GCSE Chemistry B (Twenty First Century Science)

J258/02 Depth in chemistry (Foundation Tier)

Question Set 12

1 Ali does an experiment to find out how the pH changes when he adds dilute sodium hydroxide to dilute sulfuric acid

He puts the dilute acid in a beaker and adds dilute sodium hydroxide, 1.0 cm^3 at a time.

He uses a pH meter to measure the pH of the mixture during the reaction, as shown in **Fig. 1.1**.

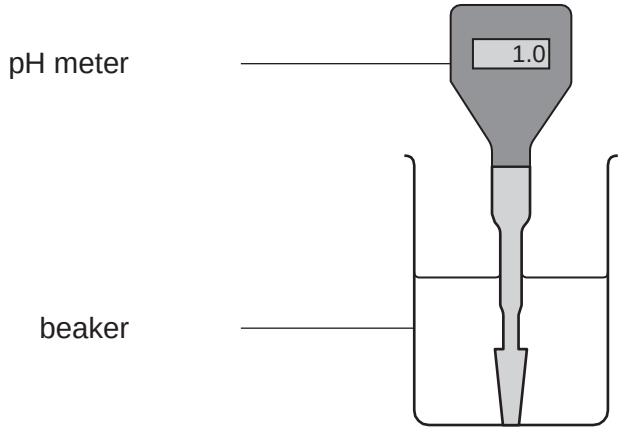

Fig. 1.1

Ali plots a graph of his results, as shown in **Fig. 1.2**.

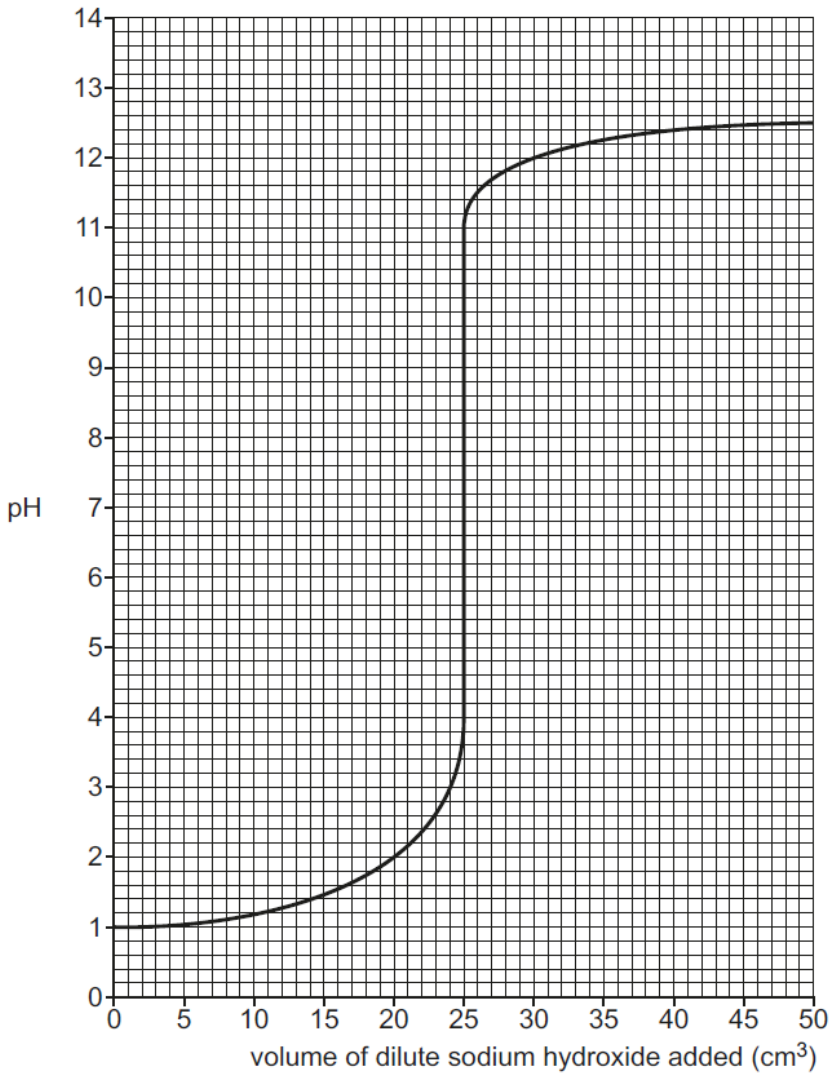

Fig. 1.2

(a) **(i)** Use values from the graph in **Fig. 1.2** to describe how the pH changes when dilute sodium hydroxide is added to the acid.

[2]

(ii) Explain why the pH readings at the start, and at the end of the reaction, are different. **[2]**

(b) Ali writes an equation for the reaction.

(i) Balance the symbol equation by putting numbers on the dotted lines.

..... $NaOH$ + H_2SO_4 → Na_2SO_4 + ... H_2O **[1]**

(ii) Draw lines to connect each **substance** with its correct **formula**.

Substance	**Formula**
water	NaOH
sodium sulfate	H_2SO_4
sulfuric acid	Na_2SO_4
sodium hydroxide	H_2O

[2]

(c) **(i)** The reactions of acids with hydroxides can be shown by this general equation.

Complete the word and symbols equations.

hydrogen ions + ... → water

..... + OH^- → ..... **[2]**

(ii) What is the name for this type of reaction?

Put a ring around the correct answer.

filtration **oxidation** **precipitation** **neutralisation** **[1]**

Total Marks for Question Set 12: 10

Resource Materials

The Periodic Table of the Elements