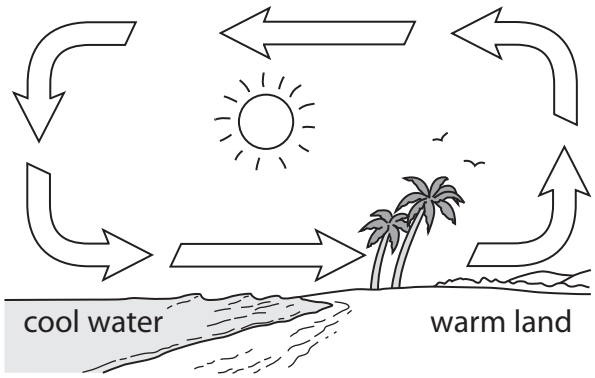
All questions are for both separate science and combined science students

1 The diagram shows how air moves near the coast on a warm day.



(a) Explain why air moves as shown on the diagram.

(5)

(b) Explain how Brownian motion provides evidence that air is made of small particles.

(3)

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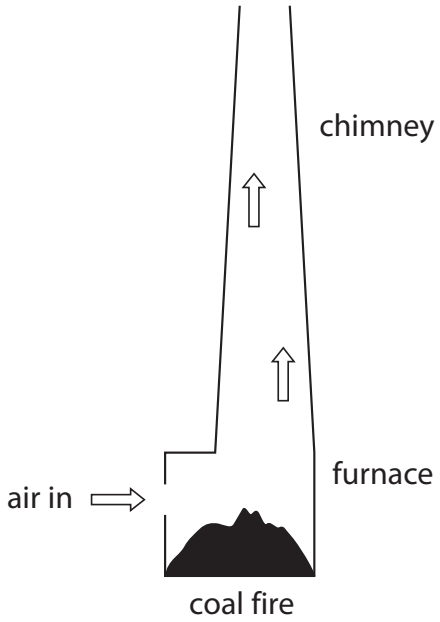
(Total for Question 1 = 8 marks)

2 The diagram shows a chimney over a furnace.

A coal fire is burning in the furnace.

Air moves into the furnace and up the chimney.



Describe how the process of convection causes this air movement.

(5)

(Total for Question 2 = 5 marks)

3 (a) Temperature can be measured using different scales.

Complete the table by inserting the missing temperatures.

(2)

Temperature	Boiling point of liquid nitrogen	Boiling point of water
in °C		100
in Kelvin	77	

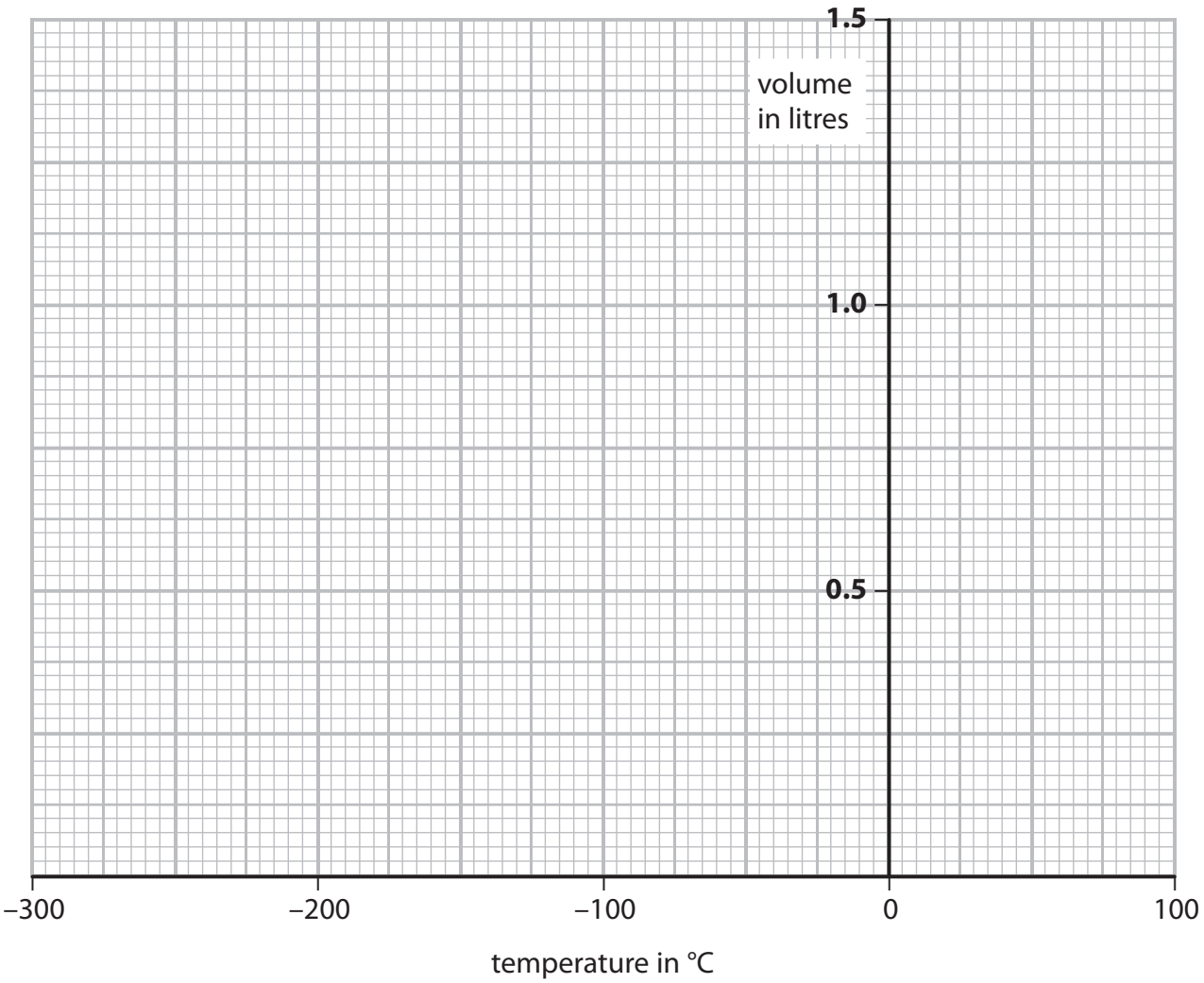
(b) Some students measure the volume of a sample of gas at different temperatures.

The table below shows their results.

Temperature in °C	Volume in litres
– 20	0.95
0	0.85
50	1.20
80	1.30
100	1.40

(i) Draw a graph to show how the volume of gas varies with temperature.

(3)



(ii) Circle the anomalous point on your graph.

(1)

(iii) Use your graph to find the temperature of the gas when its volume is zero.

(1)

temperature = ... °C

(Total for Question 3 = 7 marks)