**Name**.....**Personal no**...../.....

**Signature.**..... **Stream**.....

**545/1**

CHEMISTRY

**Paper 1**

**S.2** S.3

**2 hours**

**July/August-2022**.

**CHEMISTRY DEPARTMENT.**

***Uganda certificate of Lower secondary education.***

**End of term 2 2022** End of Term 1 2023

**Competency based curriculum examination**

*Instructions.*

• This paper consists of two sections **A** and **B**. Attempt **all** questions from section **A** and the one in section **B**. Answers to section **A** must be written in the spaces provided. For section **B**, write answers on the answer sheets provided. Present your work neatly.

**Table for Examiners use only**

| Number | Marks | Comment. |
|---|---|---|
| **1** | | |
| **2** | | |
| **3** | | |
| **4** | | |
| **5** | | |
| **6** | | |

**SECTION A**.

***Attempt all questions in this section.***

1(a).Kinetic theory of matter states that "*matter consists of very smallest invisible particles in the state of continuous random motion*" A teacher instructed S.2 students to come up with every day examples demonstrating the existence of particles in matter.

Owen; a S.2 student presented his example before the whole class. His presentation was " ***when some one closes him or herself in a dark room with closed windows and doors and looks into a ray of light penetrating through one simple hole in one piece of iron sheet, dust particles are seen moving in a zig zag pattern "*** the teacher confirmed Owen's findings.

(i) State why the dust particles are seen moving in zig zag pattern.? (01 mark)

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

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(iii) What conclusion can be drawn from Owen's simple experiment? (01 mark)

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(iv) State what would be observed within the ray of light when the room gets hotter? (01 mark)

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(v) Explain your observations in (c) above. (02 mark)

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(b)Below is new car tyre which flattened when a car was left parked in a compound throughout the whole week which had severe coldness.

Use particle theory of matter, explain the observation in the picture (3 marks)

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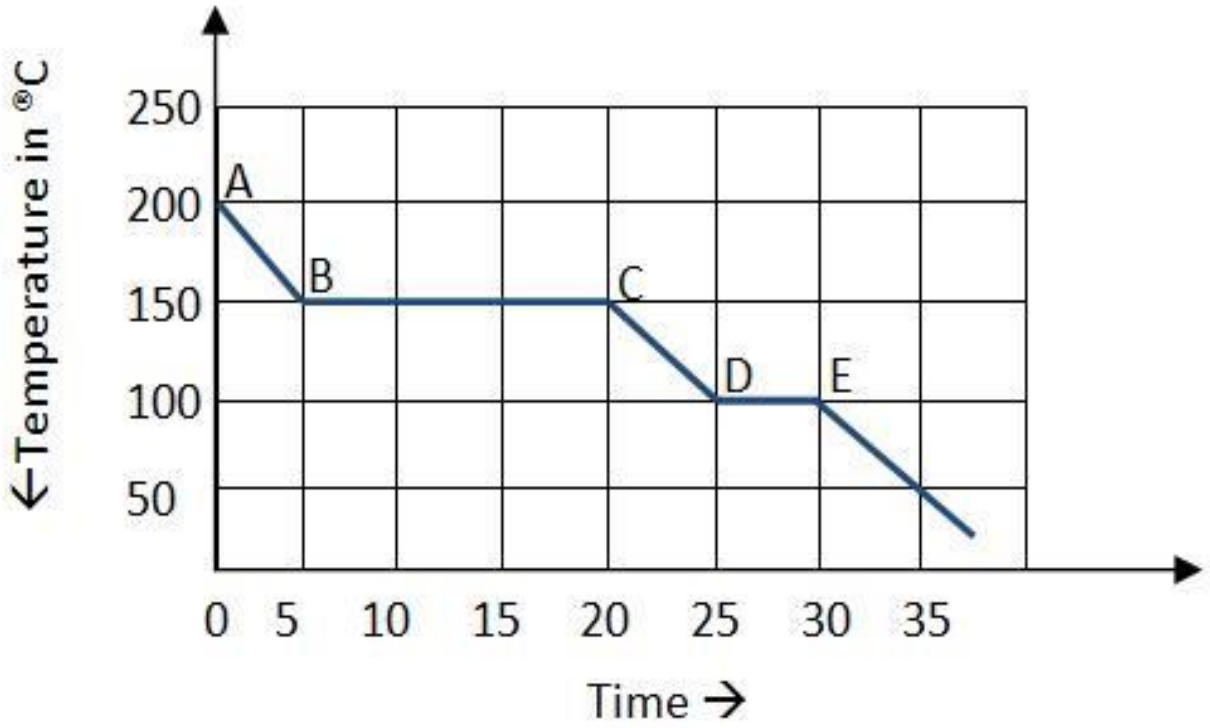
2.Below is a temperature-time cooling graph plotted when a group of S.2 students left pure substance **Q** to cool to room temperature. Study it and answer the questions that follow.




(a) State the melting point and boiling point of substance **Q**. (02 marks)

Melting point.....

Boiling point.....

(b)Name the state of substance **Q** at, (03 marks)

(i) E.....

(ii)C..... .....

(iii)A.....

2.Objects we use in every day life are made from materials which are either plastics, ceramics; metals; wood , metals or glass.

(a)State two useful properties of plastics. (02 marks)

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(b)Plastic waste management is a challenge in our communities today. Poor disposal of plastics as shown in the picture below is a big threat to human health around the globe.

(a)What threats do plastics pose to the environment and man. (05 marks)

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(b)Suggest two possible solutions to the threats plastics pose to the environment you have written in (a). (02 marks)

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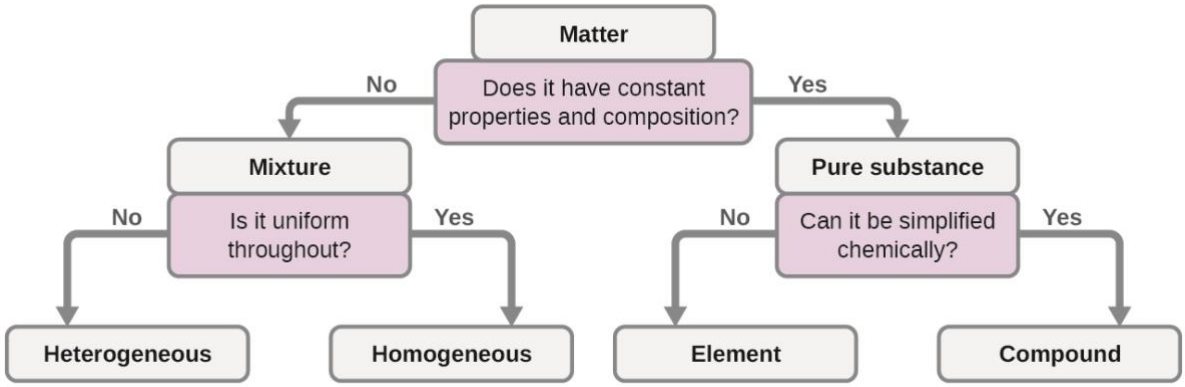
3.Below is a flow used summarized by one group of S.2 students about matter in terms of elements; compounds and mixtures.




(a)Classify the following substances as element; compound or mixture.

(i) Sugar. (01 mark)

.....

(i) Charcoal. (01 mark)

.....

(ii) Sugar solution. (01 mark)

.....

(b)State two differences in properties between sugar and sugar solution.

(02 marks)

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(c)Briefly describe how pure water can be obtained from sugar solution.

(03 marks)

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(d)Name the substance that can be used to test for the pure water obtained in (c), and state what would be observed when the substance named is used to test for the pure water obtained. (02 marks)

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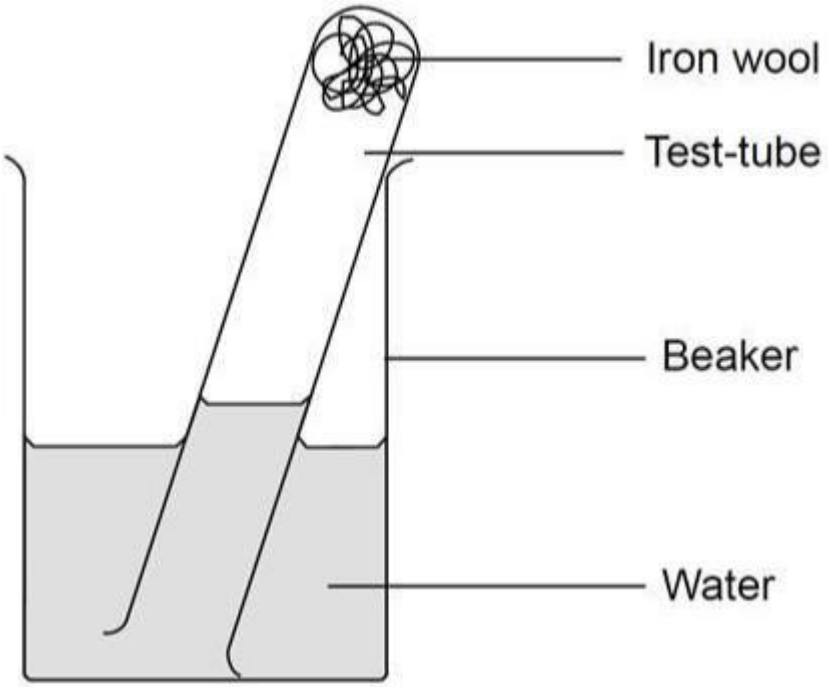
4)Below is a set up apparatus that was used to investigate the most active component of air. Study it and answer the questions that follow




(a)(i)Identify the component of air being investigated? (01 mark)

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(ii)State the approximate percentage of the component of the air being investigated in the experiment above. (01 mark)

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(iii)Name the process that took place in set up apparatus above. (01 mark)

.....

(iv)State the type of change that took place leading to the process named in (iii) above and give one reason for the type of change that took place.(02 mrks)

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(b)State why there was rise of some water inside the test tube? (03 marks)

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(c)State one use of the component of air being investigated in the experiment above. (01 mark)

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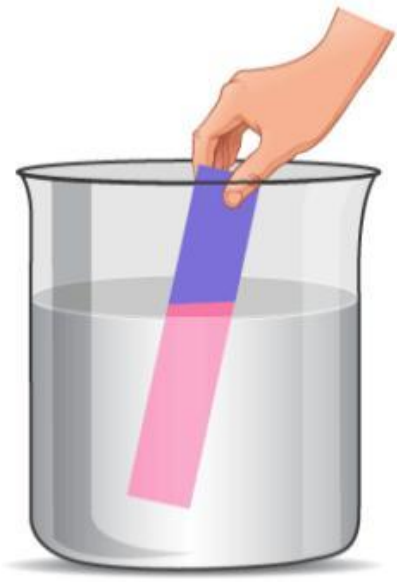
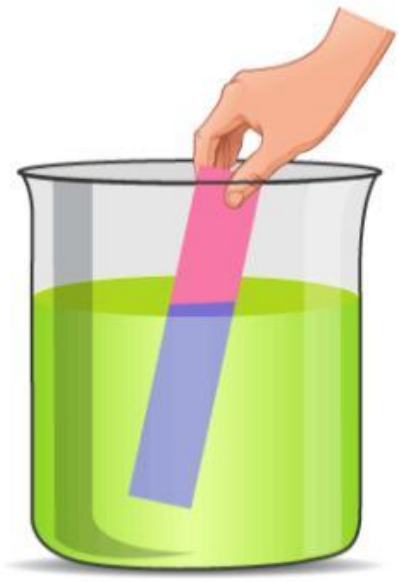
5)Acids and bases are substances which are use in our every day life. Study the set up diagrams below and answer the questions that follow.



**Solution X**

**(** Turns blue litmus paper red )



**Solution Y**

( Turns red litmus paper blue)

(a)State the identity of;

(i) solution **X** . ..... ( 01 mark)

(ii) Solution **Y**.....( 01 mark)

(b)State any one other physical property of ,

(i) Solution **X**. ( 01 mark)

.....

.....

(ii) Solution **Y** (01 mark)

.....

.....

(c)Which of solutions **X and Y** is similar in properties as,

(i) baking powder? (01 mark)

.....

(ii) lemon juice.? (01 mark)

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(d)Name the compound found in lemon juice that is responsible for the properties of lemon juice stated in (a) and (b) above. (01 mark)

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(e)State ***one*** importance of the compounds which have the same properties as solution **X** in the body. (01 mark)

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## SECTION B

6.Below is an article extracted from the **New Vision** of may 07th /2022.

The website to which it was downloaded has been provided at the end of the article. ***Read the article*** carefully and answer the questions that follow.

**TOP STORY**

May O7,2022. 3 min read

**'Air pollution killing more than HIV'** -New vision official.

**Gerald Tenywa**.

Journalist @New Vision.

**Every home in Uganda has either been infected or affected by HIV and AIDS. They have either lost a relative or have suffered as a loss of a bread winner.**

Air pollution has gone steps ahead of HIV in affecting Ugandans as it has claimed more lives than HIV, Daniel Okello , the director in charge of environment at Kampala Capital City Authority (KCCA), has said.

“We lost 23,000 people in 2019 due to HIV in Uganda. In the same period,26000 people died as a result of cardiovascular diseases linked to air pollution,” he said.

Okello was speaking during the launch of the air quality awareness week at the Uganda Media Centre in Kampala, May 4.

The event, themed "***Be air aware, be prepared"*** ,attracted top officials from the National Environment Management Authority( NEMA), Makerere University and Ministry of Health, who called for increased awareness and actions to curb air pollution.

Okello mentioned of two types of air pollution -outdoor pollution and household or indoor pollution which are all greatest environmental threat to human health around country pointing out Kampala; Mukono and Jinja with the poorest air quality, which is five times way above the critical threshold of World Health Organisation.

Okello said indoor air pollution resulting from cooking with biomass fuel particularly charcoal, firewood, coal ,burning of organic fuels such as kerosene, burning of grass and waste products. Partial combustion of these fuels lead to emission of carbon monoxide gas, which is poisonous if inhaled.

Worse than indoor air pollution, he added, is outdoor air pollution include old cars spewing fumes. As the cars burn fuels, such as diesel and petrol to power engines, they release poisonous gases such as carbon monoxide and also lead from motor vehicle emissions, dust from unpaved roads and construction sites, factories release fumes filled with sulphur dioxide gas which leads to acid rains and carbon monoxide gas which is poisonous .Burning of wastes including plastics , produces dioxins and furans, which cause cancer.

Dr Ivan kimuli from Makerere University's lung institute said they have done studies that indicate that 11% of the population suffers from asthma and that was being aggravated by poor air quality and the same study indicated that children in rural settings had " better and less damaged lungs" than those in urban settings, who were exposed to pollutants in the air.

NEMA's director for environment monitoring and compliance, Waisswa Ayazika, said: " the government is currently making a clear plan to improve air quality involving every body's responsibility to save the current and future generation."

**http://www.newvision.co.ug/category/health/air-pollution-killing-more-people-than-hiv-133316.**

(a).State what is meant by the term "***air pollution" ?*** (02 marks)

(b)From the article; state the different types of air pollution and outline how each type of air pollution is caused. (08 marks)

(c)From the article, state the main air pollutants and show their effects to man.

( 08marks)

(d)Suggest a reason why Kampala, Mukono and Jinja have the poorest air quality which is five times away above the critical threshold of World Health Organisation? (02 marks)

(e)Suggest any 5 solutions that can be adopted into the government's strategic plan of how air pollution in the country can be greatly reduced (05 marks)

**END**.