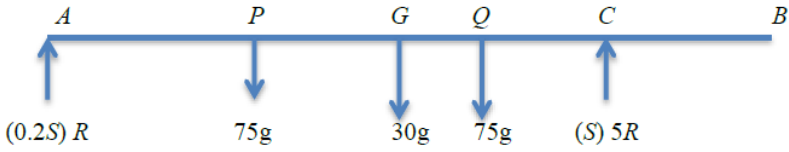


Daily Question

Day 6 Mechanics – Mark Scheme

Question 1

<p>(a)</p>  <p style="text-align: center;"> $(-) R + 5R = 75g + 30g + 75g$ $M(A) \quad 75gx + 75g \cdot 2x + 30g \times 3 = 5R \times 4$ $x = \frac{34}{15} = 2.3 \text{ or better}$ </p> <p>(N.B. Or another Moments Equation)</p>	<p>M1 A2 M1 A2 A1 (M1 A2) (7)</p>
<p>b)</p> <p>uniform – mass is or acts at midpoint of plank; centre of mass is at middle of plank; weight acts at the middle of the plank, centre of gravity is at midpoint</p> <p>rod - plank does not bend, remains straight, is inflexible, is rigid</p>	<p>B1 B1 (2) 9</p>

Question 2

<p> $T + 4T = 60g + 30g$ OR $M(P), 60g \times 2 + 30g \times 4 = 4T(4 - x)$ OR $M(Q), 4Tx + T \times 4 = 60g \times 2$ OR $M(R), T(4 - x) + 30gx = 60g(2 - x)$ OR $M(G), T \times 2 + 30g \times 2 = 4T(2 - x)$ $T = \frac{90g}{5}$ oe, 176 N or 180 N (Tension at P) $x = \frac{2}{3}$ (0.67 or better) </p>	<p>M1 A1 M1 A1 A1 A1 A1 (7)</p>
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