

## Mathematics Questions by Topic

Motion and Force

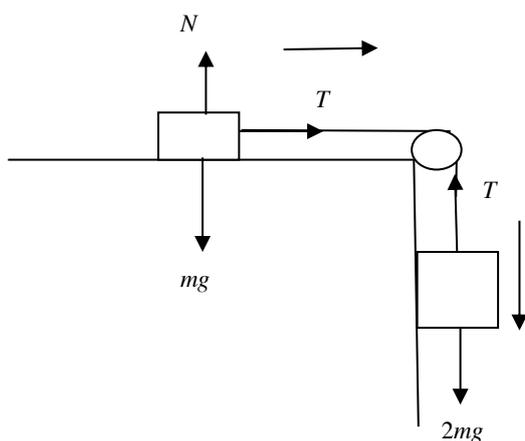
Answer 50 Source: K5SM1S29

### Question 50

A block of mass  $m$  kg is lying on a smooth horizontal table and is joined by a light inextensible string to a another block of mass of  $2m$  kg hanging vertically. This string passes over a smooth pulley at the edge of the table. When the system is released from rest, the acceleration of the blocks in  $m/s^2$  is given by

- A.  $\frac{2}{3}$
- B.  $\frac{2g}{3}$
- C. 1
- D.  $2g$
- E.  $g$

### ANSWER B



resolving using Newton's 2nd law

$$(1) 2mg - T = 2ma$$

$$(2) T = ma \text{ substituting into (1)}$$

$$2mg - ma = 2ma$$

$$3ma = 2mg$$

$$a = \frac{2g}{3}$$

**End of  
MATHEMATICS QUESTIONS BY TOPICS  
MOTION AND FORCE  
Answers to 50 Multiple Choice Questions**