

Heat

Name: _____

Question 1

- (b) Does heat have to be added to *or* removed from solid ice at $0\text{ }^{\circ}\text{C}$ in order to change its state to liquid water at the same temperature? Explain your answer.

Question 2

- (e) Cracks may appear in the surface of a road on a very hot and sunny day.

- (i) Explain why this happens.



- (ii) How does heat travel from the Sun to the Earth? _____

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(1) (2)

Question 3

(g)



The diagram shows two aluminium cans, one painted white and the other painted black, which are otherwise identical.

Each can contains 100 cm^3 of water at $60\text{ }^{\circ}\text{C}$.

In which of these cans will the water remain warmer for longer? Explain your answer.

Which can? _____

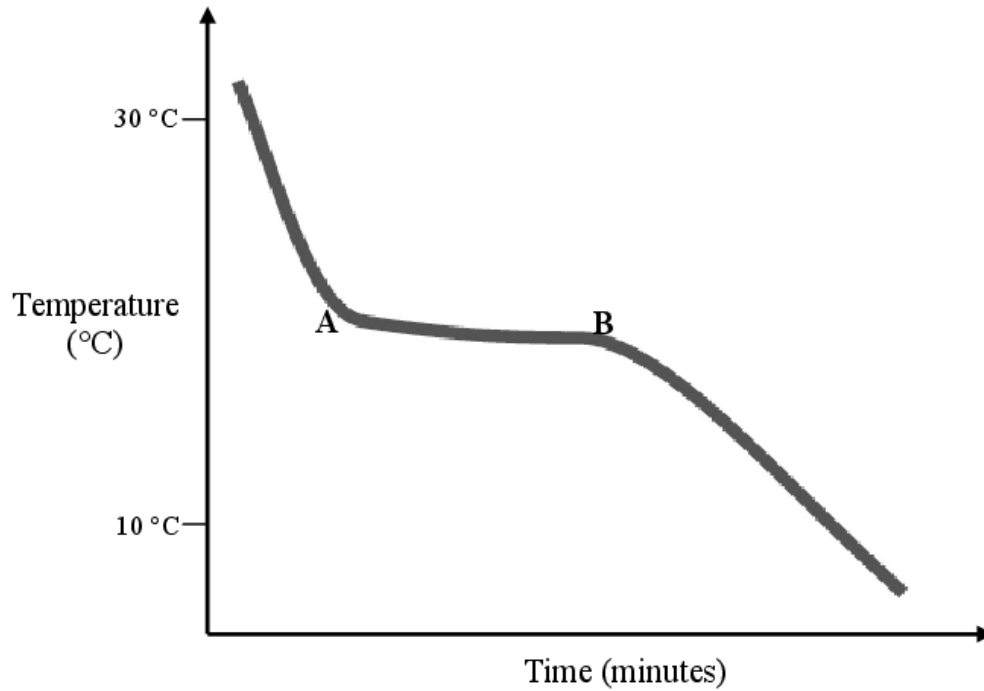
Explanation _____

Question 4

(b) The diagram below shows the cooling curve for chocolate.

(12)

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(1) (2)

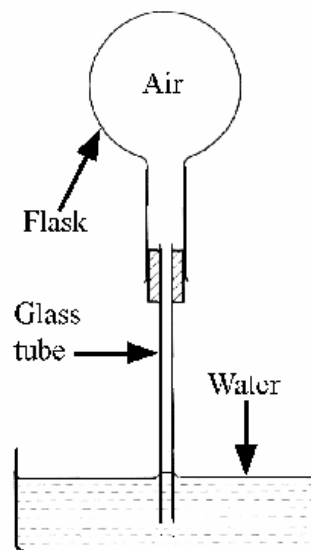
(i) Which state of matter describes the chocolate when it is at 30 °C?

(ii) Which state of matter describes the chocolate when it is at 10 °C?

(iii) In terms of heat loss or heat gain, describe and explain what happens to the chocolate between position A and position B on the diagram.

Question 5

- (b) The apparatus shown in the diagram was used to investigate the expansion and contraction of a gas.



- (i) What is **observed** when the flask is **heated**? (3)

What? _____

- (ii) Explain your **observation** when the flask is **heated**? (3)

Explain _____

- (iii) What is **observed** when the flask is allowed to **cool**? (3)

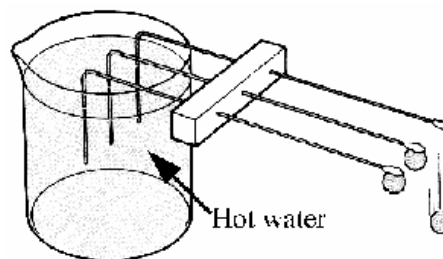
What? _____

- (iv) Explain what you **observe** as the flask **cools**. (3)

Explain _____

Question 6

- (b) Copper, aluminium and iron rods are set-up as shown in the diagram. A metal ball is attached by wax to the end of each rod. Hot water is poured into the beaker. The ball falls from the copper rod first. What **conclusion** can be drawn from this observation?



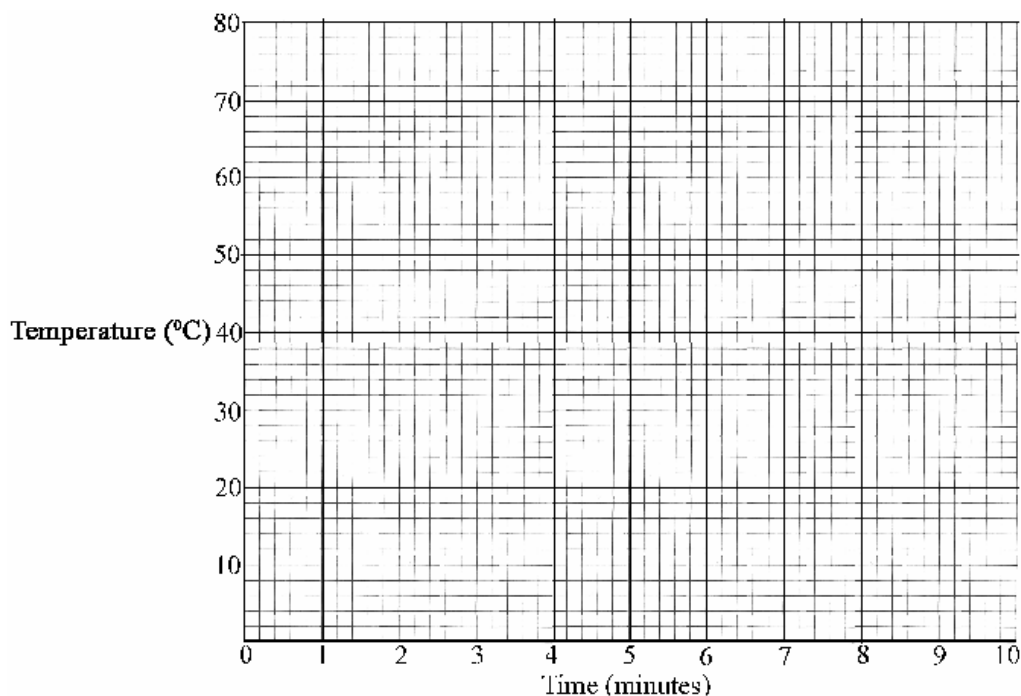
Conclusion _____

Question 7

- (a) A pupil *heated* some *lauric acid*, which is a *solid* at room temperature, until it turned into a *liquid*. The lauric acid was then allowed to *cool* at a *uniform* rate. The *temperature* of the lauric acid was taken *every minute*. The data from this experiment is given in the table.

Temperature (°C)	75	64	54	43	43	43	43	43	32	22	10
Time (minutes)	0	1	2	3	4	5	6	7	8	9	10

- (i) Draw a **graph**, using this data, of **temperature against time (x-axis)** in the grid provided below. (9)



- (ii) Explain the **shape of the graph** that you obtain. (9)

- (iii) Use the graph to estimate the **melting point** of lauric acid. (3)

(1) (2)