Question Number	Scheme	Marks
7(a)	$T = ma$ (allow -*a*)	B1
		(1)
7(b)	$4mg\sin\alpha - T - F = 4ma$ **OR** $4mg\sin\alpha - F = 5ma$ (allow -*a*) (allow -*a*)	M1A1
	$F = \frac{1}{4}R$	B1
	$R = 4mg\cos\alpha$	M1A1
	Solve for *T* in terms of *mg* only	**D**M1
	$T = \frac{8mg}{25}$ oe	A1
		(7)
7©	$2T\sin\frac{1}{2}\alpha$ oe e.g. $\sqrt{T^2 + T^2 - 2T^2\cos\alpha}$ using cos rule Or $\frac{T\sin\alpha}{\sin(90^o - \frac{1}{2}\alpha)}$ using sine rule Or $\sqrt{(T - T\cos\alpha)^2 + (T\sin\alpha)^2}$ using components and Pythag.	M1 A1
	Substitute for *T* and trig	M1
	$\frac{8mg\sqrt{10}}{125}$ oe, $2m$ or $2.0m$ or $1.98m$ or $0.2mg$ or better	A1
		(4)
7(d)	e.g. Tension will be the same *throughout a* ***section*** of the string.	B1 (1)
		(13)
	Notes for question 7	
7(a)	B1 cao The equation must appear in (a) to earn the B1.	
7(b)	M1 Equation of motion for *P* parallel to the plane, correct no. of terms, condone sign errors and sin/cos confusion	
	A1 Correct equation	
	B1 $F = \frac{1}{4}R$ seen – could just be on the diagram	
	M1 Resolve perpendicular to the plane for *P*, correct no. of terms, condone sign errors and sin/cos confusion	
	A1 Correct equation	
	DM1 Dependent on both M marks, for solving for *T* – must be in terms of *mg only* (must be of form *kmg*)	
	A1 cao	
7©	M1 If using resolving, condone cos/sin confusion and sign errors but must have correct angle	
	A1 Any correct unsimplified expression in terms of *T* and α	
	M1 For substituting in their *T* (must be of form *kmg*) and *correct* values for their trig	
	A1 cao	
7(d)	B1 B0 for 'tension is the same throughout the string' B0 if incorrect extras	