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

545/1

Chemistry

Paper 1

(Theory)

April,2023

2 hours

WAMATOVU MUSLIM SEED SECONDARY SCHOOL

END OF TERM ONE ASSESSMENTS,2023

Uganda Lower Secondary Certificate of Education

S.3 CHEMISTRY

Paper 1 (Theory)

2 HOURS

INSTRUCTIONS:

- *Section **A** consists of ten (10) short answer structured questions, answer all questions in this section. Answers to these questions **must** be written in the spaces provided*
- *Answer all questions in section **A**. Answers to the questions **must** be written on the answer sheets provided.*
- *In both sections, **all** working **must** be clearly shown and **must** be in **blue** or **black** ink*
- *Any work done in **pencil** will **not** be marked **except** drawings*
- *Mathematical tables and silent non programmable calculators may be used*

1	2	3	4	5	6	7	8	9	10	11	12	**Total**

SECTION A: (40 MARKS)

Attempt all questions in this section

1. Using Kinetic theory of matter, explain the following observations
   (a) When blue ink is spread in clean water, the colour of the water turns blue all over.

   (02marks)

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   (b) A bicycle tube may expand and burst when pressure inside is too much and it's left under sunshine for some time. ***(02marks)***

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2. A bottle of Rwenzori mineral water was seen with the following mineral composition 0.1mg sodium, 0.04 mg calcium among others. Write the chemical symbols of the minerals given above with their corresponding electronic configurations and group to which each belongs in the periodic table.

   (04marks)

Mineral	**Symbol**	**Electronic configuration**	**Group**
Sodium			
Calcium			

3. In a certain school, the toilet is near the senior three class. The foul smell disturbs the students in the class and the smell becomes much more on the hot day.

   (i)Explain briefly how the smell molecules are able to move from the toilet up to the classroom. ***(02 marks)***

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(ii)Explain why the smell from the toilet becomes more during the hot day.

(02marks)

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4. During the testing of the pH of drugs in an industry, the following observations were made on the litmus indicator that was being used.

Drug solution	***Red litmus***	***Blue litmus***
A	Turned blue	Remained blue
B	Remained red	Remained blue
C	Remained red	Turned red

(a) Which of the drug solution is ***(04 marks)***

(i) neutral ……

(ii)acidic……

((iii)alkaline …… ……

(b) Which drug solution would you recommend the manufacturer to finally produce and why?

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5. Explain the following observations

(a) Common salts decrease the melting point of ice.

(02marks)

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(b) Addition of common salt to water increases the boiling point of water

(02marks)

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6. The table below shows how certain substances affect the rusting of steel. A tick (√) indicates that the substance is present. Across (×) indicates that the substance is absent. Complete the table

	Substances present			
Speed of rusting	Water	Air	Salt	Mud
Nil	√	×	×	×
Nil	×	√	×	×
Slow	√	√	×	×
Fast	√	√	√	×
Very fast	√	√	√	√

(a) Using the table, answer the following questions

(i) Which two substances are needed for rusting to occur ***(01mark)***

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(ii) Which substance together produce very fast rusting? ***(01mark)***

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(iii) Explain why washing a car with sea water could be dangerous.
(***02marks)***

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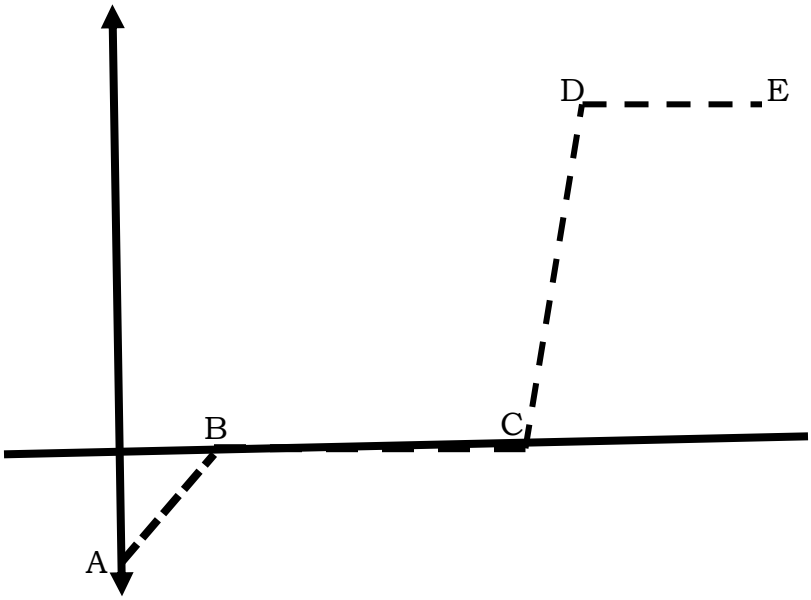
7. The graph below shows heating of ice until boiling starts



Briefly state what happens in regions ***(04marks)***

(i) AB

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(ii) BC

……

……

(iii) CD

……

……

(iv) DE

……

……

8. Complete the following sentences ***(04marks)***

(a) The most reactive metal in the reactivity series is,
_____

(b) Liquid air is separated into its components by _____

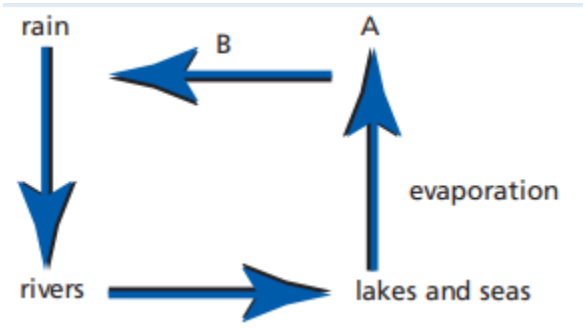
(c) A pollutant in the air which leads to production of acid rain is _____

(d) Incomplete combustion of charcoal produces a poisonous gas called _____

9. Water is very essential in our daily life. It's used for several purposes which support our life, however there are so many liquids that may look the same as water though their physical properties may differ. For example, Kerosene and water are both colorless. In the laboratory we use substance **X** to distinguish the two liquids. Complete the table below, in relation to question. ***(04 marks)***

Substance **X** used to distinguish the two liquids	Observation with water	Observation with kerosene

10. A town's water supply is obtained by purifying river water.



(a)What are the **A** and **B** in the diagram of the water cycle above. ***(02 marks)***

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(b) In recent years pollution of rivers and lakes has become a serious problem. Assuming that you are employed as an environmentalist in your community, what measures can you put in place to ensure cleanliness of the water bodies around that community? ***(02 marks)***

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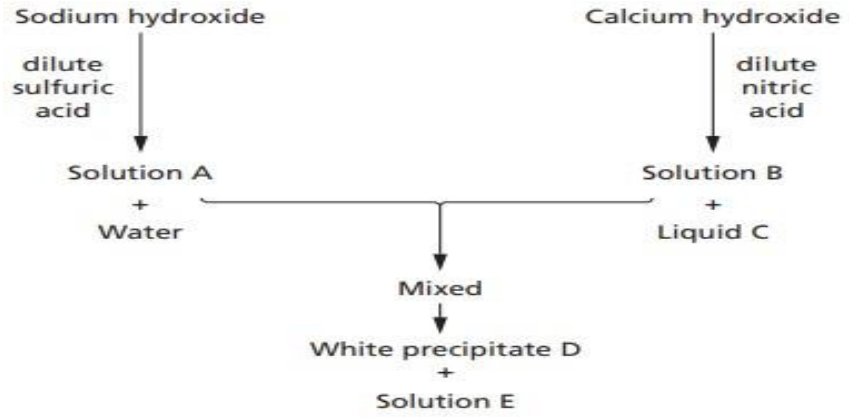
SECTION B: (30 MARKS)

(Answer all questions in this section)

11. The following reaction scheme on preparation of *salts* was developed by a senior three group of students of chemistry. Study it carefully and answer the questions that follow.



(a) Give the names and formulae of substances named **A** to **E**. Copy and complete the table below. ***(10 marks)***

Substance	**Name**	**Formula**
A		
B		

C		
D		
E		

(b) Name the suitable indicator that can be used during the initial reactions of the hydroxides with the dilute acids.

(01 mark)

(c) In the scheme above, identify which substance is an insoluble salt; write a word and molecular equation leading to its formation**.**

(03 marks)

Name of insoluble salt

Word equation

Molecular equation

(d) Name the method of separation of mixtures that can be used to obtain solution **E** from the white precipitate **D**. ***(01 mark)***

11. A patient is in a critical condition and needs oxygen, but the hospital lacks oxygen. You studied chemistry, you are provided with all the equipments to obtain oxygen

(a) (i) Where would you obtain oxygen from ***(01mark)***
(ii) What procedures would you follow to obtain pure oxygen to be given to the patient?

(09 marks)

(b) (i) Apart from obtaining oxygen, what other applications does the method have? ***(03 marks)***
(ii) Give two reason why common salts are used in the food industry

(02 marks)

THE END