

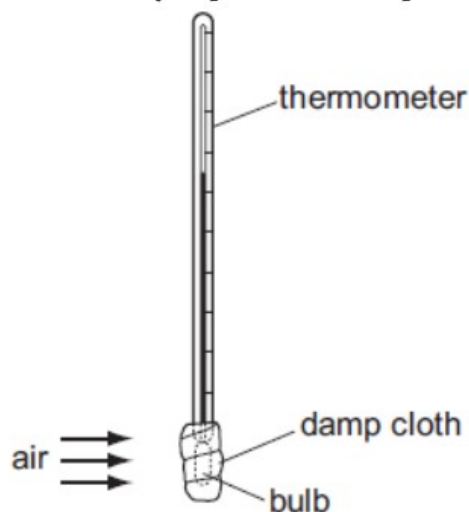
PARTICULATE NATURE OF MATTER

1. Evaporation occurs when molecules escape from a liquid surface into the air above it. During this process the temperature of the liquid falls.

Why does the temperature of the liquid fall?

- A. The molecules in the vapour expand because the pressure is less.
- B. The molecules left in the liquid have more space to move around.
- C. The molecules move more slowly when they escape into the air.
- D. The molecules with the highest energies escape into the air.

2. A thermometer bulb is covered by a piece of damp absorbent cloth.



Air at room temperature is blown across the damp cloth.
What happens to the thermometer reading?

- A. It remains constant.
- B. It rises.
- C. It rises then falls.
- D. It falls.

3. Some air is trapped inside a small balloon. The average kinetic energy of the air molecules in the balloon is increased.

What remains the same?

- A. the density of the air in the balloon
- B. the mass of the air in the balloon
- C. the temperature of the air in the balloon
- D. the volume of the air in the balloon

4. When ice melts to become water, which force must be overcome?

- A. the attraction between electrons and the nucleus
- B. the attraction between the atoms in a molecule
- C. the force between molecules
- D. the force of gravity

5. The Brownian motion of smoke particles in air may be observed using the apparatus shown in Fig. 2.1.

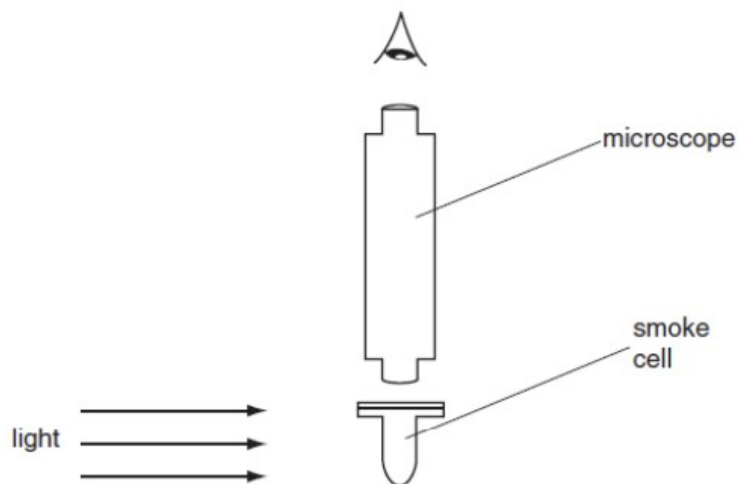


Fig. 2.1

(a) Describe what is seen when viewing a smoke particle through the microscope.

[2]

(b) Suggest and explain what difference, if any, would be observed in the movement of smoke particles when larger smoke particles than those observed in (a) are viewed through the microscope.

[2]

6. A student puts some pieces of a solid hydrocarbon wax into a test-tube. She places this test-tube into a beaker of boiling water until all the solid wax has melted to form a liquid.

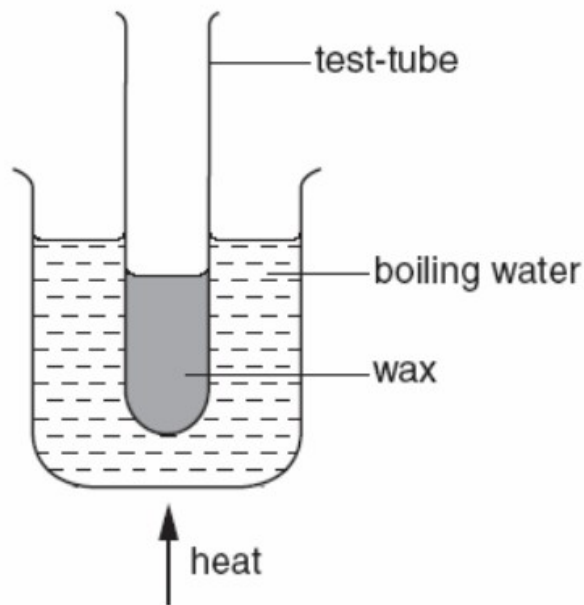


Fig. 8.1

(a) Explain why she heats the wax in this way instead of heating the test-tube directly with a burner.

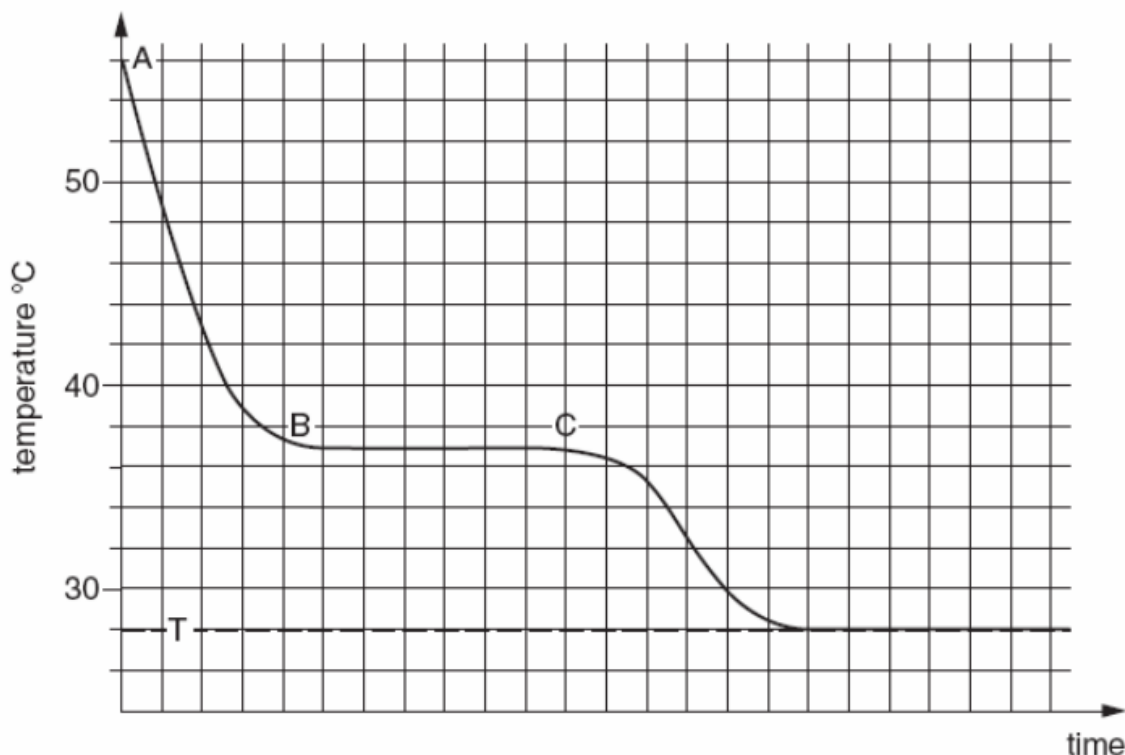
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..... [2]

(b) Another student puts a thermometer in the wax in the test-tube then removes the test-tube from the boiling water.

He notes the reading of the thermometer every minute as the wax cools. His results are shown in below.



(i) Using words from the list below complete the following sentences about this experiment.

cooling **endothermic** **exothermic**

melting **solidifying** **warming**

Between the points **A** and **B** on the graph, the liquid is.....

Between the points **B** and **C** on the graph, the hydrocarbon is.....

This an process. [3]

(ii) Use the graph to find the melting point of this hydrocarbon.

Melting point = °C [1]

(iii) How does the shape of the graph show that the hydrocarbon is pure?

.....

..... [1]

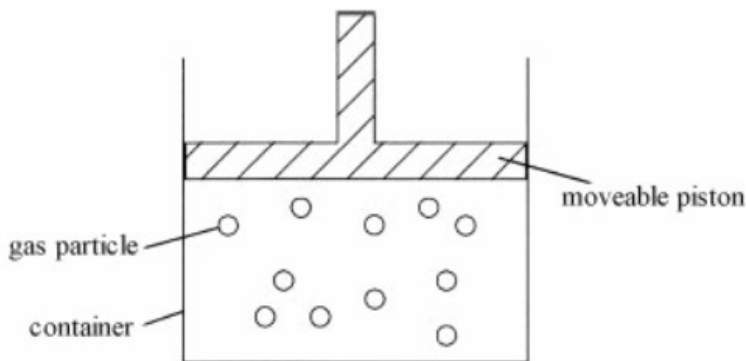
(iv) What is the significance of the final temperature T ?

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..... [1]

[Total 8m]

7. (a) The diagram shows particles of a gas in a container. The piston can be moved up or down the container.



(i) Describe the motion of the gas particles in the container.

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.....

.....

(2)

(ii) Explain how the motion of the gas particles produces a pressure inside the container.

.....

.....

.....

(2)

(iii) What would happen to the pressure if you pushed the piston downwards?

.....

(1)

(b) When the gas in the container is heated the piston moves upwards.

Tick the **three** correct statements.

The gas particles get bigger.

The mass of gas particles stays the same.

The gas particles move faster.

The gas particles move further apart.

The temperature of the gas decreases.

(3)

(c) During a long car journey, the air pressure in the tyres increases.

Explain why.

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(3)

(Total 11 marks)