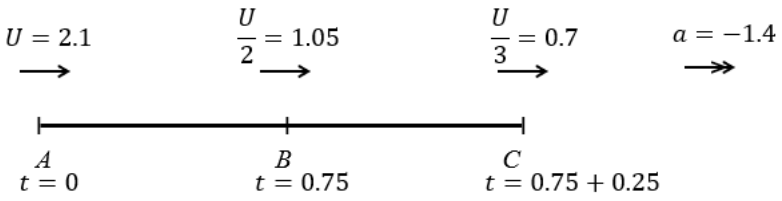
Question Number	Scheme	Marks
5		
(a)	Vert $R = mg$	B1
	$F = \frac{1}{7}R$	B1
	N2L $-F = ma$	M1
	$a = \pm\frac{g}{7}$ or ± 1.4	A1
	suvat from A to B $\frac{U}{2} = U + a(0.75)$	M1
	Obtain given answer $U = 2.1$ *	A1*
		(6)
(b)	*suvat* from B to C	M1
	For example, • $\frac{2.1}{3} = \frac{2.1}{2} + \left(\frac{-g}{7}\right)t$ • $\frac{U - \frac{U}{2}}{0.75} = \frac{\frac{U}{2} - \frac{U}{3}}{t}$	A1
	$t = 0.25$ (s)	A1
		(3)
(c)	*suvat* from A to C	M1
	For example, • $s = \left(\frac{2.1 + \frac{2.1}{3}}{2}\right)(0.75 + "0.25")$ • $\left(\frac{2.1}{3}\right)^2 = 2.1^2 + 2\left(-\frac{g}{7}\right)s$	A1ft
	1.4 (m)	A1
		(3)
		(12)
	Notes for Question 5	
	Penalise use of $g = 9.81$ on first occasion only. Penalise over/under accuracy of final answer on first occasion only.	
5(a)		
B1	Vertical equilibrium $R = mg$ seen or implied.	

B1	$F = \frac{1}{7}R$ seen or implied.	
M1	Use of N2L. Correct number of terms and dimensionally correct. Note: $-\frac{1}{7}mg = ma$ implies first 3 marks. M0 if $a = \pm 1.4$ with no evidence of $F = ma$ or $\pm\frac{g}{7}$	
A1	Correct acceleration, accept $\pm\frac{g}{7}$	
M1	Correct method using relevant *suvat* equation(s) from *A* to *B* to form an equation in *U* and *a* only. M0 for use of $a = \pm g$	
A1*	Obtain given answer from complete and correct working. Must use $g = 9.8$. Allow use of $a = 0.67U$ or better. Must reach $U = 2.1$ or $2.1 = U$.	
5(b)		
M1	Correct method using relevant *suvat* equation(s) from *B* to *C* to form an equation in *t* (and *U*). Must use $\frac{U}{2}$ and $\frac{U}{3}$ or numerical equivalent. Use of their acceleration for the method mark $(a \neq \pm g)$	
A1	Correct unsimplified equation in *t* only	
A1	Correct answer, 2sf following use of $g = 9.8$ ms^{-2}	
5(c)		
M1	Complete method to find the distance from *A* to *C*. Relevant *suvat* equation(s) for the full time period. Accept in terms of *U* for the method mark. Use of their acceleration for the method mark $(a \neq \pm g)$	
A1ft	Correct unsimplified equation. Follow through their "0.25".	
A1	Correct answer	