# 12 Acids and alkalis

1 Mark the following statements **TRUE** or **FALSE**. [4 marks] C

a) All acids are very dangerous. **False**

b) Some acids are dangerous. **True**

c) All alkalis are safe. **False**

d) Some alkalis and some acids are dangerous. **True**

2 Adarkwa tested four types of rock by placing each of them in a small beaker containing 10 $cm^3$ of dilute hydrochloric acid. He noticed that three of them gave off tiny bubbles of gas and over time they appeared to dissolve slightly. The fourth rock appeared to do nothing. What statement would you make from these observations? [1 mark] E

a) All rocks react with acid.

b) 75% of rocks are soluble in water.

c) There are four types of rock in the world.

d) **Some rocks contain substances which react with acids.**

3 Many foods and drinks contain acids. However, in the classroom or laboratory people wear safety goggles when they use an acid. Which statement about acids is the best explanation for this? [1 mark] E

a) **The acids in the classroom or laboratory are more concentrated than the acids in foods and drinks.**

b) All acids are dangerous. We should not eat or drink them at all.

c) People are scared of the chemicals in a laboratory.

d) Foods and drinks can protect us against acids.

4 Michelle put drops of lemon juice onto some bicarbonate of soda. She observed the mixture fizzing. This observation means that: [1 mark] E

a) The reaction is getting hot.

b) **A gas is given off.**

c) The change is reversible.

d) The bicarbonate of soda is evaporating.

5 Wasp stings contain an alkali. If you are stung by a wasp you can put an acid on it to neutralise the alkali sting. Which of these substances could you use? [2 marks] C

a) **Vinegar**

b) **Lemon juice**

c) Water

d) **Coca Cola**

6 Choose the correct words to complete this passage about acids and alkalis. [5 marks] C

Vinegar, lemon juice and vitamin C are all <**acids**/**alkalis**/**non-metals**>. They react with litmus paper to turn it <**red**/**green**/**blue**>. This is how we can detect acids. Lime is a chemical that is sometimes added to <**acid**/**alkaline**/**stony**> soils to make them more fertile. The lime is an alkali. We can detect alkalis because they turn litmus paper <**blue**/**red**/**yellow**>. The reaction between acids and alkalis is called <**isolation**/**neutralisation**/**combustion**>.

7 Eliza tested some liquids with blue and red litmus paper. Her results are shown in the table. E

| Substance | Observation with red litmus | Observation with blue litmus |
|---|---|---|
| Water | Red | Blue |
| Coca cola | Red | Red |
| Vinegar | Red | Red |
| Sodium hydroxide solution | Blue | Blue |
| Bicarbonate of soda solution | Blue | Blue |
| Lemon juice | Red | Red |
| Soapy water | Blue | Blue |

Which row correctly shows Eliza's findings? [1 mark]

| | Neutral | Acid | Alkali |
|---|---|---|---|
| **a)** | Water | Coca cola, vinegar, lemon juice | Sodium hydroxide solution, bicarbonate of soda solution, soapy water |
| **b)** | Water, soapy water, lemon juice | Coca cola, vinegar | Sodium hydroxide solution, bicarbonate of soda solution |
| **c)** | Coca cola, vinegar, lemon juice | Water | Sodium hydroxide solution, bicarbonate of soda solution, soapy water |
| **d)** | Sodium hydroxide solution, bicarbonate of soda solution, soapy water | Coca cola, vinegar, lemon juice | Water |

8 Philippe's teacher has asked him to measure out 15 $cm^3$ of water for an investigation. The best piece of equipment to use for this is: [1 mark]

E

a) A 10 $cm^3$ measuring cylinder

b) A 100 $cm^3$ beaker

c) A water glass

d) **A 25 $cm^3$ measuring cylinder**

9 Indigestion is a stomach ache caused by too much acid in the stomach. Which treatment would be best to help cure indigestion? [1 mark]

C

a) Painkillers to reduce the pain.

b) Antacids to neutralise the acid.

c) Eating soothing throat sweets.

d) Drinking a cup of lemon juice.

10 Acids and alkalis is a unit about acids and alkalis.

a) What do you think you will learn about in the next few weeks?

b) If you had a free choice, what would you like to learn about in this unit?