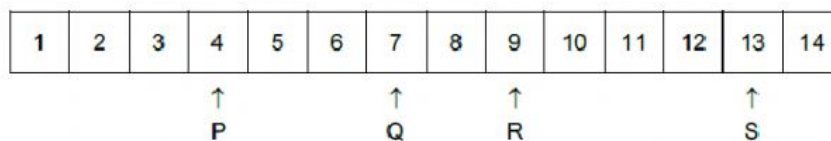


21 The diagram shows the pH values of four solutions.



Which of these solutions are alkaline?

- A P only
- B P and Q only
- C Q, R and S only
- D R and S only

Four different solutions are separately tested with blue litmus and with methyl orange. Each solution is known to be either acidic or alkaline. The results are shown.

| solution | result with<br>blue litmus | result with<br>methyl orange |
|----------|----------------------------|------------------------------|
| 1        | red                        | red                          |
| 2        | red                        | yellow                       |
| 3        | blue                       | yellow                       |
| 4        | blue                       | yellow                       |

Which statement is correct?

- A Solutions 1 and 4 are acidic.
- B Solutions 1 and 2 are alkaline.
- C Solutions 3 and 4 are alkaline.
- D Solutions 3 and 4 are acidic.

Notes: For the above question you can just use the results from blue litmus paper.

Revision worksheet – Chapter 3 (Paper 2)

The table shows the pH of four aqueous solutions, W, X, Y and Z.

| substance | pH |
|-----------|----|
| W         | 7  |
| X         | 9  |
| Y         | 2  |
| Z         | 5  |

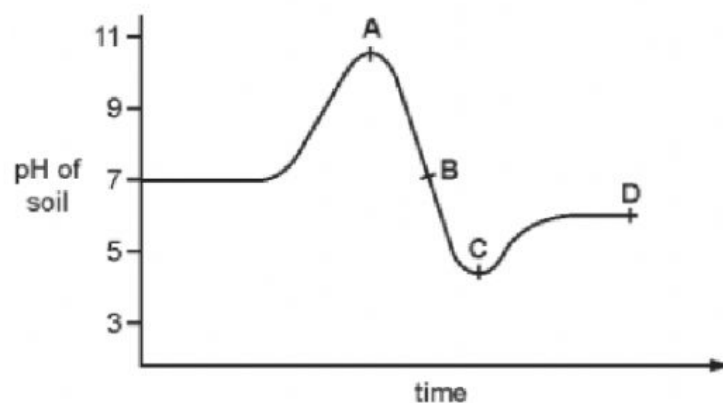
Universal Indicator is added to each solution.

Which row shows the colour of each solution after the indicator is added?

|          | W      | X      | Y      | Z      |
|----------|--------|--------|--------|--------|
| <b>A</b> | blue   | green  | orange | red    |
| <b>B</b> | green  | blue   | red    | orange |
| <b>C</b> | orange | red    | blue   | green  |
| <b>D</b> | red    | orange | green  | blue   |

The graph shows how the pH of soil in a field changes over time.

At which point was the soil neutral?



Two indicators, bromophenol blue and Congo red, show the following colours in acidic solutions and in alkaline solutions.

| indicator        | acid   | alkali |
|------------------|--------|--------|
| bromophenol blue | yellow | blue   |
| Congo red        | violet | red    |

A few drops of each indicator are added to separate samples of a solution of pH 2.

What are the colours of the indicators in this solution?

|          | in a solution of pH 2 |              |
|----------|-----------------------|--------------|
|          | bromophenol blue is   | Congo red is |
| <b>A</b> | blue                  | red          |
| <b>B</b> | blue                  | violet       |
| <b>C</b> | yellow                | red          |
| <b>D</b> | yellow                | violet       |

A sting from insect X has a pH of 6 and a sting from insect Y has a pH of 8.

The table shows the pH of four substances.

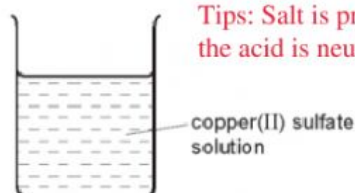
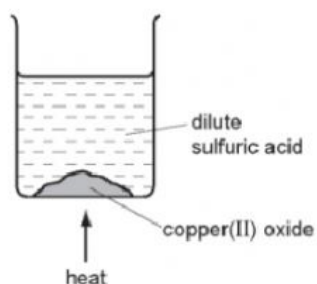
*Tips: You want to neutralise the sting.  
Think of neutralization reaction.*

| substance                 | pH |
|---------------------------|----|
| hydrochloric acid         | 1  |
| sodium hydrogen carbonate | 8  |
| sodium hydroxide          | 14 |
| vinegar                   | 5  |

Which substances are used to treat the two stings?

|          | X                         | Y                         |
|----------|---------------------------|---------------------------|
| <b>A</b> | hydrochloric acid         | sodium hydroxide          |
| <b>B</b> | sodium hydrogen carbonate | vinegar                   |
| <b>C</b> | sodium hydroxide          | hydrochloric acid         |
| <b>D</b> | vinegar                   | sodium hydrogen carbonate |

An aqueous solution of copper(II) sulfate was made by adding excess copper(II) oxide to dilute sulfuric acid. The mixture was heated, stirred and then filtered.



Tips: Salt is produced when the acid is neutralized.

What was the pH of the acid before adding the copper(II) oxide and of the solution after filtration?

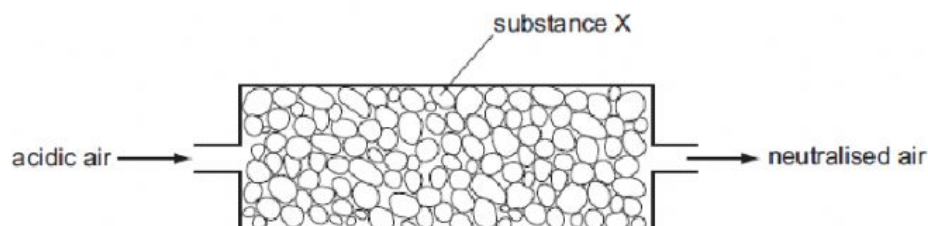
|   | pH of acid before adding copper(II) oxide | pH of solution after filtration |
|---|---|---------------------------------|
| A | greater than 7                            | 7                               |
| B | greater than 7                            | less than 7                     |
| C | less than 7                               | 7                               |
| D | less than 7                               | greater than 7                  |

A compound is a salt if it

- A can neutralise an acid.
- B contains more than one element.
- C dissolves in water.
- D is formed when an acid reacts with a base.

Revision worksheet – Chapter 3 (Paper 2)

Air containing an acidic impurity was neutralised by passing it through a column containing substance X.



What is substance X?

- A calcium oxide
- B sand
- C sodium chloride
- D concentrated sulfuric acid

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Element X is in Group I of the Periodic Table.

Which row shows the type of oxide and whether element X is metallic or non-metallic?

|   | type of oxide | metallic or non-metallic |
|---|---------------|--------------------------|
| A | acidic        | metallic                 |
| B | acidic        | non-metallic             |
| C | basic         | metallic                 |
| D | basic         | non-metallic             |

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Which element forms an acidic oxide?

