

## **GCSE Chemistry B (Twenty First Century Science)**

**J258/04** Depth in chemistry (Higher Tier)

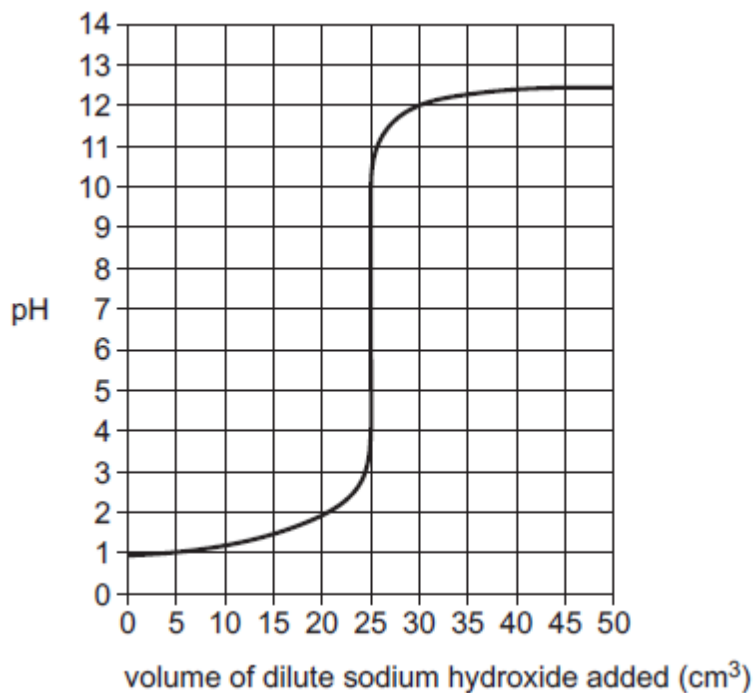
### **Question Set 14**

1. Ali investigates how the pH changes when dilute sodium hydroxide reacts with dilute hydrochloric acid.

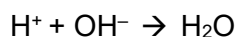
He puts 20.0 cm<sup>3</sup> of dilute hydrochloric acid in a beaker. He adds dilute sodium hydroxide, 1.0 cm<sup>3</sup> at a time, to the acid.

He uses a pH meter to measure the pH after each addition of sodium hydroxide.

Ali plots a graph of his results.



Ali writes an ionic equation for the reaction.



- (a) Use the **ionic equation** and **values from the graph** to explain the pH changes that happen during the reaction. [3]
- (b) Ali started with **20.0 cm<sup>3</sup>** of dilute hydrochloric acid in the beaker. [2]

Explain how his results show that the acid is more concentrated than the dilute sodium hydroxide.

**Total Marks for Question Set 14: 5**

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