Name ……

Stream ……

CHEMISTRY DEPARTMENT

Uganda lower secondary certification of education

End of term II 2023

Chemistry

Senior Two

2 hours 30 minutes

Instructions

- This paper consists of two sections A and B
- Attempts all questions in section A in spaces provided
- Attempt any two questions on answer sheets provided
- Any additional questions attempted in section B shall not be marked

For Examiner's use only

Section	Score	Comment
A		
B		
TOTAL		

SECTION A (40Marks)

1. Air consists of two major components A and B in the ratio of 3:1 respectively.

   a)

      i. Identify the components A and B. (01 mark)

      A:

      ……

      B:

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      ii. By what method can a mixture of the above components of air be separated? Give reason for your answer (01 $\frac{1}{2}$ marks)

      Method:

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      ……

      Reason:

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   b) Give one use of gas component A (01 mark)

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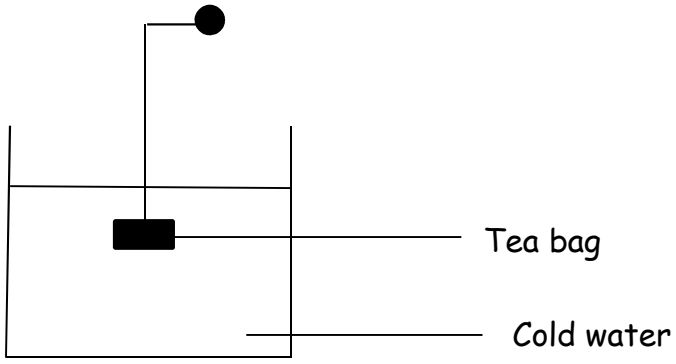
2. A tea bag was placed in cold water contained in a glass beaker and left to hang for several hours



a) State what would be seen. (01 mark) each

i. After five minutes

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ii. After several hours

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b) Explain your observation using the idea of particles. (02 marks)

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c) Name the process responsible for the observation. ($\frac{1}{2}$ mark)

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3. The continued use of polyethene bags as a packaging material has led to an advanced negative effect on the environment.

   Briefly explain how polyethene bags usage is affecting the environment.

   (03 marks)

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4. Study the table below showing elements S, T, U, V and W with the corresponding member of sub-atomic particles.

Element	Protons	Neutrons	Electrons
S	10	10	10
T	9	10	9
U	12	12	12
V	3	4	3
W	16	16	16

a) Identify the elements which are likely to form.

   i. Anions (01mark)

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ii. Cations (01mark)

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b) Use the table above to complete the table below. (04 $\frac{1}{2}$ marks)

Element	Atomic number	Atomic mass
W		
S		
V		

5. Below is a dialogue among senior one west students. Use it to answer questions that follow.

Nabirah: No, it's not a mixture because it is obtained from cow's udder

Joshua: But a mixture consists of pure substances which are not chemically combined together.

So we need to first know the components of milk.

Trinah: From ICT research, I found out that the components of milk include water, fats and proteins which do not blend together.

Harunah: Oooh, therefore milk is a mixture.

a)

i. From the above dialogue, identify the type of mixtures milk is. (01 mark)

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ii. Give a reason for your answer (01 mark)

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b) By the what method can the components of milk shown in the dialogue be separated (01 mark)

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c) Briefly describe how water can be obtained alone from the other components of milk (02 marks)

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6. Accidents are unavoidable, a playful student started fire during a chemistry practical lesson.

a) Identify the safety tool that you would use to stop the spread of fire. (01 mark)

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b) Briefly describe how you would use the tool you have identified in (a) above.

……(03marks)

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7. Helix Acram, a senior two student measured the pH values of some locally available substances and recorded the findings in the table below.

Substance	pH value
Sugar solution	7.0
Lemon juice	2.5
Baking powder	8.5
Common salt	7.0
Tooth paste	9.0
Vinegar	3.0

a) What name is given to the reagent/solution/chemical that Helix used to obtain the above results ($\frac{1}{2}$ marks)

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b) Classify the above substances as; (01 mark) each

i. Acids

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ii. Alkalis

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c) Write two uses of acids and two uses of alkalis in everyday life. (01 mark) each

One use of acids

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One use of alkalis

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8. Briefly explain how chemistry through the following sectors contributes to the economy of Uganda. (02 marks) each

a) Agricultural sector

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b) Manufacturing industries

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9.

a) Using suitable examples, define the following terms. (01 $\frac{1}{2}$ marks) each

i. Temporary changes

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ii. Permanent changes

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b) Give four incidences in which changes that occur to materials become important to our everyday life. (02 marks)

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10. Mineral quartz is one of the most abundant mineral on earth. This mineral is present in sand.

a) Identify two elements that make up the mineral quartz. (01 mark)

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b) Explain how Mohr's scale is used to determine hardness of minerals. (02 marks)

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c) What name is given to minerals such as gold, silver and platinum which are made up of only one element. (01 mark)

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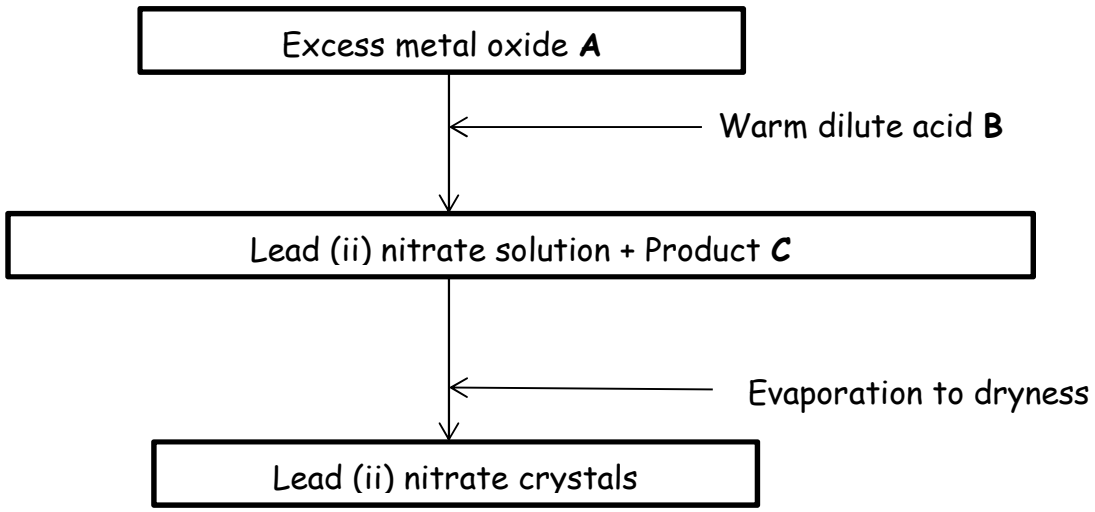
SECTION B (attempt any **TWO** questions)

11. The flow chart below is for preparation of lead (ii) nitrate crystals.



a) Identify the suitable; (01 mark)

i. Metal oxide A

ii. Dilute acid B that can be used in the above experiment.

b) Explain the relevancy of; (02 marks)

i. Using excess of the metal oxide A

ii. Warming the dilute acid B before usage

c) Name product C that is formed together with lead (ii) nitrate solution. ($\frac{1}{2}$ marks)

d) Following a scientific method and using the appropriate science process skills, make an experimental write up showing how lead (ii) nitrate crystals can be obtained. (11 $\frac{1}{2}$ marks)

12. In countries that experience winter, their roads freeze which disturbs road transport.

However the problem of roads freezing has been reversed by pouring common salt on frozen roads.

a) Using the knowledge on criteria to determine purity, explain why applying salt makes roads to remain unfrozen even in winter. (02 marks)

b) The following results were obtained from an experiment to determine freezing point of a liquid substance M.

It was cooled and temperature recorded every after 1 minute. The results obtained are shown in table below.

Time (minutes)	0	1	2	3	4	5	6	7	8
Temperature (C)	100	85	78	78	60	43	25	25	16

i. Plot a graph of temperature against time to represent information in the table. (06 marks)

ii. Using the graph, label with letters X, Y and Z on areas in which the substance exist as a solid, a liquid and a gas respectively. (03 marks)

iii. Using the graph, determine the freezing point of the substance. (01 mark)

c) Draw arrangement of particles of the substance M at: (03 marks)

i. 1 minute

ii. 2 minutes

iii. 3 minutes

13. Some of the important substances in daily life include.

- A metallic gas cylinder made of iron containing methane gas,
- A packet of sodium chloride labeled as common salt.
- Oxygen gas cylinders in hospitals
- A full jerry can of water.

a) Using the above information, identify the different types of structures contained in different materials. Choose an example. (03 marks)

b) Using the outer most shell electrons only, show how atoms in sodium chloride, methane (CH_4), oxygen and water bond to form the mentioned substances. (08 marks)

c) Write a balanced equation to show how a solution of sodium chloride can be prepared in a laboratory. (01 mark)

d) Explain why sodium chloride is a solid at room temperature and be used as an additive during making sauce at home while oxygen is a gas at the same temperature and cannot be stored in open containers. (03 marks)

14.

i. A swimming pool has been constructed in your school. Specific materials were being chosen for the use over others.

Write an email to your friend in another school explaining to him/her the materials used in the construction of the swimming pool justifying the necessity of each of the materials used. (10 marks)

ii. Explaining the following situations that occur in our daily life.

i. Metals are chosen over plastics to be used for cooking. (01 $\frac{1}{2}$ marks)

ii. Most plates are made from ceramics and not metals. (02 marks)

iii. Iron bars are chosen to make concrete over wood. (01 $\frac{1}{2}$ marks)

END

"preparation is the beginning of success"

Jssemwezi.