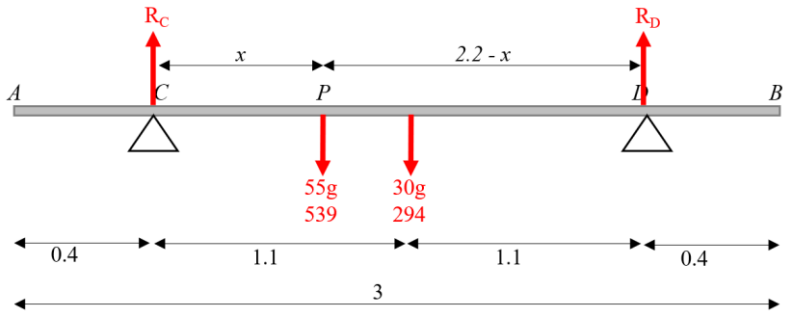
QUESTION NUMBER	SCHEME	MARKS
5		
5(a)	M(D) $(R_C \times 2.2) = 55g(2.2-x) + 30g(1.1)$	M1A1
	$(R_C) = (686 - 245x)$ (N) *	A1 *
	N.B. The M mark here is not available if they use $R_C = 4R_D$ to obtain the given result.	
		(3)
5(b)	$R_C = 4R_D$	M1
	Vert: $R_C + R_D = 55g + 30g \Rightarrow \frac{5}{4}(686 - 245x) = 55g + 30g$ Relevant moments equations: M(C): $55gx + 30g(1.1) = R_D(2.2)$ M(A): $R_C(0.4) + R_D(2.6) = 55g(x+0.4) + 30g(1.5)$ M(P): $R_C x + 30g(1.1-x) = R_D(2.2-x)$ M(G): $R_C(1.1) = 55g(1.1-x) + R_D(1.1)$ M(B): $R_D(0.4) + R_C(2.6) = 30g(1.5) + 55g(2.6-x)$	M1A1
	$x = 0.08$	A1
		(4)
5(c)	M(C): $Mg(0.4) = 30g(1.1)$	M1 A1
	M = 83 or 82.5 or $\frac{165}{2}$ oe	A1
	Other possible equations with $S_D = 0$ Vert: $S_C = Mg + 30g$ M(A): $S_C(0.4) = 30g(1.5)$ M(G): $S_C(1.1) = Mg(1.5)$ M(D): $S_C(2.2) = 30g(1.1) + Mg(2.6)$ M(B): $S_C(2.6) = 30g(1.5) + Mg(3)$ from which S_C would need to be eliminated to give an equation in M only.	
		(3)
		(10)

	Notes for question 5	
(a)		
M1	Forms an equation in R_C and x only. Dimensionally correct and the correct no. of terms. Either a moments equation about D or two other equations combined to eliminate R_D.	
A1	Correct unsimplified equation	
A1*	Correctly reaches the given answer with at **least one line of intermediate working.**	
(b)		
M1	**Use** of $R_C = 4R_D$	
M1	Complete method to form an equation in x only. Dimensionally correct and the correct no. of terms. Either vertical resolution or a moments equation(s) with R_C and R_D eliminated. R_C **must be replaced with the given expression in (a)**. R_D replaced with $\frac{1}{4}R_C$ but condone $4R_C$ for the method mark.	
A1	Correct unsimplified equation in x only.	
A1	Correct answer	
(c)		
M1	Use $S_D = 0$ and forms an equation in M only. Dimensionally correct and the correct no. of terms. M0 if $S_D \neq 0$.	
A1	Correct unsimplified equation	
A1	Correct answer, 83 or 82.5 o.e.	