

Experimental Techniques

Question Paper 3

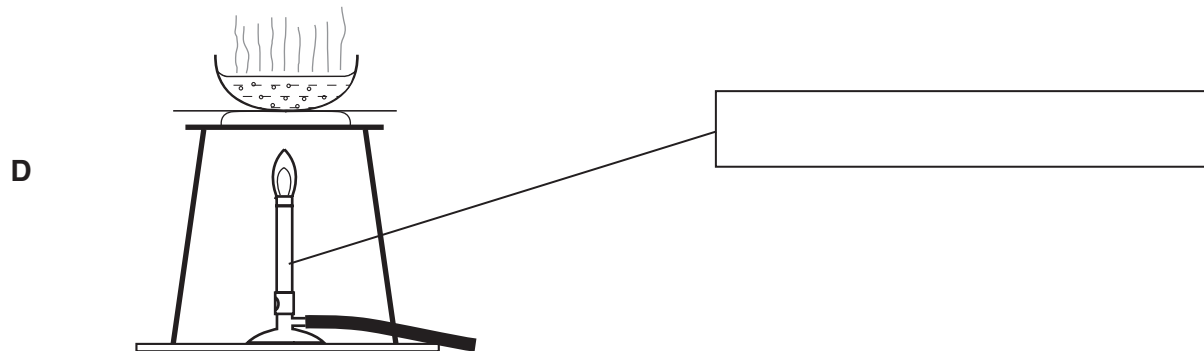
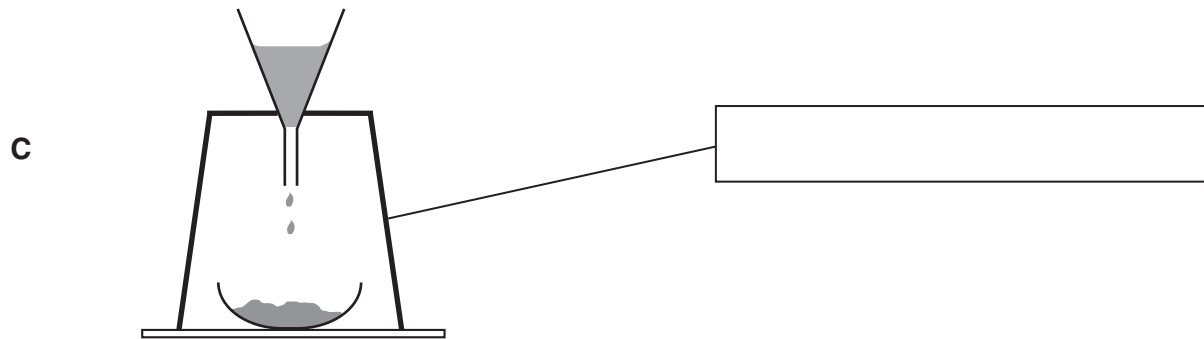
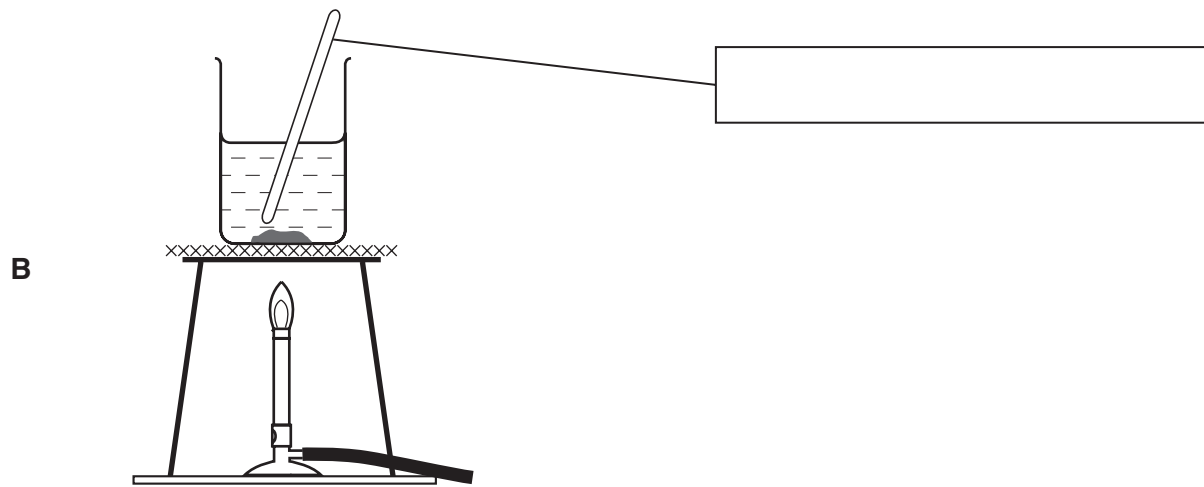
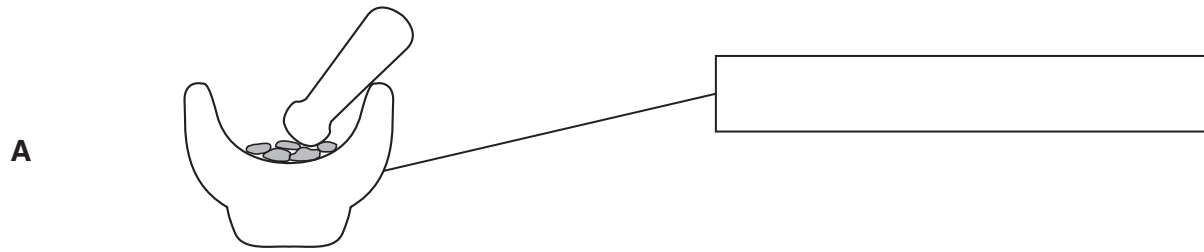
Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Experimental Techniques
Sub-Topic	
Paper Type	Alternative to Practical
Booklet	Question Paper 3

Time Allowed: 45 minutes

Score: /37

Percentage: /100

1 Look at the diagrams of common laboratory apparatus.



(a) Complete the empty boxes to identify the pieces of apparatus labelled. [4]

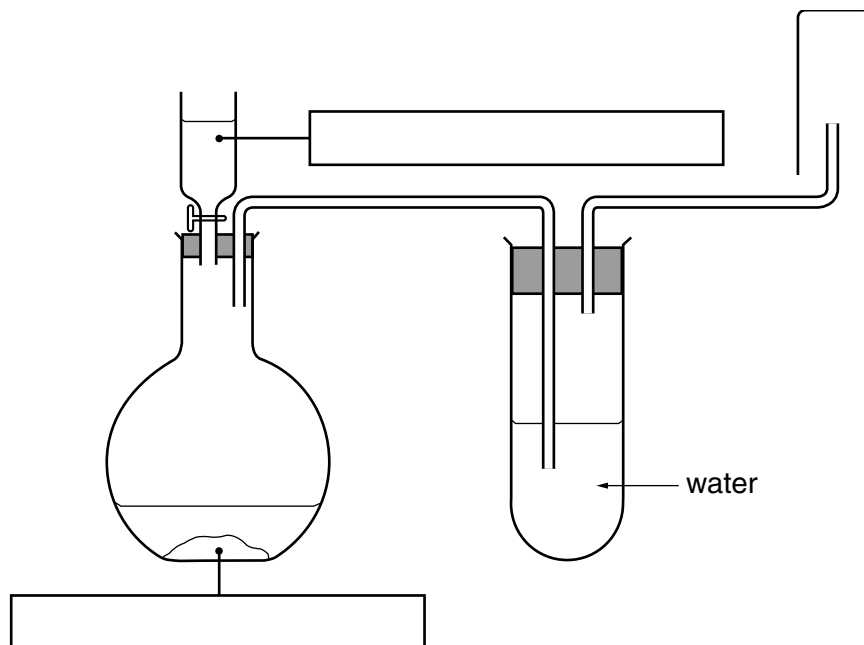
(b) What name is given to the separation method in **C**?

.....[1]

(c) Which apparatus would be most suitable to obtain crystals from an aqueous solution of copper(II) sulphate?

.....[1]

- 2 Hydrogen chloride gas is strong-smelling, denser than air and soluble in water. A sample of hydrogen chloride gas can be prepared by adding concentrated sulphuric acid to sodium chloride. Study the diagram of the apparatus used.



(a) Fill in the boxes to show the chemicals used. [2]

(b) Identify and explain **two** mistakes in the diagram.

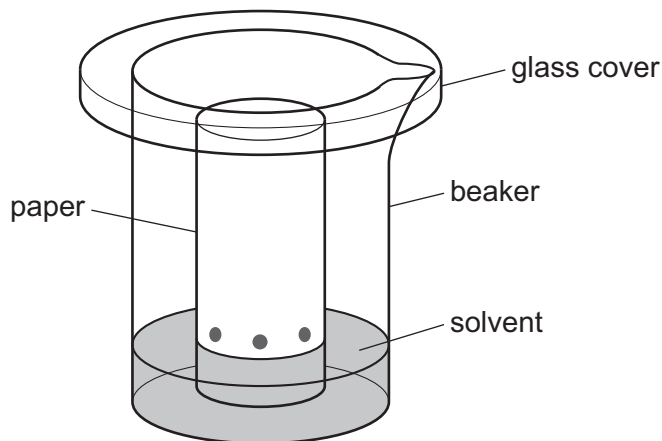
Mistake 1.....
[2]

Mistake 2.....
[2]

(c) State **one** precaution that should be taken when carrying out this experiment.

.....
[1]

- 3 A student investigated the colours present in a fruit drink. The fruit drink was tested to check that no artificial colours had been added. The apparatus below was used.



- (a) Name the method used.

..... [1]

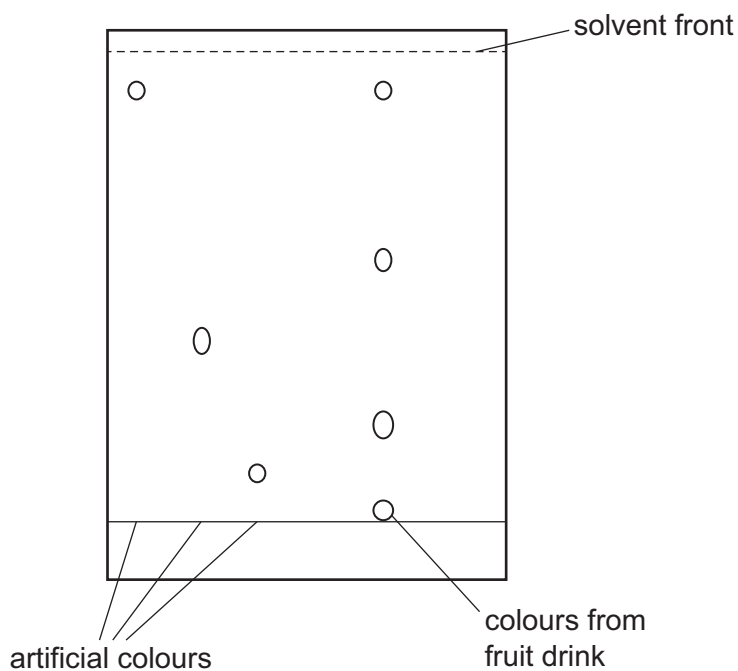
- (ii) Why is there a glass cover on the beaker?

..... [1]

- (b) When should the paper be removed from the beaker?

..... [1]

(c) The diagram shows the results of the experiment.



(i) How many different coloured compounds were present in the fruit drink?

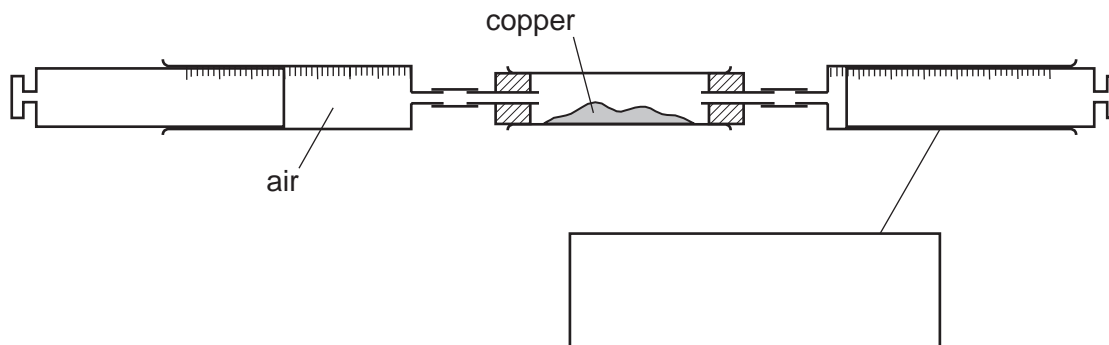
..... [1]

(ii) Are there any of the artificial colours present in the fruit drink? Explain your answer.

.....
.....
..... [2]

[Total: 6]

- 4 A student investigated the reaction of air with copper. 100 cm³ of air was passed continuously over heated copper using the apparatus below. When the volume remained constant, the apparatus was left to cool and the volume of gas was measured.

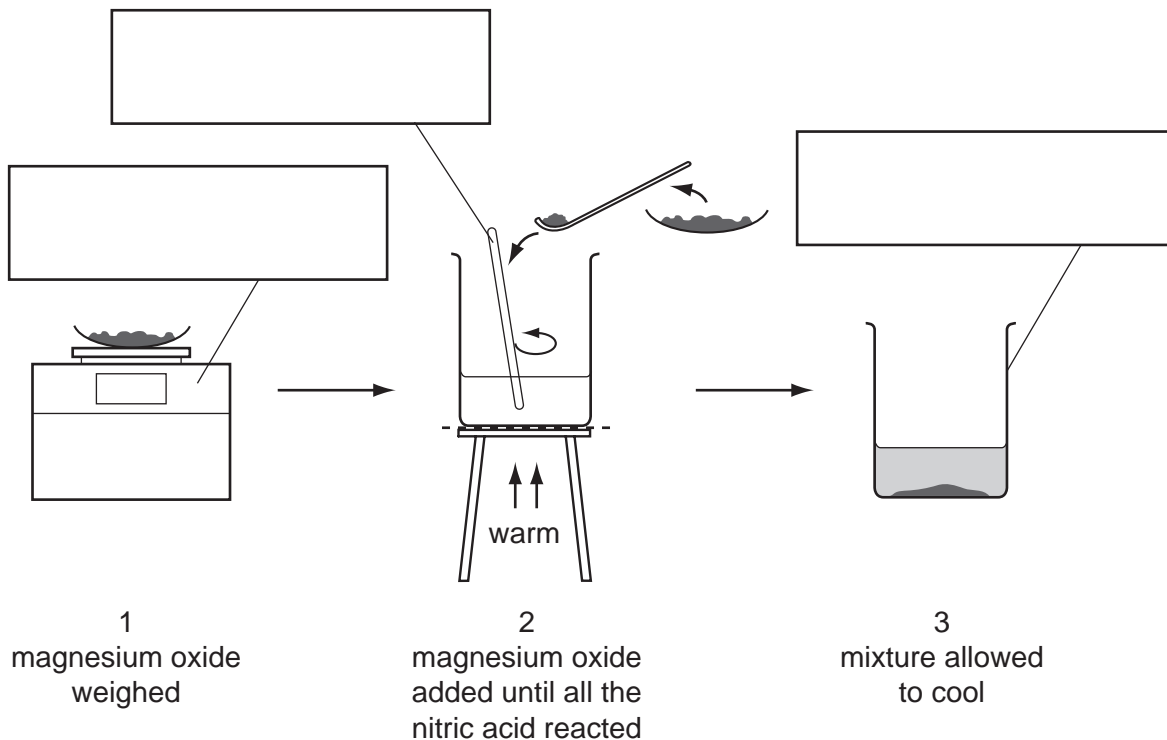


- (a) (i) Complete the box to show the apparatus labelled. [1]
- (ii) Indicate on the diagram, with an arrow, where heat is applied. [1]
- (b) What should be used to transfer the copper from a bottle to the apparatus?
 [1]
- (c) The copper changed colour from brown to [1]
- (d) Why was the apparatus left to cool before measuring the final volume of gas?

 [2]

[Total: 6]

5 A student reacted nitric acid with magnesium oxide to prepare magnesium nitrate. The diagram shows the procedure followed in three stages.



(a) Complete the boxes to identify the pieces of apparatus labelled. [3]

(b) (i) What term is used to describe the unreacted magnesium oxide?

..... [1]

(ii) What method is used to remove the unreacted magnesium oxide after stage 3?

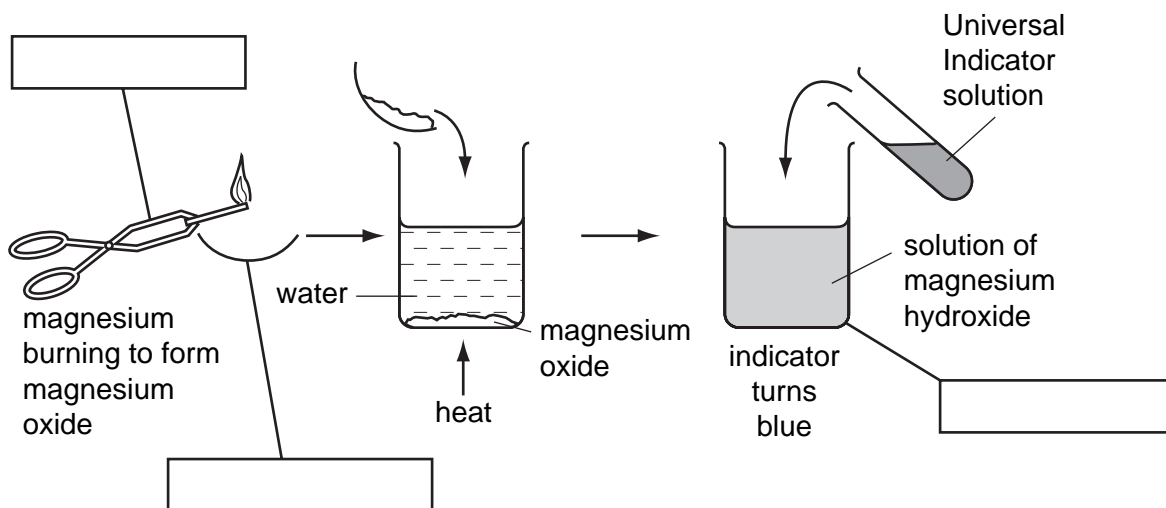
..... [1]

(c) Describe how crystals of magnesium nitrate could be quickly obtained from the solution.

.....
..... [2]

[Total: 7]

6 The diagram shows the formation of a solution of magnesium hydroxide from magnesium.



(a) Complete the empty boxes to name the pieces of apparatus. [3]

(b) What type of chemical reaction is the burning of magnesium?

..... [1]

(c) Suggest a pH for the solution of magnesium hydroxide.

..... [1]