

NAME: \_\_\_\_\_ STREAM: \_\_\_\_\_

P 545/1

CHEMISTRY

PAPER 1

2 HOURS



*Uganda Certificate Of Lower Secondary Education*

**S.2 ASSESSMENT SET ONE**

Chemistry Theory

Paper One

**INSTRUCTIONS TO LEARNERS:**

- ✓ This Paper consists of two **Sections A and B**. It has **five** examination items.
- ✓ **Section A** consists of **2 Compulsory items**.
- ✓ **Section B** consists of **2 parts; I and II**. Answer one item from **each** part.
- ✓ Attempt **4 items in all**.
- ✓ **Answers to section a must be written in the spaces provided while those of section B must be written on the answer booklet(s) provided.**
- ✓ **Any other additional Item(s)** shall not be scored.

## SECTION A (20 SCORES)

Answer all items from this section.

### ITEM 1:

A farmer notices that the soil in his field is too acidic, which is affecting the growth of his crops. The soil pH is measured at 5.0, which is considered acidic, and this is causing poor crop yield. The farmer decides to add a material to the soil to raise its pH and make it more suitable for plant growth.

To solve this issue, the farmer decides to add **lime (calcium carbonate)** to the soil to neutralize the acidity.

### RESOURCES:



### TASKS:

a) Identify the category of this chemical compound. (1 Score)

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b) Evaluate the suitability of the chemical compound. (2 Scores)

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c) How the compound works to adjust the soil pH 4 Scores)

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d) Assess the one impact of the compound to the Environment and how it  
can be rectified. (3 Scores)

**Impact:**

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**Mitigation:**

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**ITEM 2:**

Kampala bridge was to be reconstructed after the heavy rains that destroyed it of recent and the contracting Engineer contacted you to advise him of the best materials to use that will make a best strong bridge with less environmental impact.

**RESOURCES:**



**TASK:**

As a chemistry learner,

- a) Help the Engineer understand the categories of materials which will be used to build a strong bridge. **(2 Scores)**

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- b) Explain the suitability of these materials. **(4 Scores)**

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c) What would be the environmental impact of these materials and how can this be mitigated. (3 Scores)

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d) Recommend the best material for the Engineer with a reason. (1 Score)

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**SECTION B (60 SCORES)**

**PART I**

**Select 1 item from this part**

**ITEM 3:**

Air which is a mixture of different components contains 78% Nitrogen. Due to a wide need for ammonium nitrate fertilisers by farmers to improve their yields, there is an increased demand for Nitrogen. The government supply of Nitrogen gas is not enough and is planning to set up a Nitrogen production plant with minimal environmental impact. However, the science club members in your school would like to know how the process of production will be carried out.



### TASK:

As chemistry student, make a write up you will use during the presentation.

(20 Scores)

### ITEM 4:

In a remote region with limited access to medical oxygen, a local community is facing challenges due to the lack of available oxygen for healthcare purposes. The region has seen a rise in respiratory conditions, and hospitals are unable to provide the necessary oxygen supply to meet the demand. As a result, the government has decided to build an industrial oxygen production facility to provide a steady supply of high-purity oxygen to the region. The production facility will also aim to minimize its environmental footprint while ensuring reliable delivery to hospitals and healthcare centers.

### RESOURCES:



### TASK:

As chemistry student, make a write up you will use during the presentation.

(20 Scores)

## PART II

Answer one item from this part

### ITEM 5:

In the village of Kalerwe, located on the outskirts of Kampala, Uganda, the community is facing increasing challenges related to air quality. Kalerwe is a rapidly growing urban area where people engage in a variety of activities such as small-scale farming, waste disposal, and industrial operations.

The area has seen a rise in industrial activities, with factories and construction sites sprouting up in close proximity to residential homes.

Additionally, the increase in vehicular traffic, burning of waste, and deforestation have started to contribute to significant air pollution. The quality of the air has declined, and residents are noticing an increase in respiratory issues and environmental degradation.

The chairperson of Kalerwe village has called for an emergency meeting with the theme:

**"AIR CONSERVATION IS EVERYONE'S RESPONSIBILITY."**

### RESOURCES:



### TASK:

As a chemistry learner and a member of the village, you have been invited to present during the meeting. Your write-up should address the importance of air as a natural resource and the human activities contributing to its degradation. You will also suggest possible solutions to improve the air quality in Kalerwe.

**(10 Scores)**

#### ITEM 6:

In the village of Bukomero, located in the central region of Uganda, the community has long relied on the natural resources around them to sustain their way of life. The land in Bukomero is rich in a variety of rocks and minerals, which are essential for local industries, agriculture, and construction. The villagers use these resources for building homes, making farming tools, and other daily needs. Mining activities in the area have also developed over time, with people extracting valuable minerals such as limestone, gold, and mica. However, as mining and other activities grow, there are increasing concerns about the sustainability of these resources. This has raised questions about how the community can balance the benefits of these resources with the need to protect the environment and ensure that these resources last for future generations.

The village council has called for a meeting to discuss the future of Bukomero's natural resources with a theme.

**“ROCKS AND MINERALS, NATURAL RESOURCES FOR US”**

#### RESOURCES:



#### TASK:

As a member of Bukomero and a student of Chemistry, you have been invited to present during the meeting about the theme above. **(10 Scores)**

**END**