

**STUDENT
NAME**

CLASS

**INDEX
NUMBER**

MOCK PAPER

C7 / C8 / C9 / C10

Additional materials: OTAS sheet / Periodic Table

Duration: 20 minutes

READ THESE INSTRUCTIONS FIRST

Write your centre number, index number and name on all the work you hand in.

You may use an HB pencil for any diagrams, graphs or rough working.

Write in dark blue or black pen.

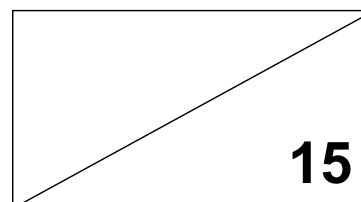
Do not use staples, paper clips, glue or correction fluid.

The use of an approved scientific calculator is expected, where appropriate.

You may lose marks if you do not show your working or if you do not use appropriate units.

DO **NOT** WRITE ON ANY BARCODES.

FOR EXAMINERS' USE



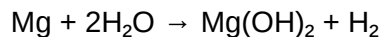
This document consists of **5** printed pages and **1** blank page.

Section A: Multiple-Choice Question (15 marks)

Shade your answer in the given OTAS sheet.

- 1 What is the volume of 3 mol of gas?
- A 24 dm³
- B 48 dm³
- C 72 dm³
- D 96 dm³
- 2 A sample of 2.0 g of sodium hydroxide is dissolved in 200 cm³ of water. What is the concentration of the solution?
- A 0.10 mol/dm³
- B 0.25 mol/dm³
- C 0.50 mol/dm³
- D 1.00 mol/dm³
- 3 If 0.25 mol of unknown element **X** has an atomic mass of 8, identify element **X**.
- A Helium
- B Sulfur
- C Germanium
- D Magnesium
- 4 The reaction below shows the extraction of iron from its oxide.
- $$4\text{H}_2(\text{g}) + \text{Fe}_3\text{O}_4 \rightarrow 3\text{Fe}(\text{s}) + 4\text{H}_2\text{O}(\text{l})$$
- If 2.16 g of water is produced from this reaction, what mass of iron is obtained from the extraction process?
- A 5.04 g
- B 6.10 g
- C 7.35 g
- D 8.12 g

- 5 30 g of magnesium is gradually added to excess water. The equation for the reaction is as shown below.



What is the mass of water that is used in this reaction?

- A 20 g
- B 30 g
- C 35 g
- D 40 g
- 6 Which of the below statements is **false** about acids?
- A Acids dissociate in water to produce H^+ ions.
- B The pH level of acids are generally lower than 7.
- C Acids react with metal carbonates to form salt, water and hydrogen gas.
- D Acids react with metal hydroxides, such that the resultant pH level is 7.
- 7 The table below provides information of three indicators used to identify the pH level of any chemical.

pH	2	3	4	5	6	7
Methyl orange	Red		Yellow			
Methyl red	Red				Yellow	
Bromothymol blue	Yellow					Blue

Which pH of a solution would cause the three indicators to have the same colour?

- A 3
- B 4
- C 5
- D 6

8 Which equation represents the ionic equation of reactions between NaOH and HCl?

- A** $\text{H}^+ (\text{aq}) + \text{OH}^- (\text{aq}) \rightarrow \text{H}_2\text{O} (\text{l})$
- B** $\text{Na}^+ (\text{aq}) + \text{Cl}^- (\text{aq}) \rightarrow \text{NaCl} (\text{aq})$
- C** $\text{NaOH} (\text{aq}) + \text{HCl} (\text{aq}) \rightarrow \text{NaCl} (\text{aq}) + \text{H}_2\text{O} (\text{l})$
- D** $\text{H}^+ (\text{aq}) + \text{Cl}^- (\text{aq}) \rightarrow \text{HCl} (\text{aq})$

9 Which of the below is an amphoteric oxide?

- A** Lead (II) oxide
- B** Calcium oxide
- C** Iron (III) oxide
- D** Rubidium oxide

10 The pH of soil in a farm is around 6.0 to 6.5.
The farmer wants to grow black currant which grows well in soil with a pH 7.5.
Which of the following is most suitable to be added to the soil?

- A** calcium chloride
- B** calcium hydroxide
- C** calcium nitrate
- D** calcium sulfate

11 A metallic ion has the following characteristics.

- I** Forms a white precipitate with NaOH (aq), soluble in excess
- II** Forms a white precipitate with NH_3 (aq), soluble in excess

Which ions best fit these categories?

- A** Zn^{2+}
- B** Ca^{2+}
- C** Fe^{2+}
- D** Al^{3+}

- 12** Dilute sulfuric acid was added to a test tube containing unknown powder **X**. This reaction produced a gas, in which when bubbled in limewater, white precipitate evolved. When the reaction stopped, excess aqueous sodium hydroxide was added. A dirty green precipitate formed. What could be the unknown powder **X**?
- A** Iron (III) nitrate
 - B** Copper (II) sulfate
 - C** Iron (II) carbonate
 - D** Lead (II) chloride
- 13** When aqueous ammonia is added in excess to copper (II) nitrate, what is observed?
- A** Cloudy, dark blue precipitate
 - B** Light blue precipitate
 - C** Green precipitate
 - D** Clear, dark blue solution
- 14** What is the oxidation state of oxygen in hydrogen peroxide?
- A** +1
 - B** +2
 - C** -1
 - D** -2
- 15** 4 students wrote statements about redox reactions, of which only 1 is correct. Who is it?
- Anthony:** When there is an increase of electrons, the substance gaining electrons is oxidised.
Bryan: The oxidation state of hydrogen in sodium hydride is +1.
Chris: For a redox reaction to occur, both oxidation and reductions must occur at the same time.
Daniel: All redox reactions are neutralisation reactions.
- A** Anthony
 - B** Bryan
 - C** Chris
 - D** Daniel

END OF PAPER

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Hey!

To whoever that is reading this message, I wish you all the best for whatever exam you are studying for! 😊

You are not alone. I've walked down this path, and I'm sure you'll do well, just like how I did! Don't give up when you face setbacks! **Failure leads to success!** JIA YOU!!!!