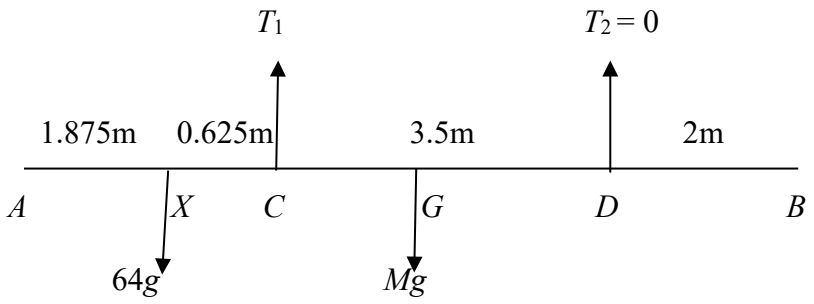
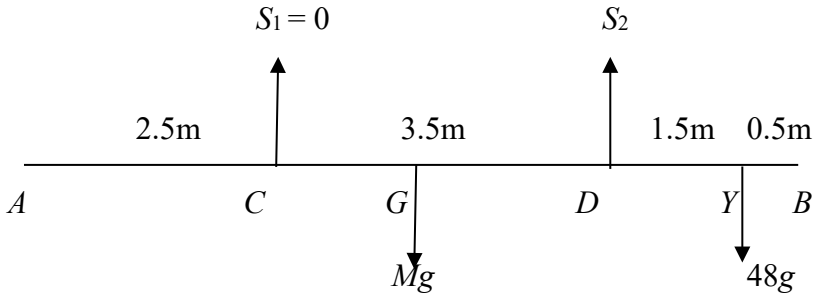
Question Number	Scheme	Marks
4.		
	Use of $T_2 = 0$	M1
	$M(C), 64g \times 0.625 = Mg(d - 2.5)$ **OR e.g.** $M(C), 64g \times 0.625 = Mgx$	M1 A1
	Other equations: (T_1 would then have to be eliminated to give an equation in M and d only, to earn the M mark) $T_1 = Mg + 64g$ $M(A), 64g \times 1.875 + Mgd = 2.5T_1$ $M(G), 64g \times (d - 1.875) = T_1 \times (d - 2.5)$ $M(D), 64g \times 4.125 + Mg(6 - d) = 3.5T_1$ $M(B), 64g \times 6.125 + Mg(8 - d) = 5.5T_1$ $M(X), Mg(d - 1.875) = 0.625T_1$	
		
	Use of $S_1 = 0$	M1
	$M(D), 48g \times 1.5 = Mg(6 - d)$ **OR e.g.** $M(D), 48g \times 1.5 = Mg(3.5 - x)$	M1 A1
	Other equations: (S_2 would then have to be eliminated to give an equation in M and d only, to earn the M mark) $S_2 = Mg + 48g$ $M(A), 48g \times 7.5 + Mgd = 6S_2$ $M(C), 48g \times 5 + Mg(d - 2.5) = 3.5S_2$ $M(G), 48g \times (7.5 - d) = S_2 \times (6 - d)$ $M(B), 48g \times 0.5 + Mg(8 - d) = 2S_2$ $M(Y), Mg(7.5 - d) = 1.5S_2$	
	Solve for M	**DM**1
	$M = 32$ exact answer.	A1
		(8)
		(8)

	Notes for Question 4	
	M1 $T_2 = 0$ seen or implied	
	M1 Correct number of terms, dimensionally correct equation in M and one unknown length. (allow without *g*'s, omission of a length is an M error)	
	A1 Correct equation in *M* and *d only* or another unknown length.	
	M1 $S_1 = 0$ seen or implied	
	M1 Correct number of terms, dimensionally correct equation in M and same unknown length. (allow without *g*'s, omission of a length is an M error)	
	A1 Correct equation in *M* and *d only* or same unknown length.	
	DM1 Solving for *M*, dependent on all previous M marks	
	A1 Correct exact answer	