0 1 The pH scale is a measure of the acidity or alkalinity of a solution.

0 1 . 1 Draw one line from each solution to the pH value of the solution.

[2 marks]

Solution	pH value of the solution
	5
Acid	7
	9
Neutral	11
	13

0 1 . 2 Which ion in aqueous solution causes acidity?

[1 mark]

Tick **one** box.

- H^+ ☐
- Na^+ ☐
- O^{2-} ☐
- OH^- ☐

Question 1 continues on the next page

When sulfuric acid is added to sodium hydroxide a reaction occurs to produce two products.

The equation is:

$$H_2SO_4 + 2NaOH \rightarrow Na_2SO_4 + 2H_2O$$

0 1 . 3 How many elements are in the formula H_2SO_4?

[1 mark]

Tick **one** box.

- 3 ☐
- 4 ☐
- 6 ☐
- 7 ☐

0 1 . 4 What is this type of reaction?

[1 mark]

Tick **one** box.

- Decomposition ☐
- Displacement ☐
- Neutralisation ☐
- Reduction ☐

0 1 . 5 Name the salt produced.

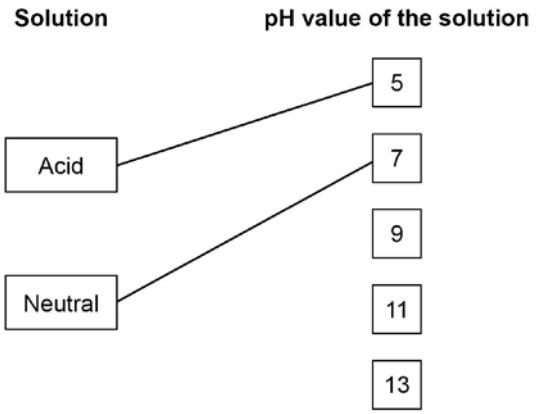
[1 mark]

0 1 . 6 Describe how an indicator can be used to show when all the sodium hydroxide has reacted with sulfuric acid.

[3 marks]

Turn over for the next question

Question 1

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.1		extra lines from solution negate the mark	1 1	AO1/1 5.4.2.4
01.2	H^+		1	AO1/1 5.4.2.4
01.3	3		1	AO2/1 5.1.1.1
01.4	Neutralisation		1	AO1/1 5.4.2.2, 4
01.5	sodium sulfate		1	AO1/1 5.4.2.2
01.6	Add indicator to sodium hydroxide solution Add sulfuric acid (gradually) until indicator just changes (colour) **or** until universal indicator turns green or shows pH7	allow add indicator to sulfuric acid allow add sodium hydroxide solution (gradually) allow pH probe	1 1 1	AO2/2 5.4.2.2, 4
Total			**9**	