Question Number	Answer	Mark
11	Use of $pV = NkT$ to calculate T or kT **(1)** Use of $\frac{1}{2}m\langle c^2 \rangle = \frac{3}{2}kT$ **(1)** [use of $\frac{1}{2}m\langle c^2 \rangle = \frac{3pV}{2N}$ gets MP1 and MP2] $\frac{1}{2}m\langle c^2 \rangle = 5.9 \times 10^{-21}$ J **(1)** Example of calculation $T = \dfrac{1.15 \times 10^5 \text{ Pa} \times 1.77 \times 10^{-3} \text{ m}^3}{5.15 \times 10^{22} \times 1.38 \times 10^{-23} \text{ J K}^{-1}} = 286$ K $\frac{1}{2}m\langle c^2 \rangle = \frac{3}{2} \times 1.38 \times 10^{-23} \text{ J K}^{-1} \times 286 \text{ K} = 5.93 \times 10^{-21}$ J	3
	Total for question 11	**3**