Answer the questions below and then check your answers.

1. Fill in the gap to complete the sentence below:

   Neutralisation reactions involving acids, alkalis and bases produce a _____ and _____ as the only products.

2. What is the general equation for an acid base neutralisation reaction?

3. What type of salt does hydrochloric acid always form?

4. Define an acid and an alkali.

5. Write the word equation for the reaction between nitric acid and potassium hydroxide.

6. Write a balanced chemical equation for the neutralisation reaction between sulfuric acid and sodium hydroxide. (If you need help working out the formula for compounds click here for help)

7. Explain what is meant by a neutralization reaction.

8. Write word and balanced symbolic equations for the reaction between hydrochloric acid and potassium hydroxide.

9. Match the following acids with the salts they form when reacting with sodium hydroxide:

acid		Salt formed
Nitric		Sodium sulfate
Sulfuric		Sodium chloride
hydrochloric		Sodium nitrate

10. Write word and symbolic equations for the neutralisation reactions of nitric acid, sulfuric acid, and hydrochloric acid with calcium hydroxide.

11. What is a salt in chemistry?

12. Write the symbol equation for the reaction between hydrochloric acid and sodium hydroxide.

13. Name the salt formed when nitric acid reacts with potassium hydroxide.

14. Explain why neutralization reactions are important in everyday life.

Answers

1. Fill in the gap to complete the sentence below:

   Neutralisation reactions involving acids, alkalis and bases produce a _____ and _____ as the only products.

   Answer: salt and water

2. What is the general equation for an acid base neutralisation reaction?

   Answer: Acid + Base → Salt + Water

3. What type of salt does hydrochloric acid always form?

   Answer: a chloride

4. Define an acid and an alkali.

   Answer: An acid is a solution which contains an excess of hydrogen ions (H^+) and an alkali is a solution formed when a base dissolves in water to form an excess of hydroxide ions (OH^-).

5. Write the word equation for the reaction between nitric acid and potassium hydroxide.

   Answer: Nitric acid + Potassium hydroxide → Potassium nitrate + Water

6. Write a balanced chemical equation for the neutralisation reaction between sulfuric acid and sodium hydroxide.

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

7. Explain what is meant by a neutralization reaction.

Answer: A neutralization reaction is a chemical reaction that forms a salt and water

8. Write word and balanced symbolic equations for the reaction between hydrochloric acid and potassium hydroxide.

Answer:

Word equation:

Hydrochloric acid + potassium hydroxide → potassium chloride + water

Symbolic equation:

$$2HCl + KOH \rightarrow KCl + H_2O$$

9. Match the following acids with the salts they form when reacting with sodium hydroxide:

acid		Salt formed
Nitric		Sodium sulfate
Sulfuric		Sodium chloride
hydrochloric		Sodium nitrate

10. Write word and symbolic equations for the neutralisation reactions of nitric acid, sulfuric acid, and hydrochloric acid with calcium hydroxide.

Nitric acid:

Word equation: Nitric acid + Calcium hydroxide → Calcium nitrate + Water

Symbol equation: $2HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + 2H_2O$

Sulfuric acid:

Word equation: Sulfuric acid + Calcium hydroxide → Calcium sulfate + Water

Symbol equation: $H_2SO_4 + Ca(OH)_2 \rightarrow CaSO_4 + 2H_2O$

Hydrochloric acid:

Word equation:

Hydrochloric acid + Calcium hydroxide → Calcium chloride + Water

Symbol equation:

$2HCl + Ca(OH)_2 \rightarrow CaCl_2 + 2H_2O$

11. What is a salt in chemistry?

Answer: A salt is a compound formed when the hydrogen ions in an acid are replaced by metal ions or ammonium ions.

12. Write the symbol equation for the reaction between hydrochloric acid and sodium hydroxide.

Answer: $HCl + NaOH \rightarrow NaCl + H_2O$

13. Name the salt formed when nitric acid reacts with potassium hydroxide.

Answer: Potassium nitrate

14. Explain why neutralization reactions are important in everyday life.

Answer: Neutralisation reactions are important for controlling pH levels in various contexts, such as treating indigestion, neutralising acidic or basic waste in environmental management, and adjusting soil pH for agriculture, manufacture of fertilisers to feed a growing world population