Acids, Bases and Salts

Question Paper 7

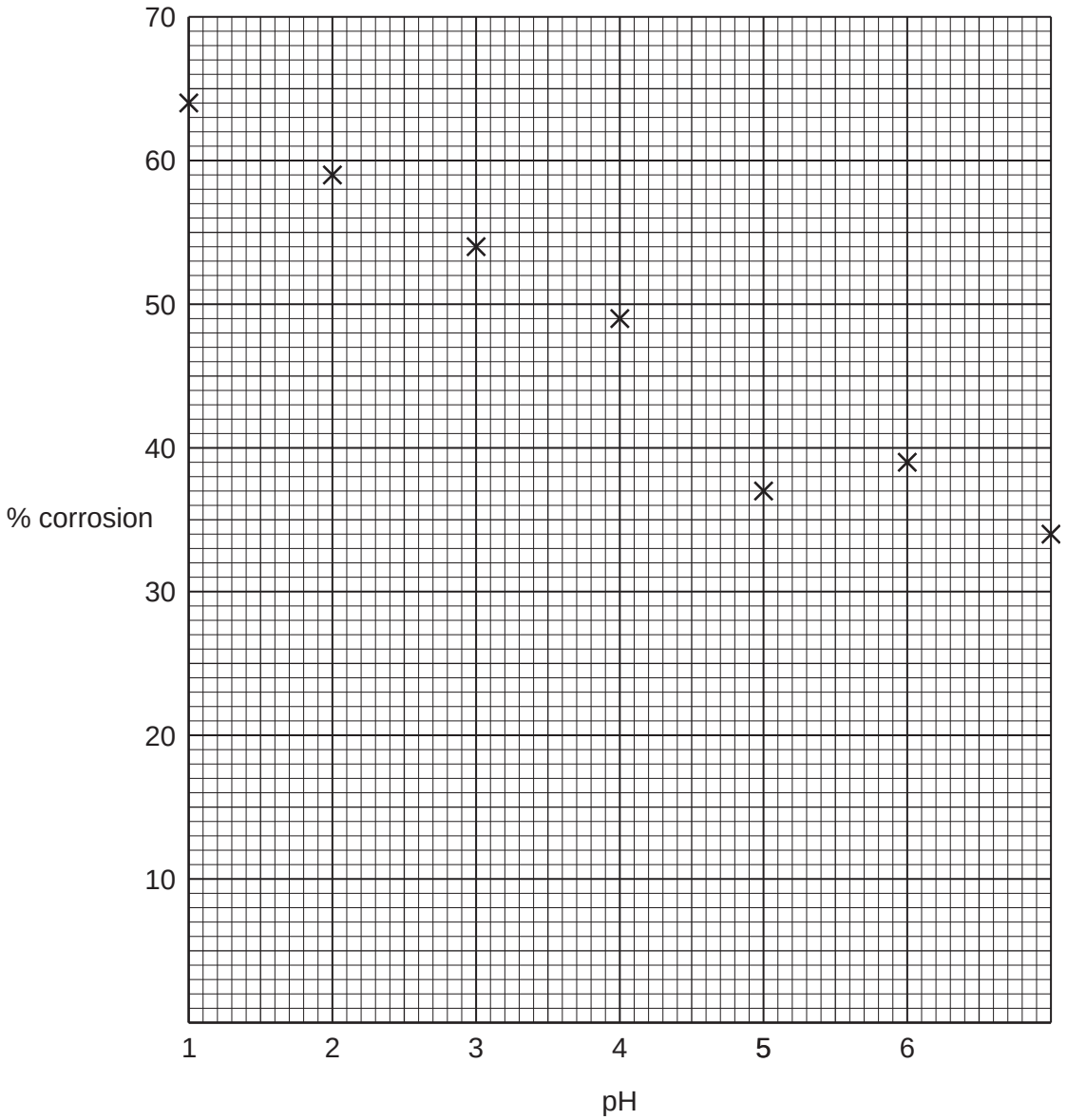
Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Acids, Bases and Salts
Sub-Topic	
Paper Type	Alternative to Practical
Booklet	Question Paper 7

Time Allowed: **53 minutes**

Score: **/44**

Percentage: **/100**

1 Samples of concrete were placed in solutions of different pH. The graph shows the percentage corrosion of the samples.



(a) Draw a smooth line graph on the grid [1]

(b) Which point on the grid appears to be inaccurate? Explain your reason for identifying this point.

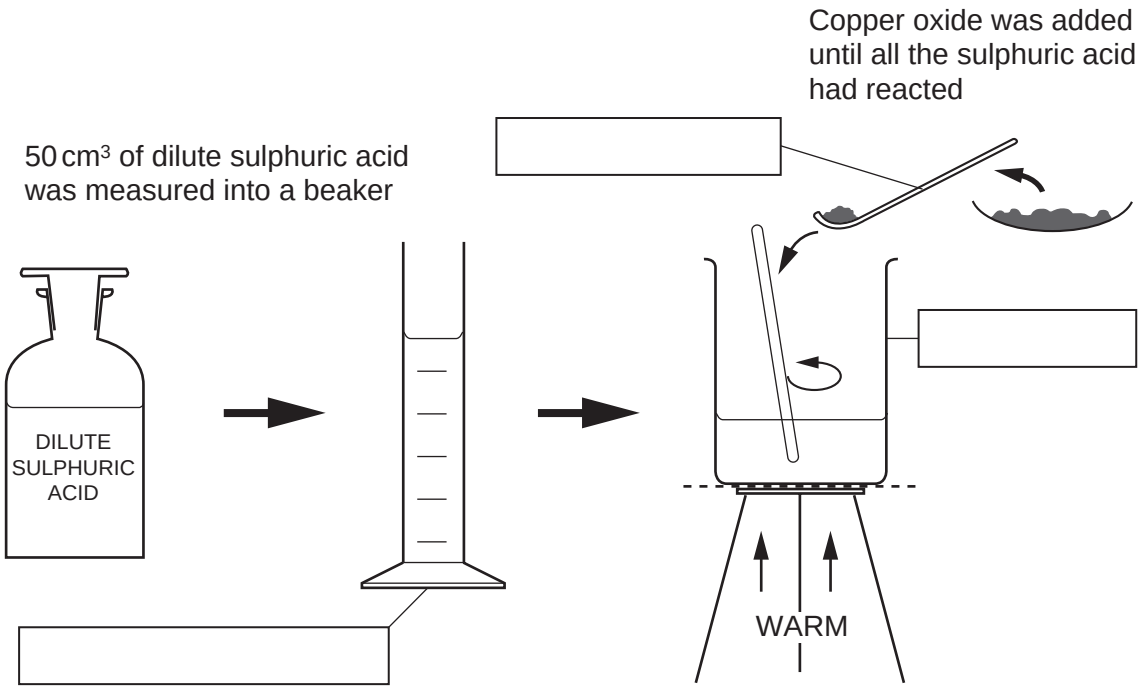
.....

..... [2]

(c) What happens to the percentage corrosion as the pH changes from 1 to 7?

..... [1]

2 A student reacted sulphuric acid with copper(II) oxide. The diagram shows the procedure followed.



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

(b) What is the colour of the solution formed?

.....

[1]

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

.....

.....

[2]

3 Some plants do not grow well in acidic soil.
A farmer gives you a small sample of soil from a corner of one of his fields.

(a) Plan an investigation to find out the pH of the soil sample.

You are provided with Universal Indicator solution and common laboratory apparatus.

.....

.....

.....

.....

.....

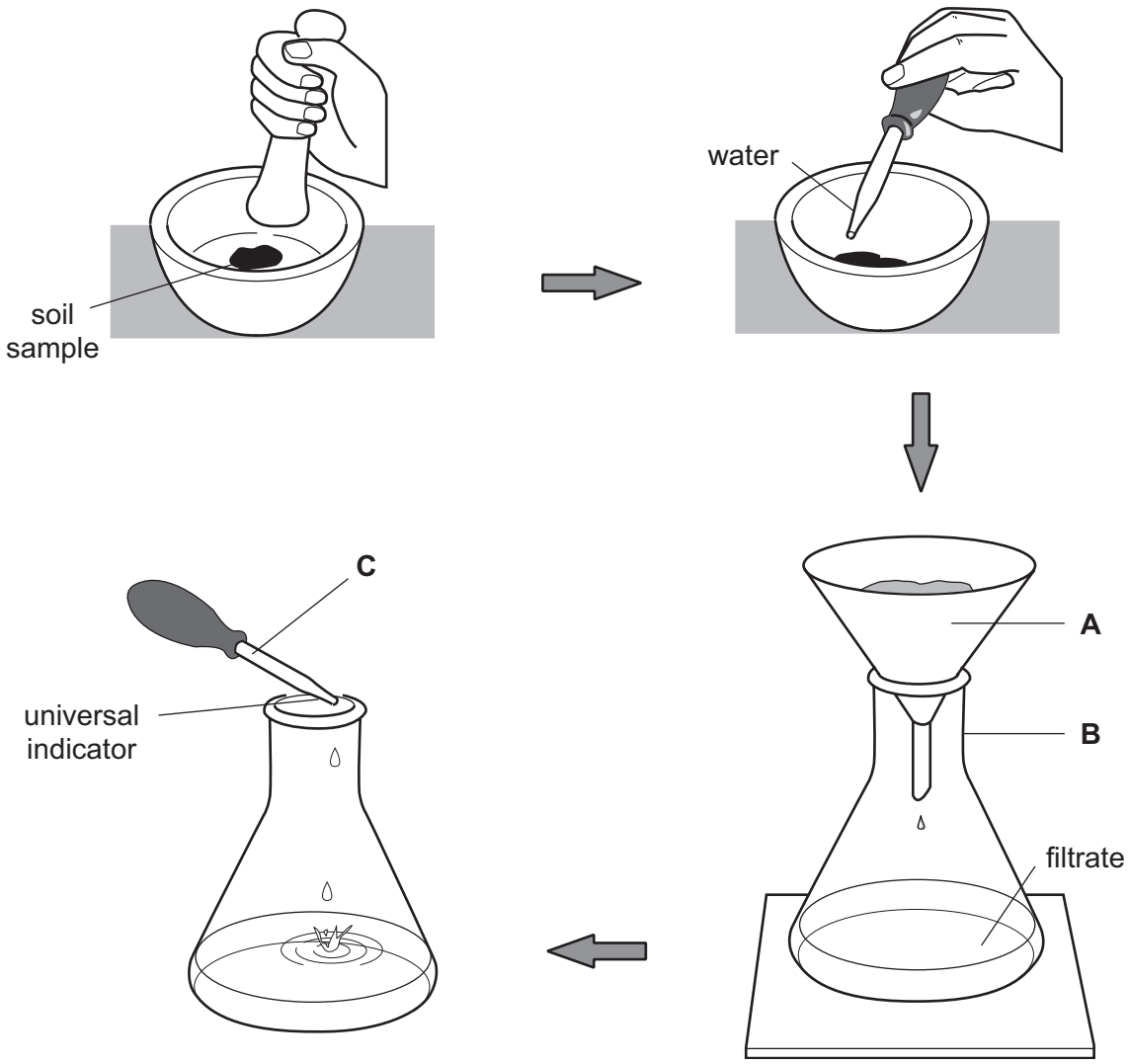
..... [5]

(b) Why would further experiments be necessary to inform the farmer which plants should be grown in each of his fields?

.....

..... [2]

4 An experiment was carried out to find the pH of samples of soil from a farmer's field.



(a) Identify the pieces of apparatus labelled

A, ...

B, ...

C. ..... [3]

(b) Why was the soil crushed?

.....

..... [2]

(c) Why should soil samples be taken from different parts of the field?

.....

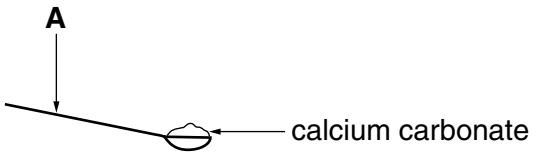
..... [1]

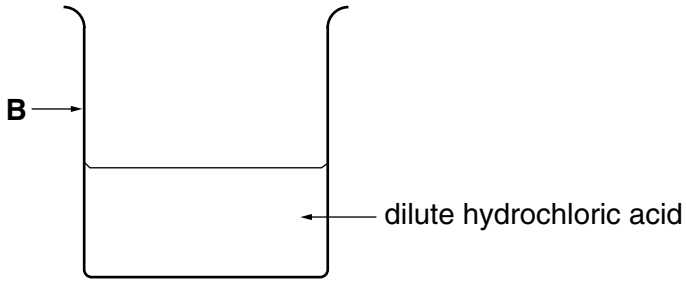
(d) Suggest why it is important to know the pH of soil.

..... [1]

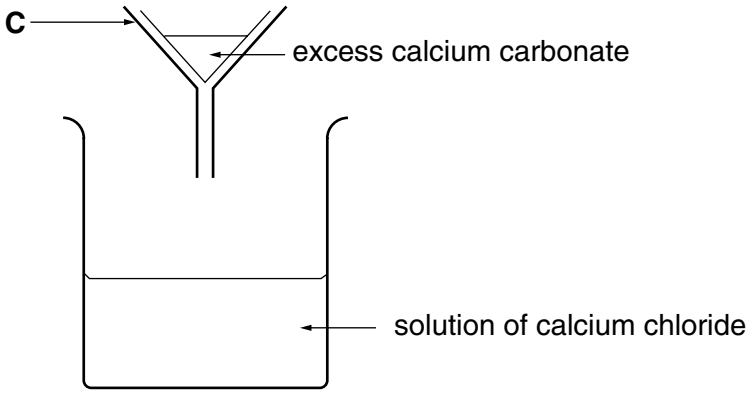
5 A student investigated the neutralisation of dilute hydrochloric acid, using an excess of calcium carbonate.

Step 1 Excess calcium carbonate was added to hydrochloric acid.





Step 2. Excess calcium carbonate was removed from the solution.



Step 3. The solution of calcium chloride was tested with indicator paper.

(a) Identify the pieces of apparatus labelled:

A.....

B.....

C.....[3]

(b) What does the term *excess* mean?

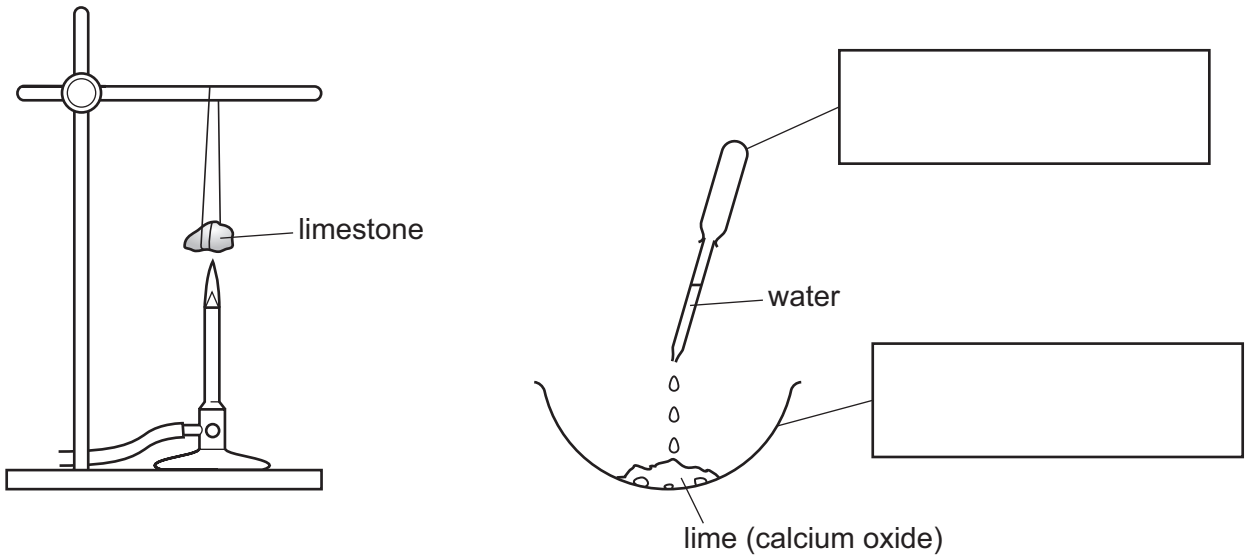
.....

.....[1]

(c) Suggest the pH value of the solution of calcium chloride.

.....[1]

6 A piece of limestone was heated strongly for ten minutes. The solid was then left to cool. Cold water was added to the solid. The solid reacted with the water to form a solution, **A**.



(a) Complete the boxes to label the pieces of apparatus. [2]

(b) Suggest what could be used to hang the piece of limestone from the stand over the heat. Explain your answer.

.....

.....

..... [2]

(ii) In what position should the air hole of the Bunsen burner be?

..... [1]

(c) Predict the effect of

(i) solution **A** on pH indicator paper,

..... [1]

(ii) carbon dioxide on solution **A**.

..... [1]

[Total: 7]

7 Two different solids, **T** and **V**, were analysed. **T** was a calcium salt.
The tests on the solids and some of the observations are in the following table.
Complete the observations in the table.

tests	observations
tests on solid **T** **(a)** Appearance of solid **T.**	white solid
(b) A little of solid **T** was dissolved in distilled water. The solution was divided into three test-tubes. **(i)** The pH of the first portion of the solution was tested.	colour orange pH 5
(ii) To the second portion of solution was added excess aqueous sodium hydroxide.	..... [2]
(iii) To the third portion of solution was added excess ammonia solution.	..... [2]

tests	observations
tests on solid **V** **(c)** Appearance of solid **V**.	green crystals
(d) A little of solid **V** was dissolved in distilled water. The solution was divided into three test-tubes. The smell of the solution was noted.	smells of vinegar
(i) Test **(b)(i)** was repeated using the first portion of solution.	colour orange pH 6
(ii) Test **(b)(ii)** was repeated using the second portion of the solution.	pale blue precipitate
(iii) Test **(b)(iii)** was repeated using the third portion of solution.	pale blue precipitate soluble in excess to form a dark blue solution.

(e) What do **tests (b)(i)** and **(d)(i)** tell you about solutions **T** and **V**?

..... [2]

(f) What additional conclusions can you draw about solid **V**?

.....

..... [2]

[Total: 8]