 3 N (4) 0.3 N

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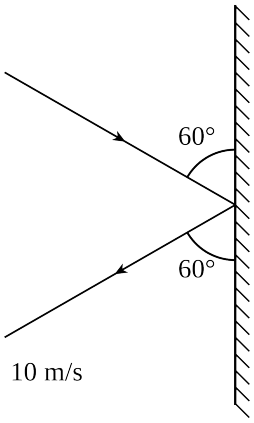
Q.9 A body of mass 3 kg hits a wall at an angle of 60° and returns at the same angle. The impact time was 0.2 s. The force exerted on the wall is [AIPMT 2000]



(1) $150\sqrt{3}$ N (2) $50\sqrt{3}$ N

(3) 100 N (4) $75\sqrt{3}$ N

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9		
Ans.	**3**	**3**	**1**	**3**	**3**	**3**	**2**	**2**	**1**		