Question Number	Scheme	Marks
	$T\cos\alpha = mg$	M1A1
	$\frac{\lambda a}{4a}\times\frac{3}{5} = mg \Rightarrow \lambda = \frac{20mg}{3}$ *	A1* (4)
1(b)	$T\sin\alpha = kmg$	M1A1
	$\frac{20mg}{3}\times\frac{1}{4}\times\frac{4}{5} = kmg$	M1
	$k = \frac{4}{3}$	A1 (4)
		(8)
	Notes for question 1	
	Mark parts (a) and (b) together	
1(a)		
B1	Use of Hooke's Law	
M1	For a relevant equation in *T*. Must be dimensionally correct with the correct number of terms, condone sign errors and sin/cos confusion. Eg • Resolve vertically: $T\cos\alpha = mg$ • Parallel to string: $T = kmg\ \sin\alpha + mg\cos\alpha$ • Triangle of forces: $T = \sqrt{(mg)^2 + (kmg)^2}$	
A1	Correct unsimplified equation	
A1*	Given answer obtained from complete and correct working. Must include a line of working before reaching the given answer.	
1(b)		
M1	For a relevant equation in *k* (a second equation). Must be dimensionally correct with the correct number of terms, condone sign errors and sin/cos confusion. Eg • Resolve horiz: $T\sin\alpha = kmg$ • Perp to string: $mg\sin\alpha = kmg\cos\alpha$ • Triangle of forces: $\tan\alpha = \frac{kmg}{mg} = \frac{4}{3}$	
A1	Correct unsimplified equation	
M1	Complete method to produce an equation in *k* only (replace *T* and trig)	
A1	Any equivalent fraction. Accept 1.3 or better	
	Lami: $\frac{T}{\sin 90} = \frac{kmg}{\sin(180-\alpha)} = \frac{mg}{\sin(90+\alpha)}$ M0 for an EPE approach	