

Analysing substances

1. Chemical tests can be used to identify compounds.

The table shows the results of some tests carried out on three solutions, **A**, **B** and **C**.

Solution	Flame Test	Hydrochloric acid is added	Sodium hydroxide solution is added	Silver nitrate solution is added
A	Yellow	Carbon dioxide gas produced		
B	Brick-red		White precipitate insoluble in excess sodium hydroxide solution	White precipitate
C			Dark green precipitate	

Use the information in the table to identify solutions **A**, **B** and **C**.

Give the name of:

- (a) solution **A**; (2)
 - (b) solution **B**; (2)
 - (c) the metal ion in solution **C**. (1)
- (Total 5 marks)**

2. Chemical tests can be used to identify ions in solutions.

- (a) List **A** gives the names of two sulfates in solution.
List **B** gives the results of adding sodium hydroxide solution.

Draw a straight line from each sulfate in List **A** to its correct test result in List **B**.

List A	List B
Name of sulfate	Result of adding in solutionsodium hydroxide solution

Copper sulfate	A blue precipitate formed
Iron(II) sulfate	A white precipitate formed
	A green precipitate formed

(b) Suggest why clean test tubes were used for each test. (2)

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(c) Draw a ring around the correct colour to complete this sentence. (1)
 Sulfate solutions react with barium chloride solution to give a

blue	precipitate.
green	
white	

(1)
(Total 4 marks)

3. A student carried out a titration to find the concentration of a solution of hydrochloric acid. The following paragraph was taken from the student's notebook.

I filled a burette with hydrochloric acid. 25.0 cm³ of 0.40 mol/dm³ potassium hydroxide was added to a flask. 5 drops of indicator were added. I added the acid to the flask until the indicator changed colour. The volume of acid used was 35.0 cm³.

(a) What piece of apparatus would be used to measure 25.0 cm³ of the potassium hydroxide solution? (1)

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(b) Name a suitable indicator that could be used. (1)

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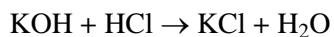
(c) Calculate the number of moles of potassium hydroxide used. (2)

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Moles of potassium hydroxide = mol (2)

(d) Calculate the concentration of the hydrochloric acid. The equation for the reaction is:



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Concentration of hydrochloric acid = mol/dm³

(2)
(Total 6 marks)