Question Number	Scheme	Marks
7(a) (i)	$T - 2mg\sin\alpha - F = 2ma$	M1A1
(ii)	$3mg - T = 3ma$	M1A1
	N.B. Ignore the labelling (i) and (ii)	(4)
7(b)	$R = 2mg\cos\alpha$ Allow if this appears in (a).	M1A1
	$F = \frac{1}{2}R$	B1
	Substitute for trig. and solve for *a*,	DM1
	$a = \frac{1}{5}g$	A1
		(5)
7(c)	$T = \frac{12mg}{5}$ (23.52*m*)	DM1
	$2T\cos\left(\frac{90^o - \alpha}{2}\right)$ **OR** $\sqrt{T^2 + T^2 - 2T^2\cos(90^o + \alpha)}$ **OR** $\sqrt{(T\cos\alpha)^2 + (T + T\sin\alpha)^2}$	M1
	Substitute for trig and *T* to obtain an expression in *m* or *mg*	DM1
	$\frac{48\sqrt{5}mg}{25}$; Accept 4.3*mg* or better, 42*m* or 42.1*m*	A1
		(4)
7(d)	Tension is the same on **either side of the pulley**, tension across the pulley is the same.	B1
	B0 for tension is same for *A* and *B* or is the same for both strings etc	(1)
		(14)
	Notes for question 7	
	N.B. If *m*'s are consistently missing, mark (a) and (b) as a MR	
7(a)	M1 Correct no. of terms, condone sin/cos confusion and sign errors	
	A1 Correct equation	
	M1 Correct no. of terms, condone sign errors	
	A1 Correct equation **N.B**. Could have *a* replaced by (-*a*) in both	
7(b)	M1 Correct no. of terms, condone sin/cos confusion and sign errors	
	A1 Correct equation	
	B1 Seen, possibly on a diagram or in (a)	
	DM1, dependent on the two M's in (a), for solving 2 simultaneous equations or using a whole system equation to find *a*	
	A1 cao	
7(c)	DM1, dependent on the relevant 1st or 2nd M1 in (a), for attempt to find their *T*, must be of form *km* or *kmg* . Apply isw if they 'cancel' *m*'s.	
	M1 for a **correct** expression in terms of *T* and α only; α does not need to be substituted	
	DM1, dependent on previous M, for substituting in their *T* **and** for trig, to give an expression of form *km* or *kmg*	
	A1 cao	
7(d)	B1 for any equivalent statement. B0 for incorrect extras.	