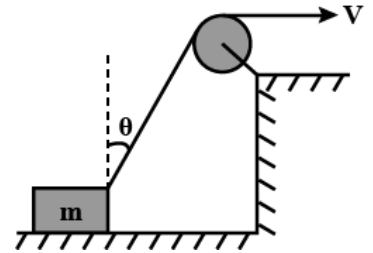


DPP - 4

NLM

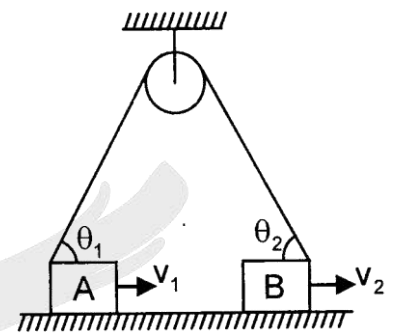
- Q.1** A block is dragged on smooth plane with the help of a rope which moves with velocity v . The horizontal velocity of the block is :

- (A) v
 (B) $\frac{v}{\sin \theta}$
 (C) $v \sin \theta$
 (D) $\frac{v}{\cos \theta}$



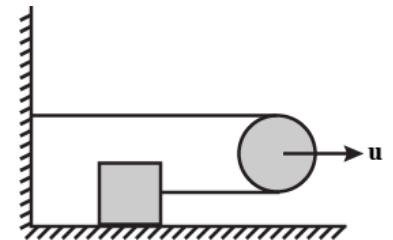
- Q.2** In the figure shown, blocks A and B move with velocities v_1 and v_2 along horizontal direction. The ratio of $\frac{v_1}{v_2}$:

- (A) $\frac{\sin \theta_2}{\sin \theta_1}$
 (B) $\frac{\sin \theta_1}{\sin \theta_2}$
 (C) $\frac{\cos \theta_2}{\cos \theta_1}$
 (D) $\frac{\cos \theta_1}{\cos \theta_2}$



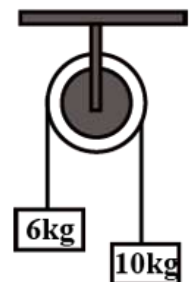
- Q.3** In the figure shown, the pulley is moving with velocity u . The velocity of the block attached with string:

- (A) $4u$
 (B) $3u$
 (C) u
 (D) $2u$



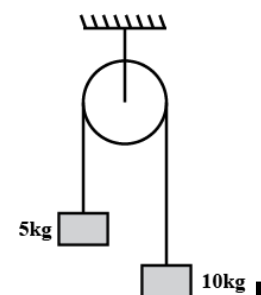
- Q.4** A light string passes over a frictionless pulley. To one of its ends a mass of 6 kg is attached and to its other end a mass of 10 kg is attached. The tension in the string will be -

- (A) 50 N
 (B) 75 N
 (C) 100 N
 (D) 150 N



- Q.5** Two masses of 5 kg and 10 kg are connected to a pulley as shown. What will be the acceleration if the pulley is set free? [g = acceleration due to gravity]

- (A) g
 (B) $\frac{g}{2}$
 (C) $\frac{g}{3}$
 (D) $\frac{g}{4}$

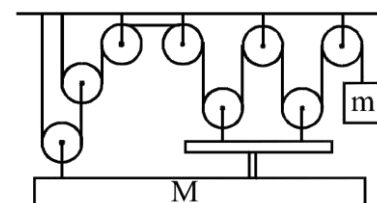


(Physics)

LAW OF MOTION

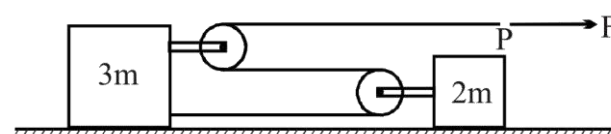
Q.6 The minimum value of mass m required to lift the load M shown in figure is

- (A) $\frac{M}{8}$
- (B) $\frac{M}{4}$
- (C) $\frac{M}{16}$
- (D) M



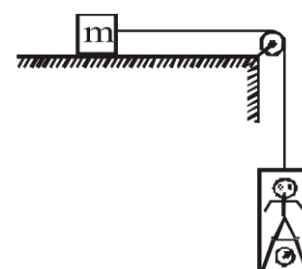
Q.7 In the setup shown, blocks of masses $3m$ and $2m$ are placed on frictionless horizontal ground and the free end P of the thread is being pulled by a constant force F . Find acceleration of the free end P .

- (A) $\frac{F}{5m}$
- (B) $\frac{2F}{m}$
- (C) $\frac{3F}{m}$
- (D) $\frac{5F}{m}$



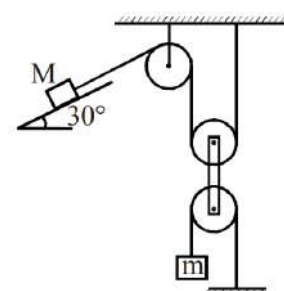
Q.8 In the figure, a man of true mass M is standing on a weighing machine placed in a cabin. The cabin is joined by a string with a body of mass m . Assuming no friction, and negligible mass of cabin and weighing machine, the measured mass of man is

- (A) $\frac{Mm}{M+m}$
- (B) $\frac{Mm}{M-m}$
- (C) M
- (D) depends on g



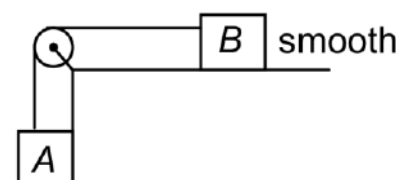
Q.9 In the arrangement shown, neglect the mass of the ropes and pulley. What must be the value of m to keep the system in equilibrium? There is no friction anywhere.

- (A) 1
- (B) $2M$
- (C) $\frac{M}{2}$
- (D) $\frac{M}{4}$



Q.10 Two blocks whose sum of masses is 1 kg were arranged as shown. Acceleration of blocks is twice, when A is hanging that of when B is hanging, the mass of A is (neglect friction)

- (A) $\frac{1}{3}$ kg
- (B) $\frac{1}{4}$ kg
- (C) $\frac{2}{5}$ kg
- (D) $\frac{2}{3}$ kg



(Physics)

LAW OF MOTION

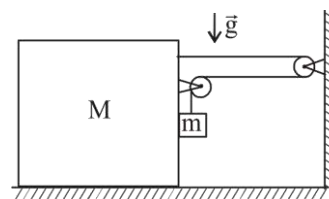
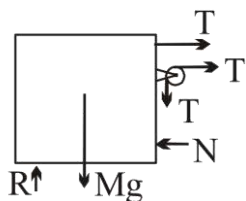
Q.11 Mark the correct option(s) after the system shown is released from rest (assume all surfaces to be frictionless).

(A) 'm' will go down because of which 'M' goes to the right.

(B) 'm' will go up because of which 'M' goes to the right.

(C) 'M' will push 'm' to the right.

(D) FBD of 'M' will be



ANSWER KEY

- | | | | | | | | | | | | | | |
|----|-----|----|-----|-----|-----|-----|-------|----|-----|----|-----|----|-----|
| 1. | (B) | 2. | (C) | 3. | (D) | 4. | (B) | 5. | (C) | 6. | (A) | 7. | (D) |
| 8. | (A) | 9. | (C) | 10. | (D) | 11. | (ACD) | | | | | | |