

JEE MAIN LAWS OF MOTION — FREE BODY DIAGRAMS, CONNECTED BODIES, PULLEYS, LIFTS AND WEDGES — PYQS

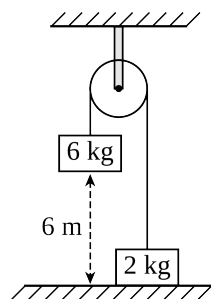
Max. Marks: 12

Questions: 3

Section A (MCQ) — 3 questions

- Q.1** The velocity at which 6 kg mass (shown in figure) strikes the ground when it is released from a height of 6 m above the ground is _____ m/s. Assume pulley is massless and string is light and inextensible. (Take $g = 10 \text{ m/s}^2$)

[JEE Main 2026 (Online) 6th April Evening Shift]



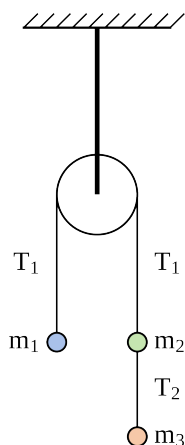
- (1) 7.74 (2) 7.20 (3) 6.55 (4) 4.50

Scan or tap for the full solution



- Q.2** Three masses $m_1 = 4 \text{ kg}$, $m_2 = 4 \text{ kg}$ and $m_3 = 6 \text{ kg}$ are suspended from a fixed smooth frictionless pulley as shown in the figure below. The value of T_1/T_2 is _____. (take $g = 10 \text{ m/s}^2$)

[JEE Main 2026 (Online) 5th April Morning Shift]



- (1) 5/3 (2) 2/3 (3) 3/5 (4) 2/5

Scan or tap for the full solution



- Q.3** A block is sliding down on an inclined plane of slope θ and at an instant $t = 0$ this block is given an upward momentum so that it starts moving up on the inclined surface with velocity u . The distance (S) travelled by the block before its velocity becomes zero, is _____. (g = gravitational acceleration)

[JEE Main 2026 (Online) 23rd January Evening Shift]

- (1) $\frac{2u^2}{g \cos \theta}$ (2) $\frac{u^2}{\sqrt{2} g \cos \theta}$
 (3) $\frac{u^2}{2g \sin \theta}$ (4) $\frac{u^2}{2g \cos \theta}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3								
Ans.	1	1	3								