

SAYIDINA ABUBAKAR SECONDARY
SCHOOL- KABASANDA (SASS)
‘O’ LEVEL CBC CHEMISTRY PAPER
1 545/1 SEMINAR/ FACILITATION
ITEMS- 2024

DISCUSSION ITEMS

ELEMENT OF CONSTRUCT 2

Item 1

Auma and Obongi went to wash their clothes around a nearby well surrounded by rocks. Auma used detergent R and Obongi used detergent S. Two days later, Auma realized that her white clothes had some dirty marks yet she rinsed them with water several time. Obongi on the other hand never had such complaints

Auma is frustrated and can't understand what went wrong

As a result, both have approached you to help them understand the situation.

Task:

As a chemistry learner,

- (a) Identify the categories of product used by the two people and explain to them how it works.
- (b) Evaluate the two products
- (c) Advice the two people on the challenges associated with the use of the products

Item 2

Due to increasing demand for power in Uganda, agencies predict that Uganda can adopt the use of nuclear power for the smooth running of increasing number of industries. Discussions in the ministry of energy are underway to build nuclear power plant. However, there is little knowledge about the use of nuclear energy by most people in Uganda and others fears its dangers.

Task:

As a chemistry learner,

- (a) Identify the categories of the processes involved and explain to the people how the processes will help to solve the problem
- (b) Advice the community on the impact of the processes on the environment
- (c) Make an evaluation on the processes.

Item 3

Two friends Tom and Thomas were suffering from the same illness. They were both diagnosed with a bacterial infection from the nearby health center IV. They both later bought product from different pharmacies. Tom after using the product, the illness was

cured while as for Thomas the headache persisted

Task:

As a chemistry learner,

- (a) Identify the product used by the two people.
- (b) Challenges associated with long-term use of the product
- c) evaluate the products

Item 4

Okello owns a laundry shop in city. Being a new person in the city, he sent one of the water sellers to collect for him water for use. While cleaning some of his client's white clothes, using the available product he realized that some brown spots remained on them yet he had rinsed them several times. This has left Okello wondering and has approached you for some piece of advice.

Task:

As a chemistry learner;

- (a) point out the mistake Okello made when choosing the product and explain to him how the product works.
- (b) advise Okello on the challenges associated with long-term use of the product
- (c) evaluate the products

Item 5

Olivia is increasingly losing customers who are complaining that her home made snacks are tasteless and as well as getting spoilt easily. In order to cater for customers' complaints, Olivia wants to add some ingredients to her home made snacks but she lacks knowledge of what exact ingredient products she should use.

Task:

As a chemistry learner;

- a) Explain the categories of the ingredient products she should use and explain their functions.
- b) Give the dangers associated with long term use of the ingredient products
- c) Evaluate the products

Item 6

Onyera, living in an area where they use bore hole water, slid, fell and his white shirt became dirty. He decided to use a detergent to clean his shirt. The shirt remained with some brown spots yet he had rinsed it several times.

Task:

As a chemistry learner;

- (a) point out the problem Onyera made when choosing a product and also help him understand how the product works.

- (b) advice Onyera on the challenges associated with the long-term use of the product.
- (c) Evaluate the two products

Item 7

Upon getting borehole water and on their way back home, John and Peter slipped, fallen down and their white shirts became dirty. John decided to use a detergent **A** to clean his shirt but it remained with some brown stains despite rinsing it many times. Peter also used another detergent **B** and his shirt was cleaned with in one rinse.

Task:

As a chemistry learner;

- (a) Explain
 - (i) The categories of products used by John and Peter
- (b) The challenges associated with the long term use of the products.
- (c) Evaluate the products

Item8

Hinaayah always visit his grandmother whenever he falls sick, he trusts his grandmother skills as a cultural healer. One day, on his way from the well with his friend, he felt down and felt pain in the knees but had no bruises.

Her friends rushed him to one of the health center, where he was given a certain product. To his surprise, after a rest he felt relieved from the pain. He has approached you to help him understand why the pain disappeared more quickly.

Task:

As a chemistry learner,

- (a) Explain the categories of the products from the two healers
- (b) Evaluate the two products
- (c) Help him understand the challenges associated with the long term use of the product.

Item 9

Makanga and Mwebesa, who are neighbors in the village joined the same school whose source of water is a borehole. Makanga was disappointed that his shirt was turning brown and yet his friend had managed to keep his shirt white. He tried using a lot of water to rinse his shirt but the dirt marks always remained. He noticed that the product he used was different from the one Mwebesa was using.

Task:

As a chemistry learner,

- (a) explain the categories of the product the two boys were using and help them know its function

- (b) advise the two boys on the challenges associated with the use of the product
- (c) compare for him the two products

Item 10

Both Catherine and Sandra own shops that sell home-made cookies and bread. People in the community prefer Sandra's cookies. To save her business, Catherine decided to buy some cookies and bread from Sandra and realized that they had an appealing aroma, taste, appearance and lasted longer on the shelf. She is desperately seeking for help to improve her sales.

Task:

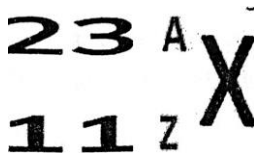
As a learner of chemistry:

- (a) identify the categories of consumer product that are lacking in Catherine's cookies and bread and explain how it works
- (b) evaluate the product used.
- (c) what advice would you give to the consumers of Sandra's bread and cookies?

ELEMENT OF CONSTRUCT 3

Item 1

A team of scientists found a strange substance, calling it element **X**. Subsequently, they successfully determined its atomic number and mass number but couldn't put it on the periodic table because there was no full discussion from other scientists yet, on what it does and how it affects the environment



You are required to contribute and help in placing it on the periodic table

Task:

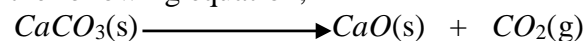
As a chemistry learner help the scientists,

- (a) explain the category of the above element
- (b) explain the properties/ behavior of **X** state its uses.
- (c) possible effects of **X** in the environment

Item 2

Senior 4 students of Sayidina Abubakar secondary school heated a given mass of limestone under normal room conditions.

The limestone decomposed as according to the following equation;



They collected the gaseous product evolved using various gas syringes. The gaseous product was found to be occupying a total

volume of 6 litres. Although the students know that 1 mole of a gas contains 6.02×10^{23} particles, they are finding it hard to know the quantity of particles in gaseous product they had collected.

Task:

Using your chemistry knowledge;

- (a) Explain the categories of substances involved in the decomposition reaction.
- (b) Determine the quantity of particles in the gaseous product.
- (c) Explain how the gaseous product formed is important in daily life
- (d) Advise the students about the long-term impacts of their action to the environment.

Item 3

The Uganda Civil Aviation Authority has hired an engineering company to reconstruct the recently damaged bombardier aircraft body. The chief engineer of the company wants to reconstruct a new, good and strong bombardier aircraft body.

However, the chief engineer knows that he has to choose the right material to be used with suitable qualities and properties and thus he has come to you for advice.

Task:

Use your chemistry knowledge to;

- (a)(i) explain the category of the material the engineering company will use
- (ii) help them understand how the materials is suitable for their use
- (b) explain the impact of the materials used to the environment

Item 4

Swabrah, is a renowned environmental advocate. He is thinking of installing the door and window for his house under construction. He knows that to have good quality frames, he should select the right materials with suitable qualities and properties. Swabrah, is still confused with the choice and has approached you for some advice.

Task:

Use your knowledge of chemistry to:

- (a) explain
 - (i) the categories of materials
 - (ii) the suitability of the materials
- (b) advise Swabrah on the choice of materials

Item 5

Peter is in the process of constructing his house without affecting the environment. He wants to build a good strong house; there are various building materials of different quality and properties on the market. However, he does not know the quality of materials to use.

Peter knows that choosing quality materials depends on the nature of the material and has come to you for advice.

Task:

Use your chemistry knowledge to;

- (a) Explain
 - (i) Categories of materials.
 - (ii) The suitability of the materials.
- (b) Advise Peter on the choice of materials.

Item 6

A farmer in village without electricity always keeps his garden tools (hoes, pangas, axes etc.) outside the house after the work. After sometime, the tools developed brown coating changing some of the useful properties of his tools and he was disturbed and wants to understand what exactly happened.

Task:

As a chemistry student;

- (a) point out the environmental factors that made his tools to develop the brown coating
- (b) help him understand the properties of one of the environmental factors responsible for the formation of the brown coating
- (c) what is the impact of the brown coating on the tools
- (d) advise him on the uses of any one factor responsible for the brown coating

Item 7

In Kabasanda village, a building has been completed but several huge cracks have developed and is about to collapse. Residents are planning to arrest and beat the construction workers accusing them of using substandard materials.

The chairperson local council 1 together with the community development officer have organised a community meeting to talk to the residents and discuss the other possible alternatives to rebuild the society's house without affecting the environment

Task:

Use your chemistry knowledge to explain the;

- (a) categories of materials
- (b) suitability of materials
- (c) advise residents and the concerned authorities on the choice of the material

Item 8

One of the most important salt in human life is mined from lake Katwe. This salt is a household chemical compound hence it is given a name common salt. Most of the of the people in the community have insufficient knowledge on the nature of this salt and its importance in life. One of the community members has identified you as a knowledgeable person and he is seeking guidance.

Task

As a chemistry learner,

- (a) explain (i). the category of this chemical compound
- (ii). the suitability of the chemical compound
- (b) Advise them on the problem that the compound have on the environment.

ELEMENT OF CONSTRUCT 1

Item 1

Sodium hydroxide is a chief raw material used in the manufacture of soap. The manager of a soap making plant wants to start producing sodium hydroxide locally in order to cut costs. He is planning to set up a sodium hydroxide production plant near Lake Katwe in Kasese District.

Unfortunately, the residents have raised concerns about the environmental effects of the plant and the loss of their land to the investor.

The science club in your school has organized to put out a sensitization message for the public about the production of sodium hydroxide through an article written in the local newspaper.

Task:

As the learner in charge of Chemistry in the science club, write a brief message that will be published in the newspaper.

Item 2.

Sulphuric acid is used in the manufacture of paint. Due to the increased demand of paint countrywide, the government is seeking to ensure that there is a steady supply of sulphuric acid to be used to manufacture the needed paint. The government has hired an investor to set up a sulphuric acid manufacturing plant in Kibibi.

The locals of Kibibi town are concerned about how the production process will be conducted, its environmental effects and how they will benefit from the project.

Task:

Prepare a presentation you will make answering concerns of the locals.

Item 3

Kenya recently placed an embargo on the exportation of steel products used in the construction industry which has caused a rise in the cost of the products in Uganda. In order to solve the shortage, the ministry of mineral development has asked investors to set up iron production plants that will utilize the iron ores within the country.

The members of parliament on the minerals development committee would like to know how the process of production will be carried out without affecting the environment.

Task:

As a chemistry learner prepare a speech you will deliver upon invitation

Item 4

Air which is a mixture of different components contains 21% oxygen. Due to a wide spread of respiratory illnesses caused by COVID-19, there was an increased demand for oxygen by patients in hospitals. The government supply of oxygen is not enough and is planning to set up an oxygen 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.

Item 5

In some districts of Uganda like Tororo district, farmers get very low crop yields due to poor soils that has led to persistent famine in the area. Ammonium nitrate is one of the effective fertilizers used to improve crop yields. The ministry of agriculture and animal husbandry has entrusted an investor to put up an ammonium nitrate production plant in Tororo district such that the fertilizer is got at cheap cost. However, the community near the site is worried about its effects on the environment and how the production process occurs

The head of department has appointed you to sensitize the community.

Task:

Prepare the presentation you would make in the meeting

Item 6.

Bugiri sugar factory which has just been setup is disposing off morasses which would be used to make ethanol. Ethanol is at a high demand and it's used to make essential substances like sanitizer. The locals around are making ethanol on small scale and it cannot meet the demands. However, the government is planning to set up an industry to produce ethanol with minimum environmental impact.

However, the community would like to know the process of production and how it would be carried out. You have been appointed by the area member of parliament to prepare a presentation to sensitize the locals via a radio talk show about how the extraction process will be done and how the plant will impact their area.

Task:

Design a presentation that you will deliver during the radio talk show

Item 7

After a sharp decline in their palm oil sales, a women's group in Kasese town was advised by the District Development Officer to try out making soapy detergents which have an assured market in the region. They secured funding through one of the government development initiatives and one of the women in the group is willing to donate her piece of land on which they can set up the factory.

The neighbours are worried about the factory activities encroaching on their land and making it unproductive. The science club has appointed you to enlighten the neighbours.

Task:

As a chemistry learner, prepare a write-up you will use during the presentation

Item 8

Cement is one of the ingredients required for constructing good and strong houses.

Following the increased demand for cement due to increased need for human settlement, the government has hired a local investor to construct a new cement manufacturing factory in Tororo district to ensure an increased supply of cement countrywide.

The district locals are concerned about the environmental effects that will result upon construction of the factory in their district and how the production process will be conducted.

Task:

Prepare a presentation you will make answering the concerns of the locals.

Item 9

One of the large scale uses of chlorine is treating water, to ensure that chlorine is readily available and at a cheaper cost.

Government has cleared a local investor to set up a chlorine production plant near Lake Katwe in Kasese district. However, the community is concerned about its environmental effects and how the environmental process will occur.

The class teacher has appointed you to sensitize the other learners.

Task:

Prepare a presentation you will make during the meeting.

Item 10

Due to increased prices of copper for use in electrical vehicles worldwide, the government is therefore looking forward to revive the copper production plant in Kileleshwa, a suburb in Kasere district UGANDA.

The local residents are however worried of the environmental impacts.

The locals do not know how the process of extraction of copper will be done. A radio talk show has been organised to sensitize the local on the issues at hand

Task:

As a chemistry learner, prepare a presentation you will make upon invitation

ELEMENT OF CONSTRUCT 4

Item 1

Due to an increase in the population in a hilly part of Butambala district, vegetation has been cleared on a large scale to create space for settlement and agriculture. Many trees have been cut down to be used as fuel and there is an increase in the use of fertilizers in agriculture. Some have resorted to stone quarrying as a source of income to supplement the food from the gardens. The residents have noticed that the village wells are drying up, the appearance of the water is changing and there is change in seasons. The concerned members of the village council have sought help from district officials who have organized sensitization workshops in different villages.

Task

As a chemistry learner, prepare a short presentation you will deliver during the workshops

Item 2

In Masese Division Jinja city some residents near the lake are involved in certain activities like rearing animals, growing crops, distillation of ethanol and washing clothes from lake banks. Recently it has been discovered that the fish has started dying and people who use the water for bathing develop rashes. This has attracted the attention of officials of the ministry of health and have been invited for discussion to discover the causes of what is happening. A sensitization workshop is to be conducted to explain the existing situation in the area. The theme of the workshop is MY ENVIRONMENT MY RESPONSIBILITY.

Task:

As a chemistry student, write a message you will deliver upon invitation in the workshop

Item 3

There has been a nationwide destruction of natural resources due to increasing population and human activities such as industrialization and bush burning, etc. resulting into adverse climate changes. This has attracted the attention of officials from the National Environment Management Authority (NEMA).

The officials are planning to create awareness to the people of the country through sensitization workshops organized in different district communities.

Task:

As a chemistry student, write a message you will deliver upon invitation in the workshop organized in your district.

Item 4

The officials of National Environment Management Authority have recently conducted a country wide survey from which they have found out that new environmental challenges have emerged. These include increased desertification, death of fish and foggy atmosphere. The officials claim that all of this is caused by human activities on natural resources. The officials have planned to choose various youths who will sensitize the nation via a national workshop soon to be organized with the main theme being “**ENVIRONMENTAL CONSERVATION SHOULD BE EVERYONE’S FIRST PRIORITY**”.

Task:

Prepare a sensitization message about the theme that you would deliver in case of being chosen by the officials.

Item 5

Due to increased human population in Amolatar district, many natural forests have been cleared for charcoal making; swamps have also been reclaimed for settlement and rice farming. These human activities have left district officials wondering. The district officials have organized a sensitization workshop to create an environmental awareness to the people of Amolatar district.

Task:

Prepare a short presentation you will deliver during the workshop upon invitation.

Item 6.

Natural resources have been destroyed as a result of increasing population and human activities. This has attracted the attention of the officials from the National Environment Management Authority (NEMA).

The officials are planning to create awareness to the people of the country through sensitization workshops organized in different district communities.

Task:

As a chemistry student, prepare a short presentation you will deliver during the workshop upon invitation.

Item 7.

Osukuru village in Tororo district is at the foot of Tororo rock. People of this village for a long time have practiced charcoal burning, animal husbandry, crop husbandry and stone quarrying, recently the animals have started dying and wells are drying up yet the little

water available is not fresh. The locals are now wondering why all these are happening.

A sensitization workshop is to be organized to explain the existing situation in the village. The theme of the work shop is **MY ENVIRONMENT MY RESPONSIBILITY**.

Task:

As chemistry student, write a message you will deliver upon invitation.

Item 8

Following the recent discovery of some of the natural resources in the Albertine region, many people have started encroaching onto the land of this region by clearing trees to create space for settlement and charcoal burning and also the water of Lake Albert is exponentially deteriorating. This has attracted the officials of Hoima district environment management authority. The officials want to sensitize people in the Albertine region about environment conservation through a workshop.

Task:

As a chemistry learner, prepare a short message you will deliver upon invitation to the workshop.

END