Question Number	Answer		Mark
18(a)(i)	Use of $\Delta F = k\Delta x$	**(1)**	
	k = 346 (N m^{-1})	**(1)**	**2**
	Example of calculation $k = \frac{15.0 \text{ kg} \times 9.81 \text{ m s}^{-2}}{0.425 \text{ m}} = 346.2 \text{ N m}^{-1}$		
18(a)(ii)	(When the cradle is displaced): there is a (resultant) acceleration/force that is proportional to the displacement from the equilibrium position	**(1)**	
	and (always) acting towards the equilibrium position	**(1)**	**2**
	(An equation with symbols defined correctly is a valid response for both marks For equilibrium position accept: undisplaced point/position or fixed point/position or central point/position)		
18(a)(iii)	Use of $T = 2\pi\sqrt{\frac{m}{k}}$	**(1)**	
	T = 1.1 s	**(1)**	**2**
	Example of calculation $T = 2\pi\sqrt{\frac{(7.25+2.55) \text{ kg}}{350 \text{ N m}^{-1}}} = 1.05 \text{ s}$		
18(b)	The maximum load the spring can support when oscillating is less than the maximum load the spring supports when in equilibrium.	**(1)**	
	As when the mass is below the equilibrium position the force exerted on the spring is greater than the force at equilibrium.	**(1)**	**2**
	Total for question 18		**8**