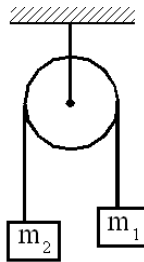
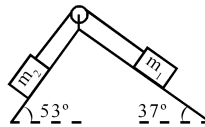


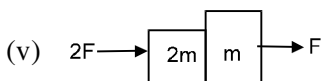
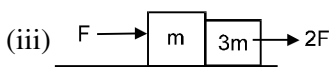
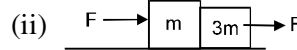
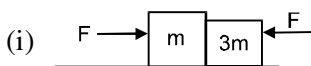
1. A book is lying on the table. What is the angle between the action of the book on the table and the reaction of the table on the book?
(A) 180° (B) 90° (C) 45° (D) 0°
2. When we kick a stone, we get hurt. Due to which one of the following properties does it happens?
(A) velocity (B) momentum (C) inertia (D) reaction
3. Two blocks of masses $m_1 = 5 \text{ kg}$ and $m_2 = 2 \text{ kg}$ hang on either side of a frictionless cylinder as shown in the figure . If the system starts at rest , what is the speed of m_1 after it has fallen 40 cm ?



4. Two blocks with masses $m_1 = 4 \text{ kg}$ and $m_2 = 5 \text{ kg}$ are connected by a light rope and slide on a frictionless wedge as shown in the figure . Given that it starts at rest , what is the speed of m_2 after it has moved 40 cm along the incline ?

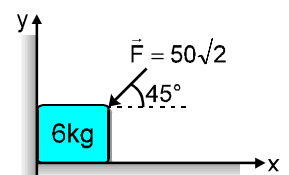


5. In all the given cases blocks are at rest, are in contact and the forces are applied as shown. All the surfaces are smooth. Then in which of the following cases, normal reaction between the two blocks is zero choose the most appropriate options.

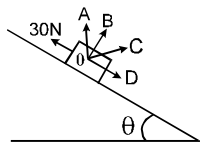


- (A) (i) , (iv) (B) (ii) , (iii) (C) (iii) (D) (v)
6. A block of 6 kg is put between two smooth walls. If $\vec{F} = 50\sqrt{2}$ is also applied as shown in figure, then

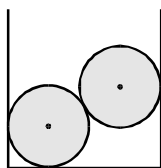
- (A) Interaction force on the block due to walls = $50\hat{i} + 110\hat{j}$
 (B) Interaction force on the walls due to the block = $50\hat{i} + 110\hat{j}$
 (C) If $\vec{F}$ were reversed, now interaction force on the block due to wall = $-50\hat{i} + 110\hat{j}$
 (D) If $\vec{F}$ were reversed, now the acceleration of the block = $\frac{50}{6}\hat{i} \text{ m/sec}^2$.



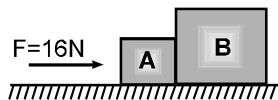
7. A body of mass 10 kg is on a rough inclined plane of inclination $\theta = \sin^{-1}(3/5)$ with the horizontal. When a force of 30 N is applied on the block parallel to and upward the plane, the total reaction by the plane on the block is nearly along :



- (A) OA (B) OB (C) OC (D) OD
8. A block of weight 9.8N is placed on a table. The table surface exerts an upward force of 10 N on the block. Assume $g = 9.8 \text{ m/s}^2$.
- (A) The block exerts a force of 10N on the table (B) The block exerts a force of 19.8N on the table
(C) The block exerts a force of 9.8N on the table (D) The block has an upward acceleration.
9. Two smooth spheres each of radius 5 cm and weight W rest one on the other inside a fixed smooth cylinder of radius 8 cm. The reactions between the spheres and the vertical side of the cylinder are :



- (A) $W/4$ & $3W/4$ (B) $W/4$ & $W/4$ (C) $3W/4$ & $3W/4$ (D) W & W
10. Two blocks A and B of masses 4 kg and 12 kg respectively are placed on a smooth plane surface. A force F of 16 N is applied on A as shown. The force of contact between A & B is



- (A) 4 N (B) 8 N (C) 12 N (D) 16 N

Answers

1. (A) 2. (D) 3. $\sqrt{\frac{24}{7}} \text{ m/s}$ 4. $1.19 = 8/3 \sqrt{5}$ 5. (B) 6. (AD) 7. (C) 8. (A)
9. (C) 10. (C)