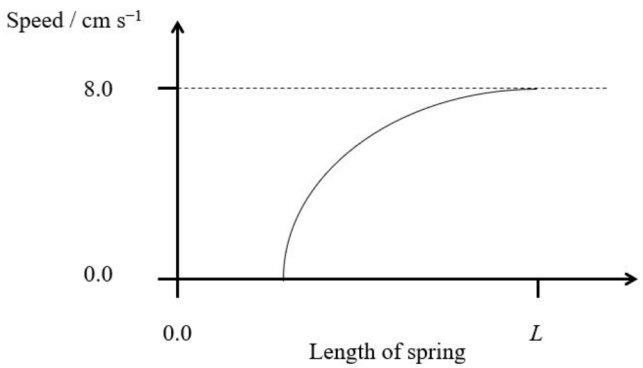
Question Number	Answer	Mark
16(a)	Use of $E_k = ½ m v^2$ **(1)** $E_k = 3.8 \times 10^{-5}$ (J) **(1)** Example of calculation $E_k = 0.5 \times 12 \times 10^{-3}$ kg $\times (8.0 \times 10^{-2}$ m s$^{-1})^2 = 3.84 \times 10^{-5}$ J	**2**
16(b)	Use of $\Delta E_{el} = ½ F \Delta x$ **(1)** $F = 1.5 \times 10^{-3}$ N (allow ecf from (a)) **(1)** Example of calculation $\Delta E_{el} = E_k = 3.84 \times 10^{-5}$ J $= 0.5 \times F \times 0.05$ m $F = 3.84 \times 10^{-5}$ J $\div 0.025$ m $= 1.54 \times 10^{-3}$ N	**2**
16(c)	Use of $F = k \Delta x$ **(1)** $k = 0.03$ N m^{-1} (allow ecf from (b)) **(1)** Example of calculation 1.54×10^{-3} N $= k \times 0.05$ m $k = 1.54 \times 10^{-3}$ N $\div 0.05$ m $= 0.031$ N m^{-1}	**2**
16(d)	Line has initially decreasing positive gradient **(1)** Line starts at $v = 0$ and a non-zero value of length **(1)** Line levels off to horizontal at length = L **(1)** Final velocity marked as 8.0 cm s^{-1} **Or** **(1)** Original compressed length marked as "$L - 5$" in cm  	**4**
	Total for question 16	**10**