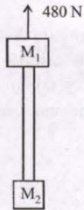


QUES 06

Two blocks of mass $M_1 = 20$ kg and $M_2 = 12$ kg are connected by a metal rod of mass 8 kg. The system is pulled vertically up by applying a force of 480 N as shown. The tension at the mid-point of the rod is :

[Main Online April 22, 2013]

- (a) 144 N
- (b) 96 N
- (c) 240 N
- (d) 192 N



(d) Acceleration produced in upward direction

$$a = \frac{F}{M_1 + M_2 + \text{Mass of metal rod}}$$

$$= \frac{480}{20 + 12 + 8} = 12 \text{ ms}^{-2}$$

Tension at the mid point

$$T = \left(M_2 + \frac{\text{Mass of rod}}{2} \right) a$$

$$= (12 + 4) \times 12 = 192 \text{ N}$$

F
↑