STUDENT NAME			
CLASS		**INDEX NUMBER**	

Chpt 7: Mole Concepts and Stoichiometry

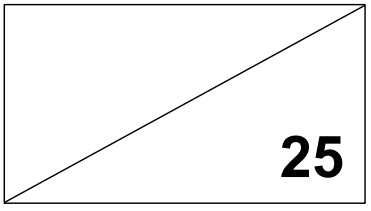
MOCK PAPER

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



1 What is the volume of 3 mol of gas?

A 24 dm^3

B 48 dm^3

C 72 dm^3

D 96 dm^3

2 A sample of 2.0 g of sodium hydroxide is dissolved in 200 cm^3 of water.
What is the concentration of the solution?

A 0.10 mol/dm^3

B 0.25 mol/dm^3

C 0.50 mol/dm^3

D 1.00 mol/dm^3

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.

$$4H_2\,(g) + Fe_3O_4 \rightarrow 3Fe\,(s) + 4H_2O\,(l)$$

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.

$$Mg + 2H_2O \rightarrow Mg(OH)_2 + H_2$$

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 **(a)** The relative atomic mass of fluorine is 19. What is the mass of 3 mol of fluorine gas?

Mass: …… g [2]

(b) What is the number of moles in a sample of 6.4 g of sulfur?

Moles: …… mol [2]

(c) 480 cm^3 of hydrogen gas is formed as a result of a reaction. FInd the mass of the gas.

Mass: …… g [2]

[Total: 6]

7 The following equation shows the reaction between sodium carbonate and hydrochloric acid.

$$Na_2CO_3\ (s) + 2HCl\ (aq) \rightarrow 2NaCl\ (aq) + CO_2\ (g) + H_2O\ (l)$$

(a) One of the products, sodium chloride, has a state symbol, (aq). Define (aq).

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[1]

(b) Find the number of moles, if 15.9 g of sodium carbonate is used in this reaction.

Moles: …… mol [2]

(c) What is the volume of carbon dioxide produced, measured at r.t.p.?

Volume: …… dm^3 [2]

(d) What is the mass of water produced in this reaction?

Mass: …… g [2]

[Total: 7]

8 In a reaction, zinc oxide is reacted with hydrochloric acid to form zinc chloride and water.

(a) Write a balanced equation, with state symbols, for this reaction.

[1]

(b) **(i)** What is the name of this reaction?

[1]

(ii) Write the ionic equation for the reaction mentioned in (b) (i).

[1]

(c) (i) If 0.65 g of zinc is added to 0.100 dm^3 of hydrochloric acid, what is the mass of water produced?

Volume: ……. dm^3 [4]

[Total: 7]