



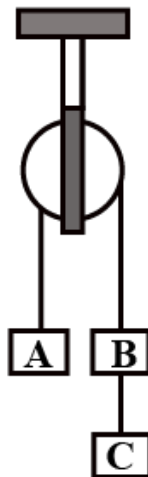
Video Solution on Website:-

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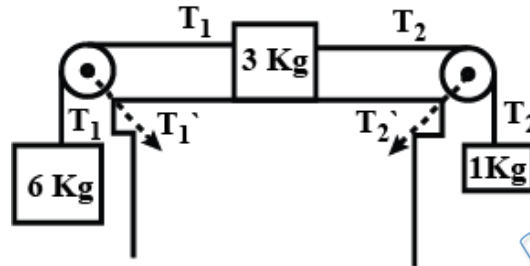
Video Solution on YouTube:-

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- Q 1. If a bullet of mass 5 gm moving with velocity 100 m/sec, penetrates the wooden block upto 6 cm. Then the average force imposed by the bullet on the block is
- (a) 8300 N (b) 417 N  
(c) 830 N (d) zero
- Q 2. A vehicle of 100 kg is moving with a velocity of 5 m/sec. To stop it in  $\frac{1}{10}$  sec, the required force in opposite direction is:
- (a) 5000 N (b) 500 N  
(c) 50 N (d) 1000 N
- Q 3. A block of mass 5kg is moving horizontally at a speed of 1.5 m/s. A perpendicular force of 5N acts on it for 4 sec. What will be the distance of the block from the point where the force started acting:
- (a) 10 m (b) 8 m  
(c) 6 m (d) 2 m
- Q 4. Three equal weights of mass 2 kg each are hanging on a string passing over a fixed pulley as shown in the fig. What is the tension in the string connecting the weights B and C? ( $g = 9.8 \text{ m/s}^2$ )
- (a) zero (b) 13 N  
(c) 303 N (d) 19.6 N

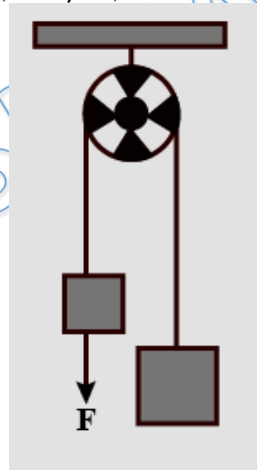


- Q 5. A system of three blocks are connected by strings as shown in figure. Calculate acceleration of each block and tension in the strings: ( $g = 10 \text{ m/s}^2$ )



- (a)  $a = 5 \text{ m/s}^2, T_1 = 30 \text{ N}, T_2 = 15 \text{ N}$   
 (b)  $a = 5 \text{ m/s}^2, T_1 = 15 \text{ N}, T_2 = 30 \text{ N}$   
 (c)  $a = 2.5 \text{ m/s}^2, T_1 = 40 \text{ N}, T_2 = 20 \text{ N}$   
 (d)  $a = 2.5 \text{ m/s}^2, T_1 = 20 \text{ N}, T_2 = 40 \text{ N}$

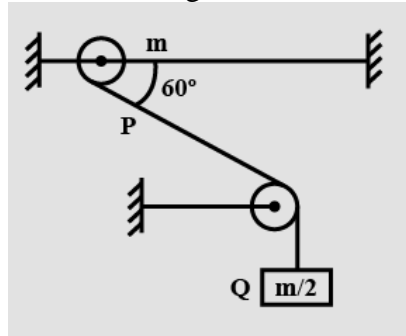
- Q 6. Two unequal masses of 1kg and 2kg are connected by an inextensible light string passing over a smooth pulley as shown in the figure. A force  $F=20\text{N}$  is applied on 1kg block. Find the acceleration (in  $\text{m/s}^2$ ) of either block: ( $g = 10 \text{ m/s}^2$ )



- (a)  $\frac{10}{3}$  (b)  $\frac{20}{3}$   
 (c) 10 (d) 20

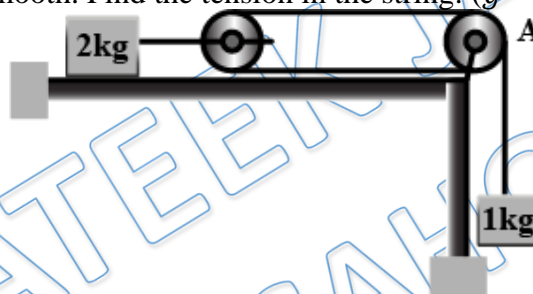
- Q 7. A smooth ring P of mass  $m$  can slide on a fixed horizontal rod. A string tied to the ring passes over a fixed pulley and carries a block Q of mass  $(m/2)$  as shown in the figure.

At an instant, the string between the ring and the pulley makes an angle  $60^\circ$  with the rod. The initial acceleration of the ring is:



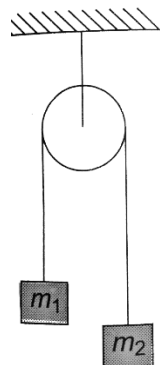
- (a)  $\frac{2g}{9}$  (b)  $\frac{g}{6}$   
(c)  $\frac{2g}{6}$  (d)  $\frac{g}{3}$

Q 8. Consider the situation shown in figure. Both the pulleys and the string are light and all the surfaces are smooth. Find the tension in the string: ( $g = 10 \text{ m/s}^2$ )



- (a)  $\frac{20}{3} \text{ N}$  (b)  $\frac{5}{3} \text{ N}$   
(c)  $\frac{40}{3} \text{ N}$  (d)  $\frac{10}{3} \text{ N}$

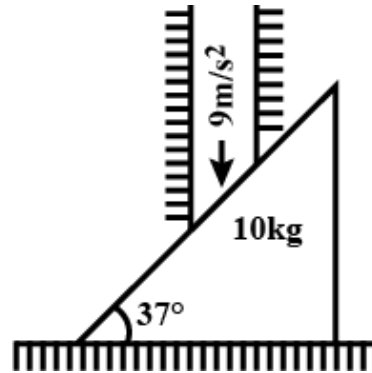
Q 9. Two masses  $m_1 = 5 \text{ kg}$  and  $m_2 = 10 \text{ kg}$  are connected at the ends of an inextensible string passing over a frictionless pulley as shown. When the masses are released, then the acceleration of the masses will be:



- (a)  $g$   
(b)  $\frac{g}{2}$   
(c)  $\frac{g}{3}$

(d)  $\frac{g}{4}$

- Q 10. System is shown in figure. All the surfaces are smooth. Rod is moved by external agent with acceleration  $9 \text{ m/s}^2$  vertically downwards. Force exerted on the rod by the wedge will be:



- (a)  $120 \text{ N}$   
 (b)  $200 \text{ N}$   
 (c)  $\frac{135}{2} \text{ N}$   
 (d)  $\frac{225}{2} \text{ N}$

- Q 11. A person of mass  $50 \text{ kg}$  stands on a weighing scale on a lift. If the lift is descending with a downward acceleration of  $9 \text{ m/s}^2$ , what would be the reading of the weighing scale? ( $g = 10 \text{ m/s}^2$ )

- (a)  $50 \text{ kg}$  (b)  $25 \text{ kg}$   
 (c)  $250 \text{ kg}$  (d)  $5 \text{ kg}$

## Answer Key

Q.1 b	Q.2 a	Q.3 a	Q.4 b	Q.5 a
Q.6 a	Q.7 a	Q.8 d	Q.9 c	Q.10 b
Q.11 d				