7.4 NEUTRALISATION

QUESTION 1

Which of the following happens during neutralisation?

I **An acid loses its acidity.**

II **An alkali gains its alkalinity.**

III **The product is a neutral solution.**

IV **A salt and water are the only product of neutralisation**

A I and II only

B II and IV only

C I, II and III only

D I, III and IV only

QUESTION 2

Which of the following bases reacts with hydrochloric acid to form sodium chloride and water?

A Copper oxide

B Sodium carbonate

C Sodium hydroxide

D Calcium hydroxide

QUESTION 3

Ant bites are acidic in nature. What would you use to treat ant bites?

A Vinegar

B Orange juice

C Lime juice

D Baking powder

QUESTION 4

Why is a base such as aluminium hydroxide used as a component of toothpaste?

A It helps to whiten teeth.

B It helps to strengthen teeth.

C It kills the bacteria in the mouth.

D It prevents tooth decay by neutralise the acids produced by bacteria in the mouth

QUESTION 5

We know that the end point of the titration has been reached when the

A indicator changes colour

B conductivity of the solution in the conical flask increases

C conductivity of the solution in the conical flask decreases

D when half the volume of the solution in the burette has been added to the solution in the conical flask

QUESTION 6

31.25 cm^3 of hydrochloric acid of unknown concentration is needed to exactly neutralise 25.0 cm^3 of 0.1 mol dm^{-3} sodium hydroxide solution. Calculate the concentration of the hydrochloric acid, in mol dm^{-3}.

A	0.08	C	0.18
B	0.81	D	0.85

QUESTION 7

Calculate the number of moles of water that is produced when 25 cm^3 of 1 mol dm^{-3} of sodium hydroxide is exactly neutralised by sulphuric acid.

A 0.025 mol

B 0.25 mol

C 0.05 mol

D 0.5 mol

QUESTION 8

25 cm^3 of hydrochloric acid exactly neutralise 20 cm^3 of 0.5 mol dm^{-3} sodium hydroxide. Calculate the concentration, in mol dm^{-3}, of the hydrochloric acid used.

A	0.2	C	0.6
B	0.4	D	0.8

QUESTION 9

Sulphuric acid reacts with ammonia solution according to the equation

$$2\,NH_3 + H_2SO_4 \longrightarrow (NH_4)_2SO_4$$

Find the concentration of the sulphuric acid if 20 cm^3 of the acid is used to exactly neutralise 25 cm^3 of 1 mol dm^{-3} ammonia solution.

A	0.125 mol dm^{-3}	C	0.625 mol dm^{-3}
B	0.225 mol dm^{-3}	D	1.25 mol dm^{-3}

QUESTION 10

Which of the following equations represents a neutralisation reaction?

I $HCl + NaOH \longrightarrow NaCl + H_2O$

II $NH_3 + HCl \longrightarrow NH_4Cl$

III $2HNO_3 + Ca(OH)_2 \longrightarrow Ca(NO_3)_2 + 2H_2O$

IV $CaCO_3 + 2HCl \longrightarrow CaCl_2 + H_2O + CO$

A I and II only

B II and IV only

C I, II and III only

D I, III and IV only

QUESTION 11

A few drops of sodium hydroxide is added to a solution of sodium chloride. The pH of the resulting solution is most probably.

A 3

B 5

C 7

D 12

QUESTION 12

20 cm^3 of 2.0 mol dm^{-3} acid *X* is required to exactly neutralise 20 cm^3 of 0.4 mol dm^{-3} sodium hydroxide solution. Acid *X* is most probably

A nitric acid

B sulphuric acid

C hydrochloric acid

D methanoic acid

QUESTION 13

The equation for the reaction between nitric acid and calcium hydroxide is

$$2\,HNO_3 + Ca(OH)_2 \longrightarrow Ca(NO_3)_2 + 2\,H_2O$$

In an acid-base titration, 0.2 mol dm^{-3} nitric acid is added slowly into 25 cm^3 of 0.1 mol dm^{-3} calcium hydroxide solution. The initial reading of the burette is 10.0 cm^3, find the final reading of the burette at the end of the titration.

A	15 cm^3	C	35 cm^3
B	20 cm^3	D	50 cm^3

QUESTION 14

A student diluted 15 cm^3 of 0.2 mol dm^{-3} sodium hydroxide solution in a conical flask with 10 cm^3 of distilled water before carrying out an acid-base titration with 0.5 mol dm^{-3} hydrochloric acid. Find the total volume of the solution in the conical flask at the end point of the titration.

A	6 cm^3	C	25 cm^3
B	15 cm^3	D	31 cm^3

QUESTION 15

Which of the following pairs of substances are reactants in a neutralisation reaction?

A	Copper sulphate	Hydrochloric acid
B	Nitric acid	Sulphuric acid
C	Copper (II) oxide	Sodium hydroxide
D	Ammonia solution	Hydrochloric acid

ANSWERS

1	D	6	A	11	D
2	C	7	A	12	B
3	D	8	B	13	C
4	D	9	C	14	D
5	A	10	C	15	D