Name:.....Stream: .....

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545/2
CHEMISTRY

PAPER 2
JULY,2022

INTERNAL MOCK EXAMINATIONS 2022
UGANDA CERTIFICATE OF EDUCATION

CHEMISTRY
PAPER 2
TIME: 2 HOURS

INSTRUCTIONS

- ✓ *Section **A** consists of **10** structured questions. Answer all questions in this Section.*
- ✓ *Answers to these questions must be written in the spaces provided.*
- ✓ *Section **B** consists of **4** semi- structured questions. Answer any two questions from this Section.*
- ✓ *Answers to the questions **must** be written in the answer booklet(s) provided.*

In both sections all working must be clearly shown.

Where necessary use:
[0=16; Fe = 56]
1 mole of gas occupies 24l at room temperature.

1 mole of gas occupies 22.4l at s.t.p.

For Examiners' Use only														
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Total**

SECTION A (50 MARKS)

*Answer **all** questions in this Section*

1. State what would be observed if the following substances were heated.

(a) *Zinc* (1 ½ Marks)

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.....

(b) *Copper (II) sulphate – 5- water* (1 ½ Marks)

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.....

(c) *Iodine* (02 Marks)

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.....

2. Part of the Periodic table is shown below. The letters used are not the symbols of the elements.

I						VII	VIII
	II	III	IV	V	VI		
			Y				
W		X			Z		

(a) Which of the letters represents the

(i) most reactive metal? (½ Marks)

……

(ii) least reactive non- metal? (½ Mark)

……

(b) Write the formula of the compound that would be formed between:

(i) **X** and **Z** (01 Mark)

……

(ii) **Y** and **Z** (01 Mark)

……

(c)(i) State whether the compound formed between **Y** and **Z** will conduct electricity. (½ Mark)

……

(ii) Give a reason for your answer in (c)(i). (01 Mark)

3.(a) Hydrogen can be prepared in the laboratory by adding dilute sulphuric acid to Zinc metal in the presence of a catalyst.

(i) Name the catalyst ……

(ii) Write equation for the reaction leading to the formation of hydrogen. (1 ½ Marks)

……

……

(b) State the condition(s) under which hydrogen may be displaced from water by

(i) Sodium (½ Marks)

……

(ii) Iron (01 Mark)

……

(c) Write equation for the reaction in (b)(i). (1 ½ Mark)

……

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4.(a) Lead(II) carbonate was heated strongly.

(i) State what was observed. (1 ½ Mark)

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.....

(ii) Write equation for the reaction that took place. (1 ½ Marks)

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.....

(b) Dilute nitric acid was added to lead(II) carbonate and to the resultant solution was added dilute ammonia solution drop wise until in excess.

(i) State what was, observed. (01 Mark)

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(ii) Write equation for the reaction that took place. (1 ½ Marks)

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5. Rusting is a process in which iron is converted into hydrated iron(III) oxide. State :

(a) (i) **two** conditions necessary for rusting to occur. (01 Mark)

.....

.....

(ii) **one** method used to prevent iron from rusting. (01 Mark)

.....

.....

(b) The data below was obtained when carbon monoxide was passed over a heated sample of an oxide of iron until there was no further change.

Mass of empty dish = 10.98g.
Mass of dish + the oxide of iron = 13.30g.
Mass of dish + residue = 12.66g.

(i) Determine the formula of the oxide of iron. (03 Marks)
(Fe = 56; O =16)

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.....

(ii) Write equation for the reaction between iron oxide and carbon monoxide. (1 ½ Marks)

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6. (a) A moist red litmus paper was held at the mouth of a test tube in which a mixture of ammonium chloride and concentrated sulphuric acid was being heated.

(i) State what happened to the litmus paper. (½ Mark)

.....

(ii) Write equation for the reaction that took place in the test tube. (1 ½ Marks)

.....

.....

(b) A glass rod containing some drops of concentrated hydrochloric acid was held at the mouth of a test tube in which a mixture of ammonium sulphate and sodium hydroxide solution was being heated.

(i) State what was observed. (½ Mark)

.....

(ii) Write equation for the reaction that took place in the test tube. (1 ½ Mark)

.....

.....

7. Copper(II) sulphate solution was electrolyzed using carbon electrodes.

(a) State what was observed at the;

(i) Cathode (01 Mark)

.....

(ii) Anode (01 Mark)

.....

(b) Explain your observation at the cathode. (1 ½ Marks)

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.....

(c) Write equation(s) for the reaction(s) that took place at the anode.
(1 ½ Marks)

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8. Ethanol can be converted to ethane according to the following equation.

$$C_2H_5OH_{(l)} \xrightarrow{H_2O} C_2H_{4(g)}$$

(a) State the conditions necessary for the reaction to take place.
(1 ½ Marks)

.....

.....

(b)(i) Name one reagent that can be used to distinguish between ethane and sulphur dioxide. (½ Mark)

.....

(ii) State what would be observed if each of the gases is separately treated with the reagent you have named in (b)(i). (02 Marks)

.....

.....

(iii) Write equation to show any reaction that takes place in (b)(ii).
(01 Mark)

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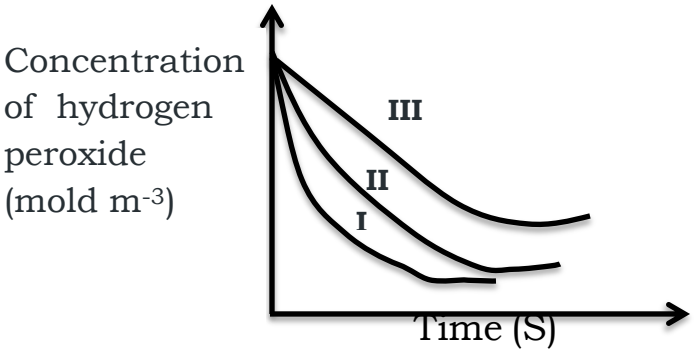
9. The sketch graphs **I,II** and **III** in the diagram below, show variations in concentrations of hydrogen peroxide with time when a standard solution of the hydrogen peroxide was decomposed under different conditions.



(a) Identify which one of the sketch graphs, shows decomposition of the hydrogen peroxide.

(i) At room temperature without a catalyst. (01 Mark)

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