Question	Answer	Marks	Guidance
(a)	$2.4g - T = 2.4a$ $T - 1.2g = 1.2a$	M1	Attempt at Newton's second law on either particle or the system with correct number of terms; allow sign errors.
	$2.4g - 1.2g = (2.4 + 1.2)a$	A1	Any 2 consistent and correct May have an a in opposite direction to our a
	Attempt to solve for a or T	M1	From equation(s) with correct number of relevant terms. If g missing then M0A0M1A0, maximum1/4. Must get $a =$ or $T =$ Must not assume $T = 16$. May attempt to verify a value of a using $T = 16$ in 2 equations
	$T = 16$ N and $a = \dfrac{10}{3}$ ms^{-2}	A1	Both correct; allow $a = 3.33$. **AG** for $T = 16$. Assuming $T = 16$ and only one equation is M1A0M0A0 maximum 1/4. Withhold A mark if $T = 15.9... \approx 16$, but condone $T = 1.2 \times 3.33 + 12 = 16$ or $T = 24 - 2.4 \times 3.33 = 16$
		4	

Question	Answer	Marks	Guidance
(b)	$v^2 = 2 \times \dfrac{10}{3} \times 2.1$ $\left[=14\right]$ $\left[v = \sqrt{14} = 3.741......\right]$ OR $\dfrac{1}{2} \times 2.4 \times v^2 = 2.4g \times 2.1 - 16 \times 2.1$ OR $\dfrac{1}{2} \times 2.4 \times v^2 + \dfrac{1}{2} \times 1.2 \times v^2 = 2.4g \times 2.1 - 1.2g \times 2.1$	M1	Use of suvat or use energy to find v or v^2, using their $a \neq \pm g$ (unless 10 comes from their attempt at a) from **(a)**, $s = 2.1$
	$0 = 14 - 2 \times g \times s \rightarrow s = ...$ or $\dfrac{1}{2}(1.2)\left(\sqrt{14}\right)^2 = (1.2) \times g \times h \rightarrow h = ...$	M1	Attempt to use $v^2 = u^2 + 2as$ (or other complete method), using $a = -g$, to find additional height after string slack, using their v or v^2.
	$s = \left[1.5 + 2.1 + 0.7 = \right] 4.3$ m	A1	AWRT 4.3(0); Allow use of $a = 3.33$ to give $s = 4.2993 \approx 4.3(0)$ Allow use of $v = 3.74$ to give $s = 4.29938 \approx 4.3(0)$
	Alternative for question (b) - using energy on particle *B*		
	$16 \times 2.1 = 1.2gH$	M1	Apply energy to *B*, 2 terms
	$H = 2.8$	A1	
	$s = \left[1.5 + 2.8 = \right] 4.3$ m	A1	
		3	