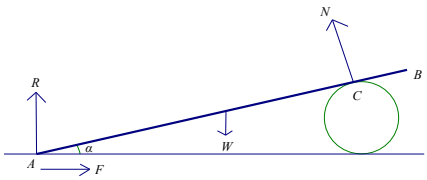
Question Number	Scheme	Marks
6a	 Resolve vertically $\updownarrow R + N\cos\alpha = W$ Take moments about A $7aN = 4a\cos\alpha \times W$ Obtain equation in R, W and α $N = W \times \frac{4}{7}\cos\alpha \Rightarrow$ $R = W - \frac{4}{7}W\cos^2\alpha$ $= W\left(1 - \frac{4}{7}\cos^2\alpha\right)$ * Alternative equations $R\sin\alpha + F\cos\alpha = W\sin\alpha$ $N + R\cos\alpha = W\cos\alpha + F\sin\alpha$ $W.3a\cos\alpha + F.7a\sin\alpha = R.7a\cos\alpha$ First 4 marks for alternative methods	M1 A1 M1 A1 DM1 A1* (6) M1 A1 M1 A1 DM1 A1* (6)
6a M1		
A1	Correct unsimplified equation	
M1		
A1	Correct unsimplified equation	
DM1	Solve for R in terms of W. Dependent on the 2 preceding M marks	
A1*	Obtain **given answer** from correct working	
Alt:	Parallel to the rod Perpendicular to the rod Moments about C	
M1	Equation in R. All terms needed. Condone sin/cos confusion and sign errors	
A1	Correct unsimplified equation	
M1	Sufficient additional equations to solve for R in terms of W. Dimensionally correct. All terms needed. Condone sin/cos confusion and sign errors	
A1	Correct unsimplified equation	

Question Number	Scheme	Marks
6b	$R = W\left(1 - \frac{4}{7} \times \frac{9}{10}\right) = \frac{17W}{35}$	B1
	Resolve horizontally	M1
	$F = N\sin\alpha = \frac{4}{7} \times \frac{3}{\sqrt{10}} \times \frac{1}{\sqrt{10}} W$	A1
	$\left(= \frac{6}{35} W\right)$	
	Use of $F \leq \mu R$	M1
	$\Rightarrow \mu \geq \frac{6}{17}$	A1 (5)
	Notes	**[11]**
6b B1	Seen or implied	
M1	Obtain equation in	
A1	Correct unsimplified equation in F and W (trig. substituted) $(0.171W)$	
M1	Correct method to find the critical value. Condone with any symbol.	
A1	0.35 or better (0.3529.....) from correct working Final answer. Do not ISW	