

Question Number	Scheme	Marks
7(a)	$\frac{42mg}{5} - (m+M)g = (m+M)\frac{2g}{5} \quad \text{where } M = (p+q)$ OR : $\frac{42mg}{5} - Mg = M\frac{2g}{5} \quad \text{where } M = p + q + m$	M1 A1
	$(p+q) = 5m$	dM1 A1
		(4)
7(b)	$\frac{14mg}{5} - pg = p\left(\frac{2g}{5}\right)$	M1 A1
	$p = 2m$	A1
		(3)
		(7)
	NOTES	
	N.B. Use the mass in the ' ma ' term to determine which part of the system is being considered.	
(a) M1	Form an equation of motion for the whole system with the combined mass of P and Q . Correct terms, condone sign errors. N.B. They may consider the 2 masses (M) and the lift separately and eliminate the normal reaction e.g. $R - Mg = M\frac{2g}{5}$ AND $\frac{42mg}{5} - mg - R = m\frac{2g}{5}$ AND add to eliminate R	
A1	Correct equation in M and m for their M N.B. Award marks for a correct equation only if no wrong working seen.	
dM1	Rearrange to find an expression for the combined mass of P and Q . Must be a multiple of m	
A1	Cao	
(b) M1	Form an equation of motion for box P . Correct terms, condone sign errors. Fully correct equation.	
A1	Cao	