

PYQSide

NEET WORK, ENERGY AND POWER — COLLISIONS IN TWO DIMENSIONS — PYQS

Max. Marks: 12

Questions: 3

Section A (MCQ)

- Q.1** On a frictionless surface, a block of mass M moving at speed v collides elastically with another block of same mass M which is initially at rest. After collision the first block moves at an angle θ to its initial direction and has a speed $\frac{v}{3}$. The second block's speed after the collision is [AIPMT 2015]

(1) $\frac{3}{\sqrt{2}}v$ (2) $\frac{\sqrt{3}}{2}v$ (3) $\frac{2\sqrt{2}}{3}v$ (4) $\frac{3}{4}v$

Scan or tap for the full solution



- Q.2** Two spheres A and B of masses m_1 and m_2 respectively collide. A is at rest initially and B is moving with velocity v along x-axis. After collision B has a velocity $\frac{v}{2}$ in a direction perpendicular to the original direction. The mass A moves after collision in the direction: [AIPMT 2012 (Prelims)]

(1) same as that of B (2) opposite to that of B
 (3) $\theta = \tan^{-1}\left(\frac{1}{2}\right)$ to the x-axis (4) $\theta = \tan^{-1}\left(-\frac{1}{2}\right)$ to the x-axis

Scan or tap for the full solution



- Q.3** A mass m moving horizontally (along the x-axis) with velocity v collides and sticks to a mass of $3m$ moving vertically upwards (along the y-axis) with velocity $2v$. The final velocity of the combination is [AIPMT 2011 (Mains)]

(1) $\frac{3}{2}v\hat{i} + \frac{1}{4}v\hat{j}$ (2) $\frac{1}{4}v\hat{i} + \frac{3}{2}v\hat{j}$
 (3) $\frac{1}{3}v\hat{i} + \frac{2}{3}v\hat{j}$ (4) $\frac{2}{3}v\hat{i} + \frac{1}{3}v\hat{j}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3										
Ans.	3	4	2										