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KISJO MOCK POOL CHEMISTRY ONE

Chemistry

S1-S4 • UCE

Uganda Certificate of Education
Mock Examination Practice Questions & Answers

H_2O • $C_6H_{12}O_6$ • NaCl

PREPARATION • REVISION • PRACTICE

LSC CHEMISTRY SOLUTION BOOK • SENIOR 4 • RED WHITE & BLUE EDITION

KISJO CONTENT

KISJO MOCK POOL CHEMISTRY SERIES

LSC CHEMISTRY PAPER ONE

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ITEM 1 Areas of interest

		Category
CHEMICALS FOR CONSUMERS		
	(i)Food additives	**Source**, Natural and Synthetic
		Also, Function – Preservatives, Antioxidants, sweeteners, Thickeners, Flavourings, etc
	(ii)Medicines	**Source** – Modern and Traditional/herbal
		Also, function- Analgesics, Antibiotics and Psychotherapeutics (for mental disorders)
	(iii)Detergents	Soapy and Soap less
NUCLAER PROCESSES		Nuclear fission and nuclear fusion

APPROACH TO SECTION A, ITEM 1

1) Identify the product and category /type of the product
   - Give **one** category of the product or more categories depending on scenario or task given
2) Give the function of the product(s) or describe how the product works
   - Write an **elaborate description** to capture all keywords
3) Give one danger/side effect of the product/process, explain the danger and mitigate it

- Follow **DEM i.e. D-Danger, E-Effect, M-Mitigation, a leaner is required to identify the danger of the product, Explain giving what brings about the danger and gives the mitigation.**
- **Or;** Follow; **CeE_2M i.e., Ce-**Cause of effect, **E_2-**two effects (effects should be co-ordinating), **M-**Mitigation

4) Evaluate the product/process based on similarities and differences

- Give **similarities** and **differences**

ITEM 1 ITEMS (EOC 2)

EOC 2: The learner appreciates the application of chemistry in daily life

Basis of assessment;

a) *Category/type of product/process*
b) *Function(s) of the product (process)/how the product works.*
c) *Dangers/side effects of the product/process and mitigations.*
d) *Evaluation of the product/process.*

Item 1 (WAKISSHA MOCK 2026)

The Nakubungo Women group in Mukono district makes laundry soap from palm oil, caustic soda and water, as an income generating activity. The members in the area have used the soap for some time but it forms stains on white clothes making them dull, hence getting perturbed of what to do. In their bid to find a solution, a local Non-Government Organisation (NGO) has donated cartons of a powdered agent to the group to test the quality of washing with the available water. You have been tasked by the group leader as a chemistry student in the holiday to prepare a report to the women group.

Task:

As a chemistry learner,

(a) State the categories of the cleaning agents and explain how they work

(b) Describe the side effect(s) associated with the laundry agents.

(c) What are;

(i) the similarities of the laundry agents

(ii) the differences between the Non - Government Organisation (NGO) agent and that made by the women group.

Item 1 (UTEC 2026)

Uganda is exploring nuclear power to address electricity shortages. Science students from Makerere University visited a research facility in South Africa where they observed uranium 235 undergoing a reaction that produces energy and smaller nuclei such as Barium-141 and Krypton-92.

$$^{235}_{92}U + \ ^{1}_{0}n \longrightarrow \ ^{141}_{56}Ba + ^{92}_{36}Kr + 3^{1}_{0}n + \text{Energy}$$

They learnt that Barium - 141 emits harmful radiations long after the reaction, raising concerns about radioactive emissions according to the equation.

$$^{141}_{56}Ba \longrightarrow \ ^{0}_{-1}e + \ ^{141}_{57}La$$

The students got interested in knowing more about the nuclear processes above and you have been contacted for help.

Task:

As a Chemistry learner;

(a) State the type of nuclear process involved in;

(i) Uranium:

(ii) Barium:

(b) The energy produced by the process involved in uranium can be used to generate electricity.

(i) Explain how the energy is used to produce electricity.

(ii) Give two other applications of the energy released by the process.

(c) Explain any one danger associated with energy from the processes above.

(d) Evaluate the processes basing on their similarities and differences

Item 1 (HODEB 2026)

Detergents remove dirt and stains from clothes during washing. They come in different categories, each designed to work effectively with different types of water.

At a recent family function, a neighbour was amazed by how clean and fresh the tablecloths looked compared to hers, yet both families used the same water source. The spokesperson proudly said, "We do not use bar soap but powdered detergents because our water is hard."

Detergents remove dirt and stains when washing clothes. They come in different categories, each made to handle different types of water during washing.

Curious about the comment, the lady wanted to know how each of the products works when used with the water. She also wanted to understand how to choose the right type for effective cleaning and environmental safety.

Task

As a student of Chemistry,

(a) help the lady to know:

(i) the categories of products the spokesperson talked about.

(ii) how each of the products worked to clean the cloth when using the water.

(b) Advise her on:

(i) the possible danger associated with the powdered product once released into water bodies.

(ii) differences and similarities between the products and hence how to make choice of product when needed.

Item 1 (USTAA 2026)

Hellena, living in an area where they use borehole water, slid, fell, and her white shirt became dirty. She decided to use a detergent to clean her shirt. The shirt remained with some brown spots yet she had rinsed it several times.

Task:

As a chemistry learner:

(a) Point out the problem Hellena made when choosing the product.

(b) Help Hellena understand how the product works.

(c) Advice Hellena on the challenges associated with the long-term use of the product.

(d) Evaluate the product.

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Item 1 (RESOURCEFUL MOCK 2026)

Whenever food is left uncovered for a long time, it can be contaminated with germs that cause stomach infections. Two girls from a certain family ate the uncovered leftover food, and a few hours later, they began to develop extreme stomach ache and diarrhea. Their mother gave them extract of guava, blackberry, and red raspberry leaves. A concerned neighbor who happened to pass by advised the mother of the girls to try buying Ciprofloxacin tablets from the nearby clinic, but she was doubtful and uncertain how the product works. She has been referred to you for advice.

Task:

(a) State the categories of the products used.
(b) Explain the mode of action of the products used.
(c) What would be the side effect of excessive use of the products?
(d) Explain why choices are made when choosing the products for use.

Item 1 (ACIETEKA MOCK 2026)

Uranium-235 is a major source of electricity which most governments use to supplement hydroelectric power plants. A hydroelectric-generating company in Uganda intends to use the energy released from the disintegration of Uranium-235 to produce more electricity for industries than is currently possible using hydroelectric power. However, community members living near the proposed plant are concerned about the nature of the process, the risks associated with nuclear power generation on people and the environment. They therefore require clarification on how the process occurs, the safety measures involved, and an evaluation of nuclear power compared to hydroelectric power generation. All Senior Four candidates in your school have been given tasks to prepare a write-up from which to select the best to address the residents' concerns.

Task:

As a chemistry learner, help the residents understand:

(a) The type of process the company intends to use and how it occurs.
(b) Dangers associated with this process and their mitigation measures.
(c) Differences and similarities between the previous process and intended process of generating power.

Item 1 (WAKATA MOCK 2026)

Dr Musa is the head of the cancer ward in a hospital located in his home town. Due to the nature of his work, he often feels very tired, depressed, and experiences high levels of tension and anxiety. He was advised by a close friend to use natural remedies like warm turmeric water, but instead he visited his personal doctor, who prescribed Fluoxetine tablets that he used to reduce the condition.



Task:

As a chemistry learner:

(a) State the category and the function of the product he used.
(b) Describe the side effects associated with prolonged use of the product. (c) Evaluate the choice of the product.

Item 1 (COUHEIA MOCK 2026)

Ethan, a high school student, takes long hours studying and working on his computer, and other days he spends the whole night watching his favorite movies, which often leaves him with severe headache and neck pain. However, he is not certain of what to use in order to overcome the headache and neck pain. As his friend, he has sought your guidance.

Task:

As a student of chemistry, advise Ethan on:

(a) Category of the product he should use.

(b) How the product works.

(c) Explain the challenge associated with long-term use of the product and how it can be overcome.

(d) Help Ethan evaluate the product.

Item 1 (UTES MOCK 2026)

Food additives are substances added to food during preparation. They are categorized into different types and need to be evaluated to ensure they are safe before being approved for use. A food manufacturing company in Iganga intends to use monosodium glutamate (MSG) in one of its products. Before the products can be put on market, residents near the company want someone to evaluate the safety of the additive, its nature, and compare it with mushrooms the local residents commonly use for the same purpose. Since they do not know what the food additives exactly do or which one was safer, they decided to seek better help from a knowledgeable person like you to understand more about the additives.

Task:

Help the residents to:

(a) Categorize the food additives mentioned and know one of its functions.

(b) Explain the effects of using the food additive and how they can be avoided. (c) Evaluate the two types of additives mentioned.

Item 1 (WENSSEC MOCK 2026)

On receiving patients with different mental disorders from different parts of West-Nile as far as Democratic republic of Congo, Dr. Mambomoto always administers several extracts from plant and animal materials which made some of the patients to recover although some of them do not recover from their disorders. Mary, a primary seven pupil hardly understands what kind of extracts could they be since her grandmother sometimes prepares extracts to be given when she has mild fever and has asked you for help. Figure 1 below shows some of the extracts given by Dr. Mambomoto to the patients.

Tasks:

As a chemistry learner, help Mary understand;

(a) The category and the functions of chemicals in the extracts given by Dr. Mambomoto to the patients.
(b) Explain how any two side effects associated with the use of the extracts can be mitigated.
(c) Explain why some of the patients recovered while others did not recover from their disorders and what can be done.

Item 1 (TESSMEA MOCK 2026)

Laundry agents are essential household products, but they are often expensive for many communities. The youth innovation group of Teso has received funding to establish a small-scale enterprise focused on producing and supplying affordable laundry agents tailored to meet diverse customer needs.

During their preliminary trials, the group obtained raw materials such as vegetable oils and animal fat with sulphonated petroleum-based compounds from local markets. These materials were treated with an alkali to produce the final products.

However, the group has a limited understanding of the types of products they are producing and the associated limitations. One of the group members has approached you for guidance.

Task:

Using your knowledge of chemistry, assist the group to:

(a) Identify the category of the products produced and explain their mode of action.
(b) Describe the danger(s) associated with the prolonged use of the product and suggest appropriate mitigation measures.
(c) Compare the products by outlining similarities and differences between them.

Item 1 (MAKADITA MOCK 2026)

Mukasa and Okello are experiencing a severe headache and stomach-ache, and on diagnosis, they were told that they have an infection.

Mukasa took Paracetamol alongside Penicillin, while Okello took a strong herbal tea brewed from soursop leaves and black jack.

After a short while, Mukasa experienced rapid relief and felt significantly better with little dosage, while Okello noticed very little change in the symptoms with a lot of herbal tea

taken. Surprised by this difference in recovery rates, the two friends approach you to help them understand the chemistry and action behind these substances.

Task:

As a chemistry learner, provide scientific guidance by answering the following:

(a) Classify and explain the categories of chemical substances used by Mukasa compared to those used by Okello.
(b) Explain the functions of chemical substances used by the two patients.
(c) Explain the dangers associated with the long-term use of those chemical substances.
(d) i) State **two** similarities shared by all the chemical substances used.

ii) Explain why Okello took longer to recover and feel better than Mukasa, despite taking a lot of the brewed tea.

ITEM 2 ITEMS FROM ALL MOCK BODIES

ITEM 2; appreciates the diversity and interactions of substances and their importance in life Approach

1) Identify the category of elements/compounds/substances/materials with reason (definition or fact) and give examples only if necessary-related to the problem in the scenario
2) Outline at least four properties/x-tics for the elements/compounds/substances/materials and where necessary relate the properties to the real-life application/use.
3) Give one use of the elements/compounds/substances/materials identified
4) State one impact of the elements/compounds/substances/materials identified and write one suitable mitigation
5) *Quantifying matter; calculation of moles/volume/mass/molar mass/RAM/RMM*

Item 2 (WAKISSHA MOCK 2026)

Wars in different areas of the world have complicated the shipping of goods mainly paraffin to different countries including Uganda. Community members of a certain area in Western Uganda do not receive enough paraffin yet they depend on it for domestic purposes. The government of Uganda has advised members to start producing Biogas from organic materials. The main component of Biogas is methane but it is produced with other biproducts which are carbon dioxide and hydrogen sulphide. Community members have approached you and would like to know more about Biogas production.

Task:

(a) Explain the category of products produced together with methane and how methane can be isolated from other products.
(b) Explain the suitability of methane as a fuel gas.
(c) Explain the dangers associated with biogas production to the environment.

Item 2 (UTEC 2026)

A small-scale metal production company intends to produce copper, for electrical wiring and power grids.

Their chosen method involves electrolysis of a concentrated solution of Copper (II) chloride using graphite electrodes. The reactions at the electrodes are as follows.

- **Anode:** $2Cl^-(aq) \longrightarrow Cl_2(g) + 2e^-$
- **Cathode:** $Cu^{2+}(aq) + 2e^- \longrightarrow Cu(s)$

For rapid scale operations in response to the market, the company needs to know the mass of the electrolyte needed to produce 32.0g of the product at the cathode in preliminary experiments in the laboratory and also the impact of any of the products at the electrodes on the environment. You have been contacted for help;

Task:

As a Chemistry learner;

(a) Explain;
(i) the category of the product formed at each electrode basing on their structures.
(ii) why the product at the cathode was formed.

(b) Suggest the properties of copper that make it useful in daily life.
(c) Calculate the mass of the electrolyte (Copper (II) chloride) required for the electrolysis (Cu = 64, Cl = 35.5).
(d) Suggest one impact of the product formed at either the anode or the cathode on the environment and how it can be mitigated

Item 2 (HODEB 2026)

Polyethene is a useful material that cannot be avoided, but its poor disposal causes environmental pollution.

In a busy Kampala market, traders use polyethene bags to pack goods as they go about daily business. One environmental activist advised them not to focus on trade and convenience while paying little attention to the environmental impact of the accumulating waste polyethene material. He further told them to understand how it is formed from ethene, its properties and other ways of using it. You have been selected to give further guidance on the matter.

Task:

As a learner of Chemistry;

(a) help the traders to understand the type of material and how it is formed.
(b) explain to the traders the properties of the material that attract them to use it and forget the environment.
(c) propose to them other uses of the material where it cannot be avoided.
(d) discuss, for the traders, the impacts of poor disposal of the material on the environment and how they can be avoided.

Item 2 (USTAA 2026)

A group of learners at S.T NOA GIRLS were faced with a unique solid substance, Z, which they suspected to be an element. 0.3 g of the element could burn in air to form 0.5 g of the solid product. One of them picked interest in what could be the chemical formula of the oxide of the element. However, he did not know how to determine the formula. When they contacted the laboratory technician, he gave them the atomic number and mass number of Z as 12 and 24 respectively, and the symbolic representation of Oxygen as O.

Task:

As a student of chemistry, help the learners to:

(a) Understand the nature of substance Z.
(b) Determine the formula of the oxide of Z.
(c) Know the environmental consequences of the element.

Item 2 (RESOURCEFUL MOCK 2026)

Charcoal is composed of carbon only, serving as a carbon-based energy fuel. When 8.0 g of charcoal was burnt in excess oxygen gas, a gas Q which turns lime water milky was evolved. This gas is highly needed in making fire extinguisher material due to its structural properties. A group of S.3 students have been tasked by their teacher to explore more about gas Q, in terms of its type of substance and properties that suit its uses in daily life, but they are stuck on what to do next. Help them where necessary.

Task:

(a) Identify Q and state its category with a reason.
(b) State the properties of the gaseous product that suit its daily use.
(c) What is the volume of the gaseous product formed at r.t.p? (C = 12, 1 mole of a gas occupies 24 dm^3 at r.t.p)
(d) Explain the side effect of the product to the environment.

Item 2 (ACIETEKA MOCK 2026)

Food processing companies use suitable substances as a preservative in the production of sauces. A certain food processing company in Mukono has obtained a sample of an unknown liquid Q and sent it to its quality control laboratory for analysis. The laboratory report indicates that the substance contains 40.0% carbon, 6.7% hydrogen and the rest being oxygen. Further analysis shows that Q has a relative molecular mass of 60. One of the workers was assigned to further identify Q and its behaviors before its approval; however, he experienced difficulties and has sought advice from you.

Task:

As a chemistry student, help him to:

(a) Determine molecular formula hence identity of Q.
(b) Categorize Q with reason.
(c) Explain at least three properties to the company making Q suitable for its uses.

(d) Explain the environmental impacts of Q and how they can be mitigated.

Item 2 (WAKATA MOCK 2026)

An industry wanted to produce copper metal because of the high demand for copper wire manufacture. The production of copper metal involves the complete reduction of copper (II) oxide by hydrogen gas according to the equation:

$$CuO_{(s)} + H_{2(g)} \rightarrow Cu_{(s)} + H_2O_{(l)}$$

The industry is also interested in determining the mass of copper produced. Before production began, an experiment was carried out in which 3.2 g of copper (II) oxide was completely heated. You have been contacted for assistance. (Cu = 64, O = 16, H = 1)

Task:

As a student of chemistry:

(a) Explain the categories of the products formed.
(b) Suggest the properties of the metal product that make it useful in daily life.
(c) Calculate the mass of solid product formed.
(d) Explain one impact of one of the products formed.

Item 2 (COUHEIA MOCK 2026)

During a class presentation by Triumph, an S.4 student of chemistry, she noted that salts such as sodium chloride (common salt) can be prepared by direct synthesis where heated sodium reacts with dry chlorine according to the equation:

$$2Na_{(s)} + Cl_{2(g)} \rightarrow 2NaCl_{(s)}$$

Her submission left a group of S.4 students curious, and they intend to investigate this reaction in the school laboratory but need more information on the nature of the reactants. They have approached you for guidance as a knowledgeable person (Na = 11,Cl = 17).

Task:

As a student of chemistry:

(a) Identify which of the reactants is oxidized in the above reaction. Explain its category.
(b) Describe with the aid of a diagram how the product is formed.

(c) Briefly explain the properties of the product above and state any one use of it.
(d) Write down one impact of the product and how it can be mitigated.
(e) Determine the volume of chlorine gas at s.t.p required to react with heated sodium to produce 5850 g of the product. (1 mole of gas occupies 22.4 dm^3 at s.t.p, Cl = 35.5,Na = 23)

Item 2 (UTES MOCK 2026)

The durability of cooking utensils depends on the melting point of the material used. A certain company in Mukono intends to manufacture heat-resistant cooking utensils with good thermal conductivity from different materials. To guide material selection, the research team collected data on the melting points of selected Period 3 solid elements as shown in the table:

Element	Na	Mg	Al
Atomic number	11	12	13
Melting point (^0C)	98	650	659

They do not know how to analyze the data above in order to select the best material which can be used for the manufacture of the equipment in consideration of environmental concerns. They have been referred to you for help.

Task:

(a) Categorize the substances with reasons basing on the type of structure.
(b) Understand the trend in the property of substances in the table.
(c) Know the material to be selected among the substances.
(d) Assess the environmental impact of the substance recommended for use, how it occurs, and how it can be mitigated.

Item 2 (WENSSEC MOCK 2026)

The demand for efficient and environmentally friendly fuels is a key developmental concern in the whole world. As such, many countries have advanced to using hydrogen gas as an alternative due to its unique properties. The ministry of energy and minerals suggests producing hydrogen gas from electrolysis of dilute sulphuric acid during which another product is also produced. Peter a senior three student at a certain school wants to know the categories of each of the products produced during the process, other uses of the gas

produced and the environmental impacts of the other product. You have been approached by Peter for help.

Task:

(a) Explain the categories of the product formed at the cathode and anode.
(b) Describe how the gas is produced during the electrolysis.
(c) Explain the properties of the gas produced at the anode that makes it useful in everyday life.
(d) Explain the environmental impacts of **each** of the gas produced at the anode and cathode and provide **one** possible mitigation measure.

Item 2 (TESSMEA MOCK 2026)

During preliminary investigation learners of S.3 heated 5.04g of calcium in excess oxygen to form 7.056g of a substance R. However, the learners found challenges trying to establish the formula of the substance R formed. When laboratory investigations were done it revealed that the atomic masses of calcium and oxygen were 40 and 16 respectively and relative formula mass of R is 56.

Task:

As a chemistry learner, assist the workers to:

(a) Explain the categories of the solid reactant and the product.
(b) State the properties of the product.
(c) Calculate the molecular formula of the product.
(d) Suggest the environmental impact of the product and its mitigation.

Item 2 (MAKADITA MOCK 2026)

A quality control technician at a magnesium processing plant has identified an unlabelled compound referred to as **X**, in the storage facility. Laboratory analysis confirms that Compound **X** contains 72.5% magnesium and the rest being nitrogen, with a formula mass of 100. During a routine safety check, Compound **X** was accidentally exposed to water, producing solid magnesium hydroxide and gaseous ammonia at room temperature.

Compound X + Water → Magnesium Hydroxide + Ammonia Gas

You have been requested by plant's process engineer to identify the nature of Compound **X**, assess the properties of the products formed and also come up with a safe means of

handling the products to avoid environmental dangers associated with the product, in order to put in place appropriate safety and handling protocols.

Tasks:

(a) i) Explain the categories of products formed from the reaction of Compound X with water.

(ii) Explain why the products formed exist in the different states of matter at room temperature.

(b) (i) State any 3 other properties of the solid product.

(ii) Calculate the molecular formula of Compound X. (given that the RAM of Mg is 24 and RAM of N = 14).

(c) State the dangers associated with the solid product to the environment and describe the safe way of handling the products to avoid those dangers.

KISJO
May God Bless You
A gift to serve

ITEM 3 AND 4 EOC 1:

The learner appreciates the contribution of chemistry to our economy

Basis of Assessment;

a) Raw materials and vessels/containers.

b) Production process; physical process (Pp), chemical process (Cp), conversion to desired product (Cd), purification (Pr), coherence of the steps (Ch).

c) Side effects/dangers of the production process on environment and workers; and mitigation; i.e. danger (Di), explanation of the danger (De), and mitigation (Dm).

d) Social/economic benefits of the industrial process; i.e. identification of social benefit (Sb), impact of the benefit (Si) and explanation of the impact (Se).

Item 3 (WAKISSHA MOCK 2026)

Aluminium is a highly versatile, light weight and good packaging material. It is therefore highly needed in the country and the government has discovered the availability of

Aluminium ores in North Eastern regions such as Karamoja and is planning to set up a plant to extract and purify Aluminium from its ore.

However, the locals are worried and would like to know any potential impacts the process could cause to their environment, how to overcome them and the ways the plant will benefit them. You have been contacted for guidance.

Task:

As a chemistry learner, make a detailed write up you can use as you deliver your guidance to the locals.

Item 3 (UTEC 2026)

In an engineer's report, the Kyenzige area in Kabarole district faces poor infrastructure challenges, with weak buildings and corrosion-prone bridges. Geological surveys indicate a presence of Bauxite ore in the area. The Ministry of Works in response to the challenges and presence of the ore has contracted an aluminium extraction company for producing high-grade aluminium. This will be used for manufacturing lightweight, corrosion-resistant materials for new constructions. Local community members, recruited for the plant, express concerns about the processing of ore, its potential environmental impact, and benefits of the project other than employment. You have been contacted for help.

Task:

Make a write-up of the message you will deliver to the local community members.

Item 3 (HODEB 2026)

Sodium hydroxide is a useful chemical compound that is used in different chemical processes like in the manufacture of soap which is a major cleaning agent. Due to its benefits the Ministry of Trade and Industry wants to start producing sodium hydroxide locally in order to cut costs incurred during importation.

However, environmentalists and some local leaders are worried of the impact of the plant and the government is planning sensitization of the communities about Sodium Hydroxide production.

Task

As a Chemistry student, write an article to the local news paper to sensitize people on the plant being established

Item 3 (USTAA 2026)

People of Kalangala have got a limited supply of soap yet they grow a lot of palm oil plants. They have knowledge about the manufacture of soap, but they have a limited supply of sodium hydroxide, which is a raw material for the manufacture of soap. An organization wants to set up a sodium hydroxide manufacturing factory in the area, but they have little knowledge about the process and its impact on the environment. The organization chairperson has contacted you to give advice on how to manufacture sodium hydroxide and its impact on the people and the environment.

Task:

Prepare a write-up you will use upon invitation.

Item 3 (RESOURCEFUL MOCK 2026)

A car battery manufacturing company, Uganda Battery Limited (UBL), intends to expand its production of car batteries using sulfuric acid to meet high demands in automobile industries using available raw materials in stock. However, the locals in the area have raised fears due to potential exposure to harmful fumes the factory may emit into the environment.

Task:

As a chemistry student, make a write-up guiding message sensitizing the community on how the whole production process will be conducted.

Item 3 (ACIETEKA MOCK 2026)

Wires used mainly for transmitting electric power are made of copper. The government is considering resurrecting a copper extraction plant at Kilembe to ensure the availability of the raw material of copper wires for electrical transmission. When S.4 students of a certain school visited the area for a study tour (Figure 1), the residents of the area surprised them that they don't know about the copper extraction processes, social benefits, side effects, and how they can be overcome. Your chemistry teacher has proposed all S.4 students to sensitize the residents through writing.

Task:

As a chemistry learner, prepare a write-up that can be used to sensitize the residents.

Item 3 (WAKATA MOCK 2026)

The elected LC V Chairman of your district is interested in improving hygiene in the community by encouraging people to clean their households regularly using soap. An essential substance used in saponification is sodium hydroxide, which converts natural fats and oils into solid soap bars and liquid detergents. The district leader has chosen you to lead a team to a sodium hydroxide manufacturing plant to learn how the substance is produced so that it can be used to increase soap production in the district.

Task:

As a chemistry learner, prepare a presentation that you will deliver to the LC V Chairman after visiting the plant.

Item 3 (COUHEIA MOCK 2026)

Most vehicles in Uganda use acid-based batteries, creating high demand for battery acid. To meet this need, a local investor with limited knowledge of the acid production process plans to build a factory in Mbarara Industrial Park but must submit documentation on how the acid will be produced, its potential risks to the community, and expected social benefits to the Investment Regulatory Board (IRB) for approval. As a knowledgeable learner of chemistry who plans to seek a job opportunity in your holidays, you are invited to guide the investor and community.

Task:

Make a write-up which can be of help to the investor and community in fulfillment of the Investment Regulatory Board (IRB).

Item 3 (UTES MOCK 2026)

Biogas is a renewable source of energy produced from locally available raw materials. To meet the rising demand for clean energy, reduce fuel costs, and create employment opportunities for the youth in the village, an Agro-businessman is considering setting up a biogas production plant. However, he needs more briefing about how biogas is produced, its additional benefits, and the potential environmental concerns involved in its production. As a Senior Four learner with a background in the chemistry of energy sources, you have been recommended to brief the businessman.

Task:

Write a presentation that you will use when briefing the businessman.

Item 3 (WENSSEC MOCK 2026)

As part of the Uganda support to municipal infrastructure development (USMID) program, the government has proposed to establish a liquid soap manufacturing plant in one of the new industrial areas in West Nile.

However, the locals are protesting the establishment of the plant citing that they don't know how the production process shall be carried out, with minimum effects apart from causing environmental pollution and the social benefits of establishing this plant in their area. The LC1 chairperson has organized a meeting with the local community members to discuss their concerns and he has invited you to lead the meeting as chairperson.

Task:

As a chemistry learner, make a write of the message you will use to address the locals during the meeting.

Item 3 (TESSMEA MOCK 2026)

Bugiri Sugar Factory, which has just been set up, is disposing off molasses, which would be used to make ethanol. Ethanol is in high demand, and it is used to make essential substances like sanitizer. The locals around are making ethanol on a 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. The community would like to know how the process of production will be carried out, the impacts and other social benefits other than tax and employment opportunities.

To facilitate quick sensitization and to prepare future leaders, schools have been asked to educate the community through debates.

Task:

As a chemistry student, write up your presentation for the community members.

Item 3 (MAKADITA MOCK 2026)

The Government of Uganda has requested locals around the Industrial Area in Bweyogerere to offer land for the establishment of a factory which will utilize sodium hydroxide

produced as a by-product from an existing chlorine factory and manufacture a soapy detergent, which is on high demand across the country.

However, locals are resisting the move, claiming heavy compensation and also the investor lacks the required knowledge for the production of the required detergent.

To resolve this standoff, the government has selected you as a knowledgeable resource person to guide both the investor on how the process of production will occur, what the investor should to do to avoid the challenges associated with the process of production and the benefits that local community will gain from the process of production other than being employed and the government getting revenue.

Task:

As a chemistry student, make a write-up that will be used to guide the investor

Item 4 (WAKISSHA MOCK 2026)

Oxygen is one of the essential requirements for life and other purposes in everyday life. Due to the recent collapsing of one building in one city, resulting from the recent land slide on the foot hills of the mountain, many victims were rushed to the city hospitals which were overwhelmed by the large numbers of victims who required oxygen to support their lives.

One of the experts from the district management advised that an oxygen-manufacturing plant could be established in the area to meet the high demand and save lives. However, the authorities do not have any knowledge about the process of production, side effects and other benefits of the plant to the community.

You have been identified as a person with the necessary knowledge to enlighten the authority.

Task:

As a chemistry leaner, make a write up you would use to help the authority and the community at large.

Item 4 (UTEC 2026)

A nationwide outcry has emerged following a sharp increase in the cost of petrol, diesel, and paraffin. In response, the government has reached an agreement with foreign investors to establish an oil refinery in Kabaale village, Hoima district. However, local residents are

protesting the plant's construction due to concerns over significant environmental impact(s), and also think that the project has no other benefit apart from employment. They also need more understanding of the refinery process and any one use of obtained product(s). To address these concerns, a radio talk show, organized by the district Development Officers (DDO) and local council representatives, has been arranged to inform the community about the concerning issues at hand.

Task:

As a learner of Chemistry, prepare a presentation you would make upon invitation.

Item 4 (HODEB 2026)

Iron is a crucial element in the production of steel, a fundamental material used in modern construction, transportation, and industry.

Large quantities of iron ore were discovered in the Kigezi Region, attracting the attention of the Government of Uganda to establish a steel manufacturing plant that would extract and use the iron ore for steel production. The company has offered a scholarship to the best students who can make a good presentation on how iron is extracted, the impact of the extraction process on the local community, and the social and economic benefits of the extraction process.

Task

As a chemistry learner, write a presentation to the people of the area to sensitize them.

Item 4 (USTAA 2026)

Biogas is one of the modern fuel sources used by many Ugandans nowadays in the name of minimizing environmental pollution. As a result, the government has contracted a foreign investor to set up a biogas production plant to meet the increased demand of the gas. However, the community members are worried about the effects of the plant on their wellbeing. The LC1 chairperson has approached you for guidance before he meets the residents.

Task:

As a chemistry student, prepare a leaflet of message to advise the community members.

Item 4 (RESOURCEFUL MOCK 2026)

An investor intends to produce copper metal at the Napak copper mine in Napak district—a key metal needed in making electrical wires in homes, businesses, and industrial facilities. He intends to use the available raw materials in stock to achieve their targets and expectations in the production process. However, the locals in the area are worried about potential harm the factory could cause to the environment and how the production process will be conducted. You have been tasked to give guidance.

Task:

As a chemistry student, make a write-up message sensitizing the community on environmental management programs and how the whole production process will be conducted.

Item 4 (ACIETEKA MOCK 2026)

People use water from boreholes and wells for washing clothes which is not very effective especially when soapy detergents are used. A local investor was cleared by the government to set up an industry that makes soapless detergents in Kashangura village, in order to lower prices of the product in addition to other benefits. Figure 2 shows the industry that manufactures the detergent in this area. The area people have raised issues of merits and demerits of this industry, but the process leading to the production of soapless detergents is what they have no idea about at all. They need to be briefed about this project's benefits and how to mitigate identified side effects; otherwise, they want it closed. A radio talk show has been organized for the people and your school has tasked you to explain the process of production and any other information to address their concerns.

Task:

Make a write-up of the required message to the residents.

Item 4 (WAKATA MOCK 2026)

As a result of industrialisation and urbanisation, the Ministry of Housing and Urban Development has been searching for a material that is durable and resistant to rust for roofing, window frames, and door frames in order to construct affordable houses for citizens. The material selected is aluminium metal because it possesses the required properties. However, the ministry lacks technical knowledge about how aluminium is

extracted. You have been contacted as a chemistry learner to provide technical advice to the ministry officials.

Task:

Prepare a presentation that you will deliver to the ministry officials.

Item 4 (COUHEIA MOCK 2026)

The government of Uganda would like to extend its support in most of its national referral hospitals across the country in a bid to have large-scale production of oxygen to support ICU patients with breathing complications. A group of scientists have been contracted to put up a production plant of oxygen with minimal risks to the environment.

Task:

As a knowledgeable learner of chemistry, you have been requested to prepare detailed information about the process to help this group.

Item 4 (UTES MOCK 2026)

Ethanol is a versatile organic compound commonly used in many ways and can be manufactured from locally available raw materials. An Entrepreneurship Club in Tororo municipality has started a small business for producing cosmetic products in which ethanol is a major ingredient. To make their products more affordable, the group is considering making their own ethanol and also provide employment to people, pay taxes to the government, among other social benefits. However, they are seeking technical information about the process of ethanol production, its other benefits, and possible side effects before they can invest in it. As a Senior Four learner with chemistry knowledge, you have been chosen to help the group understand what it takes.

Task:

Make a write-up that will be used to help the club.

Item 4 (WENSSEC MOCK 2026)

A group of geochemists have discovered a huge deposit of haematite in mount Wati in Terego district. This has created anxiety among the residents who are eager to know how the extraction of this precious ore shall be done, the side effects of the production process and the benefits they shall get during the extraction process apart from providing

them employment opportunities as most of them are employed. A local investor has been cleared to extract the ore but before work starts, they need to educate the residents about the whole process. He has approached you through your chemistry to guide the residents.

Task:

Prepare a brief note you will use to guide the residents.

Item 4 (TESSMEA MOCK 2026)

Iron is one of the most abundant and widely used material in Uganda.

The youth in Kisoro district in Southern Uganda noticed a strange reddish-brown particle and after laboratory analysis it was confirmed to be Iron ore. An investor wants to set up an Iron and steel rolling factory to tap into the opportunity. The local leaders are debating about the project, demanding to know the process of production, side effects associated to it, how it can be mitigated and how it can be of benefit to them besides employment opportunities.

A sensitisation workshop has been organized and your school is involved.

Task:

As a learner of chemistry make a write up of what will be presented to the local leaders

Item 4 (MAKADITA MOCK 2026)

The Rural Electrification Programme has triggered a growing need for overhead aluminium wires. To meet this demand, the government has directed a local investor to build a factory in Masaka. This facility will produce the necessary aluminium using raw ore deposits found within the country.

However, local residents are protesting the project. They believe that the government is using this factory as an excuse to seize their land, and also levy a lot of taxes on them.

You have been selected as a knowledgeable person to advise the investor on how the process will occur and the benefits of the process of production to the locals other than being employed and the government getting revenue and also advise the investor on what to do to avoid the challenges associated with the process of production.

Task:

As a chemistry student, make a write-up you will use to guide the investor.

ITEM 5 AND 6 EOC 4:

The learner appreciates the existence of natural resources in the environment and their importance in daily life.

Basis of Assessment;

a) *Category of natural resource affected; Response should reflect C.R.E.*
b) *Composition of the natural resource affected.*
c) *Impacts of human activities on the natural resource/environment, how it occurs and mitigations.*
d) *Benefits/importances of the natural resource; clearly explained.*

Item 5 (WAKISSHA MOCK 2026)

Uganda leather and tanning industries Ltd (ULETIL) is located in Jinja city along the banks of river Nile. The factory processes raw hides and skins into leather for shoes, belts and bags for local and export markets.

To operate, ULETIL requires a source of energy and large amount of wood fuel from nearby natural forests and eucalyptus plantation using about 50 tonnes of wood weekly to heat boilers for tanning. Besides the benefits to the community, environmentalists from NEMA and the local people are concerned about the effects of the plant on the natural resource. As a student with knowledge about natural resources, you have been invited to a sensitization meeting in this village.

Task:

As a chemistry learner, make a write up you will use at the meeting.

Item 5 (UTEC 2026)

Tororo district landscape is characterized by vast deposits of sedimentary rocks. For generations, local farmers have benefited because of these rocks. However, in recent

years, the district has seen a rapid rise in industrial development. Many new factories have been established, relying heavily on the combustion of fossil fuels extracted from some of the rock deposits to power their machinery and production lines. While the economy is growing, the residents have observed a worrying trend of high temperatures. The leaders in the district have organized a meeting to address these issues concerning the mentioned vital natural resources. You have been invited to be part of the meeting.

Task:

Make a write-up of the message you will present to the residents

Item 5 (HODEB 2026)

Rocks are naturally occurring materials that are widely mined in developing urban settlements for various uses.

One Senior Three (S.3) student visited a quarry to acquaint himself with the process of producing small stones for construction. He was left wondering about the consequences of the long-term use of rocks. He wanted to be educated on the nature of the natural resources affected and the other benefits of rocks so that his worries could be addressed.

Task

As a Chemistry learner, make a write up to respond to the concerns of the student.

Item 5 (USTAA 2026)

"Residents of Kampala are facing severe health risks due to poor air quality," was a headline in one of the recent editions of the New Vision newspaper. With the city's reputation tarnished and residents' health hanging in the balance, urgent action to raise awareness and clean the natural resource is needed, the paper continued to state. The Kampala Capital City Authority (KCCA) is getting ready to improve the situation following the alarming revelation. As a student of Chemistry who has learned about air as a natural resource:

Task:

Write an article KCCA would use in response to the paper to sensitize the community of Kampala.

May God Bless You

Item 5 (RESOURCEFUL MOCK 2026)

Forests are sources of different tree species, and there is a need to conserve them as natural resources. There is significant encroachment on forest reserves set aside as game parks for wildlife habitats across all parts of Uganda due to increased human activities like charcoal burning, cutting trees for timber, and clearing space for farming. Latest research shows increased global warming throughout Uganda. Officials from the National Environment Management Authority (NEMA) are organizing a radio talk show sensitization workshop across Uganda to educate the growing population on sustainable forest use. You have been invited as part of the sensitization team.

Task:

As a chemistry student, make a write-up message concerning NEMA's sensitization awareness.

Item 5 (ACIETEKA MOCK 2026)

Rapid construction in Uganda has led to increased quarrying of rocks for building materials. Okello crushes rocks into aggregates using machines, an activity that may negatively affect the environment and nearby communities. NEMA has instructed him to first sensitize the public on the importance of rocks as a natural resource, the impacts of quarrying, measures to mitigate these impacts, and the benefits of conserving the resource.

Task:

Make a write-up message that would be used for sensitizing the public.

Item 5 (WAKATA MOCK 2026)

Mrs. Mwasa is a farmer who specialises in large-scale crop husbandry. She grows her crops along the only river from which the rest of the community obtains fresh water. As a result of her continued farming practices, local residents have begun complaining that the river water is no longer clean for domestic use or for their animals. The Local Council chairperson has organised a community meeting to address the concerns raised by the residents.

Task:

As a chemistry learner, write a speech that you will present to the chairperson to help him or her address the community.

Item 5 (COUHEIA MOCK 2026)

Due to the increased population in Uganda, there has been increased demand for the use of firewood as fuel, which has resulted in deforestation of most prominent forests in the country. This has led to climate changes leading to floods and severe drought. The National Environment Management Authority (NEMA), through its sensitization programs, seeks to inform people to conserve their motherland with the theme: *"My environment my responsibility"*.

Task:

As a learner of chemistry, make a write-up of the sensitization message delivered by NEMA. ***Item 5 (UTES MOCK 2026)***

Natural forests influence rainfall patterns and eventually affect agricultural activities. Mabira forest has been encroached on by charcoal burners. Environmental experts believe that the heavy reliance on natural forest resources for charcoal burning is contributing to environmental degradation hence climate change. Unfortunately, many citizens are unaware of how their daily use of firewood and charcoal is linked to these climate issues. The officials want to sensitize people about conservation of the natural resource through a workshop and your school is involved.

Task:

Write the chemistry message you can use as a lead discussant to help the citizens understand.

Item 5 (WENSSEC MOCK 2026)

Most youth in Mubanda village are involved in cutting down trees to burn charcoal and firewood used for cooking. A concerned youth suggested that they need to use an alternative fuel such that the trees can be saved. However, the community members want to understand the category of the alternative fuel they can use, how their activities might affect the natural resources and the benefits of sustainable use of the natural resource. The local authorities have organized a community dialogue under the theme "A CONDUCIVE ENVIRONMENT IS MY RESPONSIBILITY" and have invited you as the guest speaker.

Task:

Make a write-up that you will use during the dialogue.

Item 5 (TESSMEA MOCK 2026)

LIQUID PETROLEUM GAS is a naturally occurring flammable liquid found beneath the earth's surface. Recently, oil deposits were discovered in Western Uganda. An investor has been contracted by the government to extract the oil but the people around are scared of the environmental outcomes. A sensitization workshop is to be conducted and your school is involved.

Task:

Make a write up of the message to be delivered as a school representative

Item 5 (MAKADITA MOCK 2026)

The rapid increase in plastic consumption in Uganda, coupled with poor waste management, has led to severe environmental issues; notably the pollution of critical water sources and atmosphere, especially when burnt. This crisis has prompted environmentalists to call for urgent action. As part of their campaign, they are organizing radio talk shows to educate and raise public awareness.

You have been invited as a guest speaker to deliver a presentation on this radio talk show.

Task:

As a chemistry student, prepare a detailed write-up explaining the categories of resources affected, the impacts of such activities on each of the resources affected, and the benefits of conserving each of the resources.

Item 6 (WAKISSHA MOCK 2026)

In Kampala, rapid urbanization has led to an increase in the number of vehicles, small industries and road side businesses. Many vehicles emit dark smoke while some industries release un filtered fumes into the atmosphere. Residents have reported frequent health challenges especially in busy areas like Kisekka market and Clock tower. Environmental officers have been informed about the concerns and are planning to hold a sensitization campaign titled "**CLEAN AIR, SAFE KAMPALA**". In the program, they intend to categorize the resource, give the benefits and how it is affected by the various activities. You have been approached to help them make a presentation during one of the campaign meetings.

Task:

As a chemistry learner, write the details of the presentation to be used.

Item 6 (UTEC 2026)

In the last decade, Kasese district has seen rapid industrial development, leading to significant encroachment on rivers and natural forests have been cleared for settlement and factories. This growth has resulted in abnormal dry seasons and significantly lower rainfall received than in the previous decades. The residents are concerned about the observations yet the affected natural resources are of great importance to them. To raise awareness of these environmental issues, the district's education department, in collaboration with the National Environment Management Authority (NEMA), is holding an essay competition, with the winning essay to be shared on local radio and published in national newspapers.
You have been selected by your Chemistry teacher to take part in the competition.

Task:

Make a write-up of your essay that will help the residents as well as win the competition.

Item 6 (HODEB 2026)

The increasing number of vehicles and open burning of waste in the city has developed concerns about the health and environmental effects.

As a result, the environmental officer has organized a meeting to discuss the issue of air quality in the city. He wants to discuss the nature of natural resources affected and benefits of the affected natural resources such that his worries can be settled.

However, knowledgeable persons have been invited to attend the meeting and contribute to the discussion.

Task

As a learner of Chemistry, write down the message you would deliver upon invitation.

Item 6 (USTAA 2026)

Uganda's forests are under pressure from illegal logging, agricultural expansion, and urban growth. Despite government attempts to advocate for sustainable forest management,

these efforts have failed due to citizens' lack of awareness regarding the benefits and consequences.

Task:

Use your chemistry knowledge to create awareness on the matter.

Item 6 (RESOURCEFUL MOCK 2026)

The government of Uganda intends to extract and refine crude oil deposits recently discovered in Kibiro on the shores of Lake Albert in Western Uganda to meet national energy demands. However, the extraction process has been delayed due to potential risks of oil spills from fractured hydraulic pumps, broken pipelines, direct atmospheric release of unburnt natural gas, and environmental contamination from mining and refining activities.

Task:

As a chemistry student, make a write-up message containing the information you would use during that day's meeting upon invitation.

Item 6 (ACIETEKA MOCK 2026)

Natural resources in Uganda have been heavily encroached on because of rapid urbanization. The Ugandan government through the National Environment Management Authority (NEMA), is set to raise awareness among the fishing communities. People need to understand the nature of freshwater bodies as natural resources, mitigation of impacts of human activities on them and the environment, and the benefits of conserving and preserving these vital resources. NEMA has invited schools to participate in public presentations on the matter and your school has selected you to be part of the sensitization team.

Task:

Write your presentation that will be used during the sensitization.

Item 6 (WAKATA MOCK 2026)

During the school holidays, Eva usually visits her father in their home village. Her father tells her that he earns her school fees from stone quarrying and sells the gravel to support the family. However, because of this activity, local residents have begun expressing concern

about its long-term effects on the environment. The local environmental authorities have organised a sensitisation workshop.

Task:

As a chemistry student, prepare a write-up that you will present to the community.

Item 6 (COUHEIA MOCK 2026)

Fresh water bodies like lakes and rivers have been heavily encroached on as a result of urbanization. On World Environment Day, the Ugandan government through its agency, NEMA, wishes to raise public awareness among citizens.

Task:

The science club in your school has considered you to give a presentation on the occasion with the theme: *"FRESH WATER IS A BASIC NECESSITY FOR HUMANITY"*.

Item 6 (UTES MOCK 2026)

Water is a vital natural resource that supports all forms of life. Despite abundance of water in nature, clean and safe water is becoming increasingly scarce near the shores of Lake Victoria. Unfortunately, many citizens are unaware of how it is important to preserve and protect this natural resource. This has attracted attention from the Ministry of Health and thus sensitization debates have been organized in schools around. Your school is among those selected to present.

Task:

As a learner of chemistry, make a write-up of a message you will deliver.

Item 6 (WENSSEC MOCK 2026)

One of the sub-counties in Adjumani district has secured a project to establish a seed school. The contractor has transported a number of materials to the construction site such as stone aggregates, timbers and foundation stones, some of which are obtained from the local resources within the sub-county.

The community members would wish to understand the type of the resources from which the construction materials are obtained, how this shall impact them in the near future and at least one importance of each resource.

The local authorities have launched a community sensitization drive to educate the community members about this issue and have identified you to lead in sensitizing the community.

Task:

Prepare a document that you will use during the sensitization drive.

Item 6 (TESSMEA MOCK 2026)

Forests are some of the natural resources in Uganda. Uganda's forests have severely been affected by activities like charcoal burning, and firewood use. People are not aware that these activities lead to climate change. NEMA has come up with a sensitization program using schools to educate the communities and your school is involved.

Task:

As a chemistry learner, make a write up of what you will use in your sensitization

Item 6 (MAKADITA MOCK 2026)

Population growth in Masaka City has accelerated unregulated brick production, triggering widespread and severe environmental degradation across the region. The brick manufacturing process depends heavily on the large-scale excavation of fertile topsoil for moulding, followed by high-temperature kiln firing that consumes enormous quantities of firewood.

These combined activities pose serious threats to the local environment, which has drawn the urgent attention of city officials, who are now mobilizing efforts to sensitize and educate local residents about the far-reaching consequences of unregulated brick production.

As a knowledgeable person, you have been tasked with preparing a well-informed and compelling message to be delivered at these community sensitization meetings, guiding residents on the environmental consequences and sustainable alternatives to conventional brick manufacturing.

Task:

Make a write-up explaining the categories of resources affected, impacts of such activities of each of the resources affected, and the benefits of conserving each of resources.

KISJO EDUCATIONAL CONTENTS

About This Book

KISJO Mock Pool Chemistry ONE is a comprehensive revision resource tailored for S1-S4 learners preparing for UCE UNEB examinations. Developed by experienced educators, this mock pool compiles high-quality practice questions modeled on the Uganda National Examinations Board (UNEB) UCE Chemistry syllabus. It is designed to strengthen students' understanding of core chemistry concepts, build confidence through practice, and provide clear worked solutions for self-study and classroom revision.

KEY FEATURES

- **UCE-style questions**
  Reflects UNEB S1-S4 Chemistry exam format and standard
- **Worked solutions**
  Step-by-step answers to help students understand concepts
- **Practical experiments**
  Syllabus-aligned practical activities for hands-on lab skills

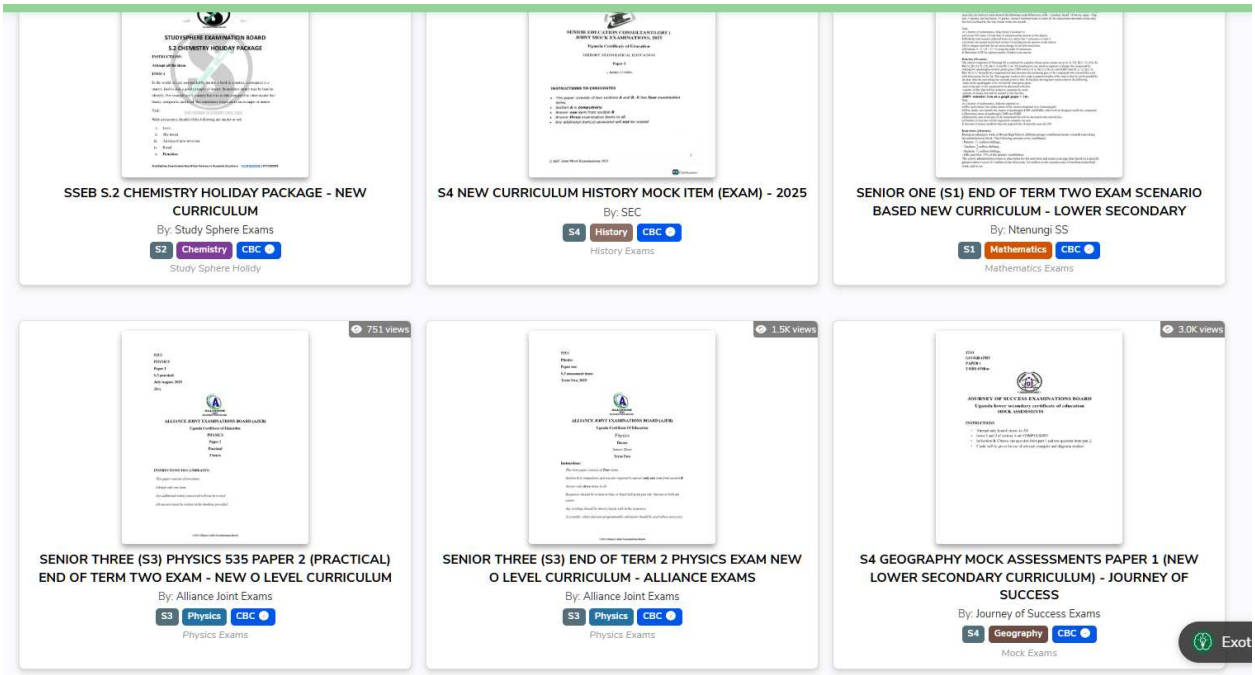
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