Question Number	Answer	Mark
17(a)	There is a (resultant) force/acceleration that is: Proportional to the displacement from the equilibrium position (1) and (always) acting towards the equilibrium position (1)	**2**
17(b)(i)	Use of $k = -\frac{\Delta F}{\Delta x}$ (1) $k = 4100$ (N m^{-1}) (1) Example of calculation $k = -\frac{mg}{\Delta x} = \frac{75\text{ kg} \times 9.81\text{ N kg}^{-1}}{0.18\text{ m}} = 4088\text{ N m}^{-1}$	**2**
17(b)(ii)	Use of $T = 2\pi\sqrt{\frac{m}{k}}$ (1) Use of $f = \frac{1}{T}$ (1) $f = 1.2$ Hz (allow ecf from (b)(i)) (1) Example of calculation $T = 2\pi\sqrt{\frac{75\text{ kg}}{4090\text{ N m}^{-1}}} = 0.85\text{ s}$ $f = \frac{1}{0.85\text{ s}} = 1.18\text{ Hz}$	**3**