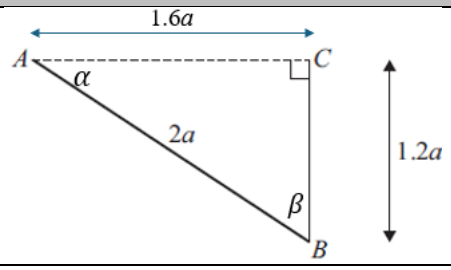
Question Number	Scheme	Marks
		
1(a)	M(*A*),	M1
	$Mg \times \frac{1}{2} AC = T \times AC$	A1
	$(T =) \ \frac{1}{2} mg$	A1
		(3)
1(b)	Use of HL with *T*	M1
	$\frac{1}{2} mg = \frac{2mg}{L}(1.2a - L)$	A1ft
	Solve for *L*	M1
	$(L =) \ 0.96a$ or $\frac{24}{25} a$	A1
		(4)
		(7)
Notes for question 1		
(a)		
M1	Take moments about *A* or another complete method to obtain a dimensionally correct equation in *T* and *mg*. All required terms present with no extras. Accept with consistent $\sin\theta$ or $\cos\theta$ present in both terms or neither. For example, $Mg \times \frac{1}{2} AC = T \times AC$, $Mga\cos\alpha = T2a\cos\alpha$, $0.8aMg = 1.6aT$, $Mga\sin\beta = T2a\sin\beta$	
A1	A correct unsimplified equation	
A1	Correct answer	
(b)		
M1	Use of Hooke's Law and their *T* to obtain a dimensionally correct equation in *L* and *a* only. Accept consistent omission of *m* and/or *g*. *T* must be of the form *kmg* where *k* is a constant. HL must be of the form $\frac{\lambda(1.2a - L)}{L}$ or $\frac{\lambda(L - 1.2a)}{L}$ If HL is seen in (a) it must be used in (b) to earn the marks.	
A1ft	A correct equation, ft on their *T*	
M1	Complete method using their *T* and an attempt at HL to solve a dimensionally correct equation and find *L* in terms of *a* only. *T* must have the form *kmg* where *k* is a constant. HL must have the form $\frac{\lambda(1.2a - L)}{L}$ or $\frac{\lambda(L - 1.2a)}{L}$ or $\frac{\lambda x}{L}$ where *x* is a multiple of *a*.	
A1	Correct solution including working from part (a).	