Yakeen NEET 2.0 2026

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DPP: 5

Laws of Motion

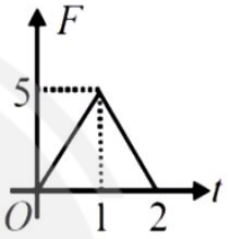
Q1 A block of metal weighing $2\ \text{kg}$ is resting on a frictionless plane. It is struck by a jet releasing water at a rate of $1\ \text{kg/s}$ with a speed of $5\ \text{m/s}$. The initial acceleration of the block will be:
(A) $2.5\ \text{m/s}^2$
(B) $5\ \text{m/s}^2$
(C) $10\ \text{m/s}^2$
(D) $15\ \text{m/s}^2$

Q2 n bullet strike per second elastically on a wall and rebound. What will be the force exerted on the wall by bullets if mass of each bullet is m :
(A) mnv
(B) $4mnv$
(C) $2mnv$
(D) $\frac{mnv}{2}$

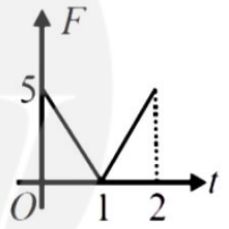
Q3 If a force of $250\ \text{N}$ act on body, the momentum acquired is $125\ \text{kg} - \text{m/s}$. What is the period for which force acts on the body
(A) 0.5sec
(B) 0.2sec
(C) 0.4sec
(D) 0.25sec

Q4 A player catches a ball of $200\ \text{g}$ moving with a speed of $20\ \text{m/s}$. If the time taken to complete the
catch is $0.5\ \text{s}$, the force exerted on the players hand is
(A) $8\ \text{N}$
(B) $4\ \text{N}$
(C) $2\ \text{N}$
(D) 0

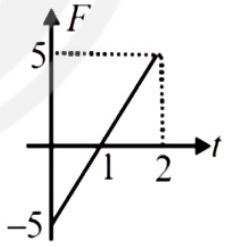
Q5 In which of the following graphs, the total change in momentum is zero?
(A)



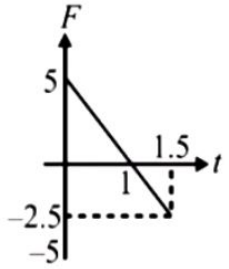
(B)



(C)

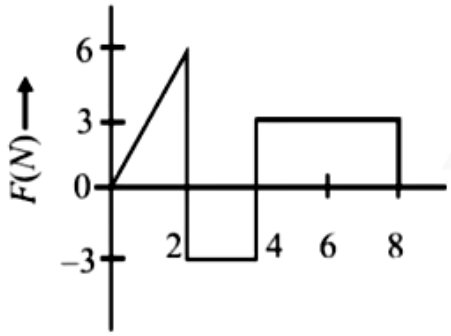


(D)



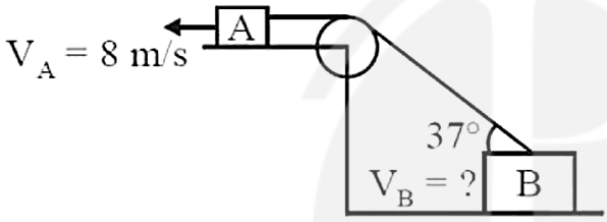
Q6 The force F acting on a particle of mass m is indicated by the force-time graph shown below.

The change in momentum of the particle over the time interval from zero to 8 s is



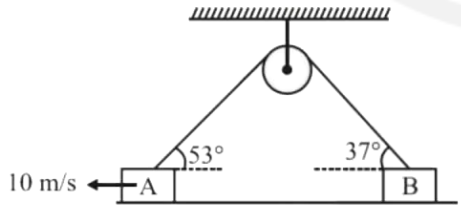
(A) 24 Ns
(B) 20 Ns
(C) 12 Ns
(D) 6 Ns

Q7 Find velocity of block B ?



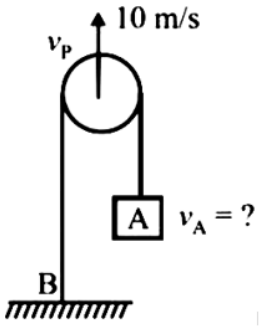
(A) $10\ \mathrm{m/s}$
(B) $15\ \mathrm{m/s}$
(C) $20\ \mathrm{m/s}$
(D) $25\ \mathrm{m/s}$

Q8 Find out the velocity of block B in a pulley block system as shown in figure.



(A) $\frac{10}{2}\ \mathrm{m/sec}$
(B) $\frac{15}{2}\ \mathrm{m/sec}$
(C) $\frac{20}{2}\ \mathrm{m/sec}$
(D) None of these

Q9 Find velocity of block A



(A) $V_a = 20\ \mathrm{m/s^{-1}}$ (downward direction)
(B) $V_a = 20\ \mathrm{m/s^{-1}}$ (upward direction)
(C) $V_a = 30\ \mathrm{m/s^{-1}}$ (upward direction)
(D) $V_a = 30\ \mathrm{m/s^{-1}}$ (downward direction)

Q10 A plumb line is suspended from a ceiling of a car moving with horizontal acceleration of a. What will be the angle of inclination with vertical
(A) $\tan^{-1}(a/g)$
(B) $\tan^{-1}(g/a)$
(C) $\cos^{-1}(a/g)$
(D) $\cos^{-1}(g/a)$

Answer Key

Q1	(A)	Q6	(C)
Q2	(C)	Q7	(A)
Q3	(A)	Q8	(B)
Q4	(A)	Q9	(B)
Q5	(C)	Q10	(A)