Name:……

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Random Numbber						Personal Number		

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Total weighted score		
Initials		

545/1
CHEMISTRY
Paper 1
July/August, 2026
2 hrs

CHEMISTRY DEPARTMENT
INTERNAL MOCK EXAMINATIONS SET TWO
CHEMISTRY
PAPER 1
2 hours

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Item No.	Basis code	Weighted score	Scorer's Initials
1	T		
	D		
	E		
2	C		
	X		
	I		
3/4	P		
	S		
	B		
5/6	N		
	M		
	Be		
Total Scores			

INSTRUCTIONS TO CADIDATES

- The paper consists of **two** sections; **A** and **B**.
- It has **six** examination items
- Section **A** has **two compulsory items**
- Responses to section **A** must be written in the spaces provided.
- Section **B** has **two parts , I** and **II**. Attempt **only one** item from each part
- Responses to section **B** must be written in the answer booklet(s) provided.
- Respond to **four** items in all
- Responses to each item in section **B** should start on a fresh page.
- Where necessary use, *C=12, H=1, O=16*

@ Hasems, -Chemistry Department
Unlocking Secrets of matter where knowledge meets Applications

SECTION A

Responses to all items in this section must be written in the spaces provided

Item 1:

During a chemistry lesson, a teacher gave his students two cleaning agents, **X** and **Y**, and asked them to wash identical dirt-stained cloths. The water used was collected from a nearby stream flowing through rocks rich in magnesium sulphate. When the students noticed a clear difference in performance between the two agents, one student with some prior knowledge explained that " Unlike **X**, cleaning agent **Y** contains stearate ions that react with magnesium ions in the water to form a white precipitate called magnesium stearate, as shown below:"

$$Mg^{2+}(aq) + 2St^{-}(aq) \longrightarrow MgSt_2(s)$$

The rest of the class now wants to understand more about these agents and have asked for your guidance.

Task: As a chemistry student,

(a) identify **X** and **Y**

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(b) (i) Give a reason why X dose not form white precipitate during washing?

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(ii) describe how X removed dirt from the piece of cloth ?

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For scorers' use only

Basic code	T
Score	

(c) Explain any side effects associated with over dependence on **Y**

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For scorers' use only

Basic code	D
Score	

(d) Compare the two cleaning agents **X** and **Y** in terms of similarities and differences.

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For scorers' use only

Basic code	E
Score	

Item 2 .

An industrial investor plans to establish a commercial chemical manufacturing facility using a versatile liquid organic compound **Q** which consists of 40.00 % by mass of carbon, 6.71 % by mass of hydrogen and the rest being oxygen.
As part of the primary production line, the investor intends to produce a commercially vital organic salt used extensively as a food preservative using a reaction between Compound **Q** and solid sodium carbonate described by the following general reaction:

sodium carbonate (s) + Q (l) ⟶ sodium ethanoate (aq) + carbon dioxide(g) + water(l)

Despite the economic viability of the project, regulatory environmental authorities have issued a cautionary mandate regarding the potential impact of emissions associated with scaling up production.

Task. As a learner of chemistry.

(a) explain the category of organic compound **Q**

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For scorers' use only

Basic code	***C***
Score	

(b) Calculate the empirical formula of compound Q and deduce it's molecular formula, hence state its name.

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(c) Explain the properties that make **Q** suitable to its applications

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For scorers' use only

Basic code	**X**
Score	

(d) explain the **environmental impact** associated with reaction between Q and sodium carbonate

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For scorers' use only

Basic code	**I**
Score	

SECTION B

Part I

Attempt any **one** *item in this part.*

Item 3

Due to its lightweight nature, cost-effectiveness, and superior corrosion resistance, aluminium is the metal of choice for long distance overhead transmission lines managed by the Uganda Electricity Distribution Company Ltd (UEDCL). Supporting large scale power grid expansion requires vast quantities of the metal, prompting the Government of Uganda to establish an extraction plant in Arua District. However, this major industrial development has raised significant concerns among local community members. They seek an understanding of the process involved in extraction and refining of metal , the direct socio-economic benefits the plant will bring to their region, and the environmental impacts involved. To address these concerns, district officials have organized a community sensitization workshop to engage and inform the public. As a key stakeholder, you have been invited to attend and present to the community.



Fig 1

Task: As a chemistry student, prepare a write up message you will use .

Item 4

Sodium hydroxide is essential for producing everyday chemical products such as soaps and detergents. To meet the growing demand for this chemical , the Government of Uganda has initiated plans to establish production plant for sodium hydroxide in Mbale . However, this major chemical development has raised significant concerns among local community members. They seek a clear understanding of how sodium hydroxide is produced, how the plant will directly benefit locals socially and economically and the environmental impacts associated with it. To address these concerns, district officials have organized a community sensitization workshop to engage and inform the public. You have been invited to attend and present to the community.

Task: As a chemistry student, prepare a write up message you will use .

Part II

Attempt any ***one*** *item in this part*

ITEM 5

Upon the discovery and subsequent development of **crude oil** resources in Hoima District, situated within the ecologically sensitive Albertine region, a considerable number of local community members have voiced severe environmental concerns over the extraction of crude oil and transportation pipeline designed to convey crude oil to designated refinery stations and export terminals. Consequently, senior officials from the Environmental Conservation Authority have organized a series of regional radio education and sensitization programs to directly address these public fears, clarify safety protocols, and importance of this resource. You have been formally invited to on one of these live radio broadcasts.



Fig 2

Task: make a well-structured presentation write-up that you will deliver during the live radio broadcast to address these community

ITEM 6

The recently published comprehensive National Environmental Conservation Assessment Report has brought to light a deeply alarming and rapidly accelerating trend across several rural districts. According to the findings, an overwhelming majority of households residing near forested regions remain heavily dependent on intensive, large-scale charcoal burning and wood fuel harvesting as their daily economic livelihood which has raised severe alarm among regional environmental and conservation officials. To combat these actions, the officials, in collaboration with regional local governments have organized community workshops designed to educate rural populations. You have been invited to participate at one of these rural community workshops.

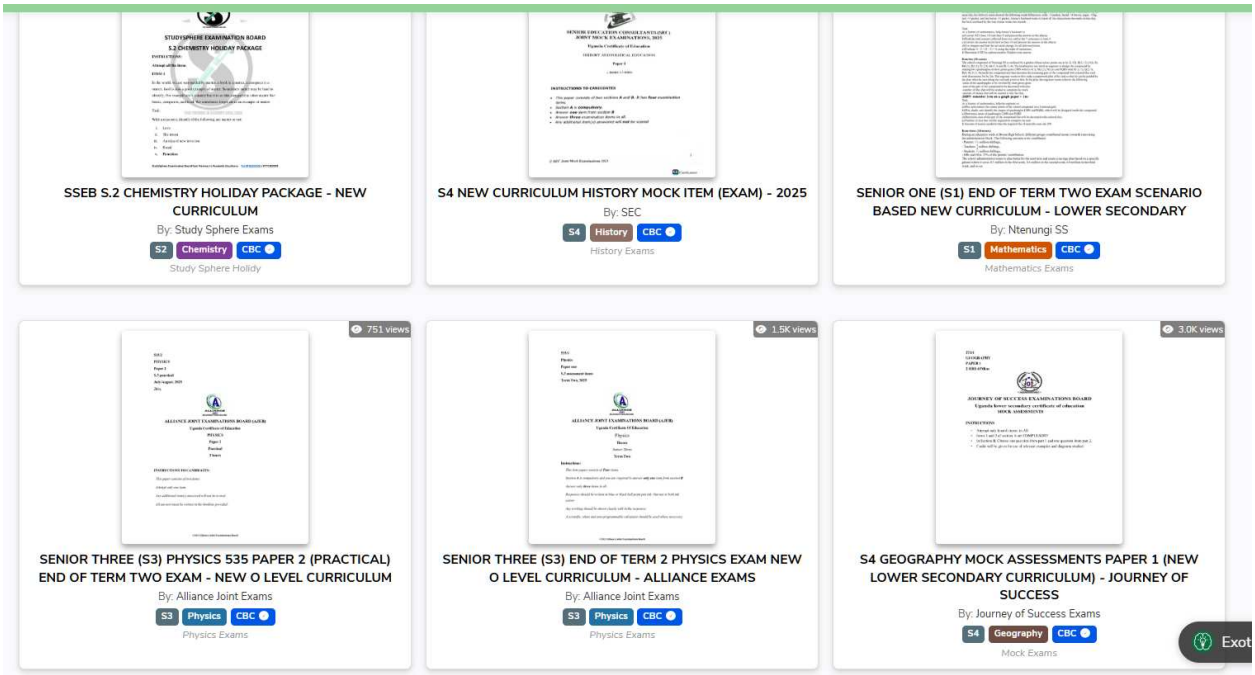


Fig 3

Task:
As a student of chemistry, prepare an educational message that you will deliver to the community members during the workshop to explain the impact of their actions and advocate for environmental protection.

END

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