

NAME: CHEMISTRY PAPER 1 SCORING GMUIDE 2025

INDEX NO:

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | |
|--|--|--|--|--|--|--|--|

SCHOOL: MEBU EXAMINATIONS CONSULT

SIGNATURE: 28TH AUGUST.2025

545/1

CHEMISTRY PAPER 1

(Theory)

JULY/AUGUST

MOCK 2025

2 Hours.



CONTACT

- 0779849397
- 0709843314
- 0747065669

MEBU EXAMINATIONS CONSULT

Uganda Certificate Of Education

MOCK ASSESSMENTS 2025

CHEMISTRY

PAPER 1 (Theory)

2 Hours

INSTRUCTIONS TO CANDIDATES:

- ✓ This paper consists of two sections **A** and **B**. It has **six** examination items
- ✓ Section **A** has **two COMPULSORY** items.
- ✓ Section **B** has two parts **I** and **II**. Answer one item from each part.
- ✓ Answers to section **A** must be written in the spaces provided while those of section **B** must be written on the answer booklets provided.
- ✓ Any additional items responded to will **NOT** be scored.

SECTION A

Answer **all** items from this section in the spaces provided.

ITEM ONE

Kalikwani is a student of Katala Ss in mubende district, last term when he broke up for holidays, he went back home with a pair of uniform given to him by the school. His parents gave him two detergents X and Y, He decided to wash his clothes using detergent X .when washed using detergent X, some brown spots remained in the cloth. Maswanku, his friend from the same school used detergent Y to wash his clothes, no spots were seen in his clothes..



Task:

(a).As a chemistry learner;

(i).Explain the categories of products used by Kalikwani and maswanku.

*Kalikwani should know that the detergent he used is a **Soapy detergent X** and maswanku used detergent **Y** which is **Soapless detergent C***

C=02 Scores

(ii).How the products work and the challenges associated with the long term use of the products.

*Kalikwani should know that both detergent **X** or **Y** have polar heads, the hydrophilic heads as the water Loving groups and non – polar groups, the hydrophobic tails as the water hating groups that attract stains. **F**. Due to mechanical action, the soap head moves towards layers of water molecules, thus lowering the surface tension of water molecules, allowing formation of lather with water **F**. The hydrophobic tails bind themselves on the stains, causing them to break*

down into tiny droplets of particles and move away from the clothe F...

3F=F₃=5 scores

Kalikwani should know that too much exposure of the body to soapless detergents can cause potential health risks like skin and eyes irritations causing discomforts to the affected body parts. This is mitigated by washing the affected body parts with plenty of clean water.

(b) Evaluate the products

Diference: Kalikwani should know that Soapy detergents are always less effective with hard water compared to Soapless detergents. **Ev₁**

Similarity: Both detergents contain the hydrophilic heads and hydrophobic tails. **E**

C + F₃ + D₃ + Ev = (02+05+03+02) = 12Scores

ITEM TWO

Kapere is planning to fit iron sheets, doors and windows in his newly constructed house, he is still confused of the right material to use. He thinks that the material to be used depends on size and color, yet good material depends on quality and properties. He is still confused of the choice to use and he has approached you for help.

a) Explain

i. The categories of the materials.

Synthetic materials; **Ci** because they are man – made materials; **Cr**, iron metal materials,

Aluminium metal materials. **Ce**

Ci + Cr+ Ce = C3 = 03Scores

ii. The suitability of the materials.

Iron metal materials: U1

They are malleable **P1**

They have high melting point

They are water proof materials **P1**

Aluminium metal materials: U1

Has high melting point **P1**

Are malleable and ductile materials **P1**

(b).Advise musa on the choice of the materials.

Being resistant to corrosion and malleable materials, F this makes them useful in making door and window frames. F

2F=F₂=4 Scores

U1+4P1+ U1+2F = 04+01+4 = P3 = 12 Scores

SECTION B

PART I

Attempt one item from this Part.

ITEM THREE

Limestone is one of the materials used in the manufacture of cement, to ensure that cement is readily available at a cheaper cost, the managing Director of simba cement is planning to set a production plant in Kapchorwa, however residents have raised its health concern, environmental effect to their valuable land to be taken over by the investors.

Your school science club is also cautioning how the production process of cement will be carried out.as a result the club patron has selected you to prepare a message to be presented on the Head of science department.



TASK;

As a chemistry learner, prepare a brief message that you will deliver during the presentation.

Process of Manufacture of Cement

- A mixture of limestone and clay are crushed and milled into fine powder
- The powder is then mixed with water and allowed to flow down a rotating cylinder in which it is heated to a temperature of about 1500°C
- Limestone decomposes to calcium oxide and carbon dioxide.
- Calcium oxide reacts with aluminium oxide and silicon dioxide in clay to form lumps of calcium aluminate and calcium silicate
- The lumps are crushed to form cement as fine powder.
- Gypsum is added during the grinding process to moderate the reaction between cement and water.
- Cement is then packed in bags for use.

Side Effects, Explanation And Mitigations

- Toxic gases and dust are released to the atmosphere and cause respiratory complications. This can be mitigated by fitting scrubbers in the exhaust pipes of machines to neutralize the toxic gases.
- Destruction of vegetation/cutting down trees for space for construction and installing machines that increases carbon dioxide in air hence global warming. This can be mitigated by planting trees that grow and mature faster.
- Hot surface burns from combustion process causing wounds hence pain to workers, this can be mitigated by proper use of personal protective equipment

Social benefit; effect and impact

- Employment opportunities; increased income among residents hence improved standards of living
- Government gets revenue; develops infrastructure e.g. roads which facilitates trade, hence improved income thus improved standards of living.

15 scores

ITEM FOUR

Mbodhe, a local ethanol manufacturer in Namasiga village, Jinja district has been carrying out this activity for 5 years after discovering its use in our daily life. **The Uganda National Bureau**

of Standards has approached him to assess his local products in order to meet the standards. A local investor **Dr.Huston** from America later proposed to boost the business of Mbodhe by constructing a plant to produce more products. However some residents of the community are not happy that the plant will not be of great value to them.



The chemistry club members in your school would like to know how the production process will be carried out. They are seeking for guidance prior to addressing the school assembly.

TASK.

As a chemistry learner, prepare a write up they will use while addressing the assembly.

Manufacture of Ethanol

- The starch containing substance is crushed to **extract starch**.
- Malt is then added to starch in a **container** and it is then covered, malt contains an **enzyme diastase** that catalyzes hydrolysis of **starch to maltose**
- Yeast is then added to **maltose** after about 5 days at room temperature. The **maltase** in yeast catalyzes the hydrolysis of **maltose to glucose**.
- **Zymase enzyme** in yeast catalyzes the breakdown of **glucose to crude ethanol and carbon dioxide**
- **Crude ethanol** is converted to **pure ethanol** by **fractional distillation**.

Side effects, explanation and mitigations

- **Hot surface burns** from distillation tank causing **wound** hence pain to workers, this can be mitigated by **proper use of personal protective equipment**.

- Destruction of **vegetation/cutting down trees** for space for construction and installing machines that increases carbon dioxide in air hence **global warming**. This can be mitigated by **planting trees** that grow and mature faster.

Social benefit; effect and impact

- **Employment opportunities;** increased income among residents hence improved standards of living
- **Government gets revenue;** develops infrastructure e.g. roads which facilitates trade, hence improved income thus improved standards of living.
- **Government gets revenue;** develops infrastructure e.g. schools hence access to better and cheaper education thus well- informed community.

15 scores

PART II

Attempt one item from this Part.

ITEM FIVE

Hoima city in western Uganda, some oil deposits were discovered by some researchers from Uganda national research institute. Most of the residents did not react positively and are unhappy because they are scared for their land to be cheaply taken by the government.

The chairperson LC5, who is also a resident of the community, has organized a sensitization workshop to address the matter.

The science club of your school has sent you as a representative in the workshop.

Task;

As a chemistry learner, prepare a short presentation you will deliver during the workshop when invited.

Response.

Category; reason and Example(s)

The surrounding people around the production plant and the Country at large should know that natural resources can be categorized either as:

Non – renewable natural resources: (Ci) because they are finite resources and cannot be

Replenished/replaced within man's lifetime; (Cr) examples may include crude oil, natural gas and coal. OR

Renewable natural resources; since they are finite resources and can be replenished/replaced within man's lifetime; examples include air, water, and forests.

$C2 = 02\text{Scores}$

Compositions:

$3Co1 = 03\text{Scores}$

Crude oil is a carbon – based fuel composed of elements such as carbon, Co1 hydrogen, nitrogen, sulphur including some heavy metals such as lead, mercury.

Air is composed of a mixture of gases such as (nitrogen, oxygen, water vapour, carbon dioxide gas and noble gases) and some dust particles carbon monoxide, sulphur dioxide and nitric oxide gases).

$Co1\ 3Co1+C2=N2\ 05\text{Scores}$

Water is composed of hydrogen and oxygen; it may also contain some dissolved toxic substances such as heavy metals among others. Co1

Danger identified (Di) Danger explained (De) Danger mitigated (Dm)

Oil spills during its extraction; refining processes and fossil fuel burning for energy, causes soil, water and air pollutions (Di). The effects, causes suffocation and death of aquatic life, poor air quality and respiratory related diseases. (De) This effect can be mitigated by use of effective monitoring equipment and carrying out regular routine repair of the oil pipes including using alternative energy fuel cells such as hydroelectric power, solar energy to reduce on total dependence on fossil fuels for energy.

$(Dm)\ D3 = 06\text{Scores}$

Benefit identified (Bb) Benefit explained (Be) Impact of Benefit (Bi)

Air contains oxygen (Sb) which is used by animals during cellular respiration to generate energy needed to support normal body functioning and carbon dioxide used as raw materials during photosynthesis by green plants to make their own food in the presence of sunlight and chlorophyll. (Se) This facilitates the flow of energy in a food chain (Si).

$(Sb) + (Se) + (Si) = B3 = 04\text{Scores}$

Crude oils provide energy fuel cells used in transportation, industries, heating and electricity sectors. This improves on the economic growth such as infrastructures like roads, schools, hospitals and industries.

$N2 + D3 + B3 = 05+06+04 = 15\text{Scores}$

ITEM SIX

Kasaato Hill in Buyende district has been destroyed with various human activities. Many of the recently existing forests with different tree species are now cut down to burn charcoal, Stone quarrying and construction is the order of the day among most of the locals in the village. Recently, some animals have started encroaching people's homes. The few residents that practice agriculture are also worried about their future yields.



A sensitization workshop is to be organized in the district by the local government through National Environment Management Authority (NEMA) under the theme “**Green Is Life**”

TASK;

As chemistry learner, prepare a brief message you will deliver upon invitation.

Proposed response for ITEM SIX

Category of the natural resources

They are classified as:

Renewable Natural resources; cannot replenished example Air, Water, Trees

Non-renewable natural resources; cannot be replenished example, Fossil fuels, rocks

Composition of the Natural Resource.

(Select only one from above examples you have stated)

Air; contains Nitrogen, Oxygen, carbon dioxide, rare gases, water vapour.

Water; contain Hydrogen and oxygen atoms.

Fossil fuels contain carbon, hydrogen, oxygen atoms.

Rocks; contain minerals for example limestone, iron, Gold, Copper, Quarts.

Danger identified (Di) Danger explained (De) Danger mitigated (Dm)

(Only one explained point with its mitigation is required)

Air;

- *When carbon dioxide levels in air increase, being a greenhouse gas, it traps heat in the atmosphere leading to global warming.*
- *Mitigation: increase Afforestation to replace the cut trees which absorb carbon dioxide from the atmosphere to reduce global warming.*

Water;

- *It has dissolved oxygen which facilitates rusting of iron containing materials since water and oxygen are necessary for iron materials to rust;*
- *Mitigation; Use of Alloys, painting, galvanizing to reduce the effect of rusting.*

Benefit identified (Bb) Benefit explained (Be) Impact of Benefit (Bi)

(Only one explained point required)

Air;

- *Contains carbon dioxide; that facilitates photosynthesis in green plants.*
- *During photosynthesis, carbon dioxide from air combines with water in presence of sunlight trapped by chlorophyll to form glucose, oxygen and energy. This facilitates the flow of energy in a food chain*

NB: the scoring of item 5 & 6 are the same

END

TEL.0709843314/0779849397/0709843314.