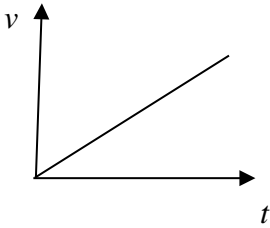


Question		Scheme	Marks	AOs
		Mark parts (a) and (b) together		
2(a)	Equation of motion for A		M1	3.3
	$3mg \sin \alpha - F - T = 3ma$		A1	1.1b
			(2)	
2(b)	Resolve perpendicular to the plane		M1	3.4
	$R = 3mg \cos \alpha$		A1	1.1b
	$F = \frac{1}{6}R$		B1	1.2
	Equation of motion for B OR for whole system		M1	3.3
	$T - mg = ma$ OR $3mg \sin \alpha - F - mg = 3ma + ma$		A1	1.1b
	Complete method to solve for a		DM1	3.1b
	$a = \frac{1}{10}g$ *		A1*	2.2a
			(7)	
2(c)			B1	1.1b
	e.g. acceleration (of B) is constant; dependent on first B1		DB1	2.4
			(2)	
2(d)	e.g. the tensions in the two equations of motion would be different. Tension on A would be different to tension on B		B1	3.5a
			(1)	
(12 marks)				
Notes: N.B. If m's are consistently missing treat as a MR, so max (a) M1A0 (b) M1A0B0M1A1M1A1 (c) B1B1 (d) B1 For (a) and (b), allow verification, but must see full equations of motion.				
2a	M1	Equation in T and a with correct no. of terms, condone sign errors and sin/cos confusion (If one of the 3's is missing, allow M1) N.B. Treat sin(3/5) etc as an A error but allow recovery		
	A1	Correct equation (allow $(-a)$ instead of a in <u>both</u> equations)		

2b	M1	Correct no. of terms, condone sign errors and sin/cos confusion Allow if appears in (a)
	A1	Correct equation
	B1	Seen anywhere in (a) or (b), including on a diagram
	M1	Equation (for B) in T and a with correct no. of terms, condone sign errors and sin/cos confusion OR Whole system equation with correct no. of terms, condone sign errors and sin/cos confusion
	A1	Correct equation
	DM1	Complete method (trig may not be substituted), dependent on M1 in (a) and second M1 in (b) if they use two equations, or second M1 in (b) if they use one equation.
	A1*	Correct answer correctly obtained.
2c	B1	Straight line starting at the origin (could be reflected in the t -axis). B0 if continuous vertical line at the end.
	DB1	Dependent on first B1, for any equivalent statement
2d	B1	B0 if incorrect extras