ALL SAINTS S.S HOME LEARNING TEST

S.3 CHEMISTRY

NAME:

INSTRUCTIONS:

Answer **all** *the questions in section* **A** *and* **two** *questions in section* **B**.

SECTION A

1. Chlorine gas is prepared in laboratory using hydrochloric acid and a substance Y.

   (a) Name Y: ……...

   (b) Write equation leading to the formation of chlorine.

   ……..

   ……..

   (c) State the role of Y.

   ……..

   ……..

2. An atom X has an atomic number of 11 and a relative atomic mass of 23.

   (a) Determine the number of:

   (i) Neutrons in X

   ……

   ……

   (b) Write down the symbol of the ion atom X will form.

   ……..

   ……..

   (c) Write a balanced equation of reaction of X with water.

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   ……..

3. (a) Distinguish between strong acid and weak acid.

   ……..

   ……..

   ……..

   (b) Give one example of

   (i) Strong acid. ……..

   (ii) Weak acid. ……

4. Zinc carbonate was strongly heated until there is no further change.

   (i) State what was observed.

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   ……

   (ii) Write the equation for the reaction that took place.

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   ……..

   ……..

5. Manganese (IV) oxide acts as an oxidizing agent and as a catalyst in chemical reactions.

(a) Explain what is meant by the term:

(i) Oxidizing agent.

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……...

(ii) Catalyst

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(b) Give one example each of a reaction in which manganese (IV) oxide acts as:

(i) An oxidizing agent

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……...

(ii) A catalyst

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……

7. In an experiment to prepare ammonia gas, an ammonium salt was heated with alkali. The volume of ammonia formed of 240cm^3 was absorbed in 250cm^3 of sulphuric acid.

(a) Explain why:

(i) Ammonia is not collected over water.

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(ii) Ammonia is not dried using anhydrous calcium chloride.

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(b) (i) Write the equation of reaction between ammonia and sulphuric acid.

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(ii) Calculate the mass of ammonium sulphate formed (1 mole of gas occupies 24000 cm^3 at room temperature. N = 14, S = 32, O = 16, H = 1)

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8. (a) A mouth of a gas jar full of carbon monoxide was lit with lighted taper.

(i) State what was observed.

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(ii) Give two properties of carbon monoxide other than being inflammable in which carbon monoxide differs from carbon dioxide.

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(b) Give one example of chemical reaction in which carbon monoxide acts as a reducing agent.

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(a) (i) Name two fuel gases that contain carbon monoxide.

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(ii) Name one use of carbon monoxide.

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SECTION B: *Attempt any <u>two</u> questions.*

9. (a) (i) Describe an experiment you would carry out in the laboratory to prepare dry hydrogen chloride gas. (No diagram is required).

(ii) Write the equation for the reaction taking place.

(i) Describe a test you would carryout to confirm the presence of hydrogen chloride gas.

(b) Hydrogen chloride gas was bubbled through a solution of silver nitrate.

(i) State what would be observed.

(ii) Write the equation of reaction that takes place.

10. (a) (i) Draw a labelled diagram of set-up of apparatus that can be used to prepare a dry sample of carbon dioxide.

(ii) Write equation for the reaction leading to the formation of carbon dioxide.

(b) Explain the reason for your choice of the:

(i) drying agent for carbon dioxide

(ii) method of collecting carbon dioxide as shown in your answer in (a) (i).

(c) Write equation to show the reaction of carbon dioxide with:

(i) water

(ii) sodium hydroxide

11. (a) Explain what is meant by the term polymerization.

(b) Ethene undergoes polymerization according to the equation:
$nCH_2 = CH_2 \longrightarrow$ polymer.

(i) Name the polymer.

(ii) Draw the structure of the polymer.

(iii) State the condition under which this reaction occurs.

(iv) State one use of polymer.

(c) Ethene can be prepared in the laboratory from Ethanol.

(i) Name one other reagent required for this reaction.

(ii) State the condition required for this reaction.

(iii) Write the equation to show how ethane can be converted to ethane.

STAY SAFE