

**S.5 CHEMISTRY- 2025****GROUP ASSIGNMENT C004**

GROUP NAME: .....STREAM:.....

GROUP CHAIRPERSON: .....EXPECTED SCORE:.....

**ITEM 1: ALKENES & ALKYNES.**

The Ministry of Education is selecting a gas for use in portable lab burners across Uganda's secondary schools. Two fuels are under final consideration: propane, already widely used, and propene, a newer option sourced from industrial cracking.

However, concerns have been raised about propene's chemical reactivity. During testing, it reacted violently with acidified water and hydrochloric acid sprays, decolorized brominated water and turned chlorinated tetrachloromethane colourless, properties that propane did not show, in absence in light.

Despite this, some engineers argue for propene due to its ability to undergo polymerization, making it useful beyond fuel. A third gas, but-1-yne, was suggested for this role, but was rejected as it undergoes similar reactions like propene as mentioned above.

Before final selection would be made, technicians were asked to: distinguish propane from propene, propene from but-1-yne, outline the reaction mechanisms for propene above, outline the similar reaction mechanisms for but-1-yne mentioned above, show how propane and but-1-yne can be separately synthesized from propene, show the equation of polymerisation of propene and display the isomeric substitutes of but-1-yne.

**Task: ?**

*As a learner of Chemistry, make a write-up that the technicians will present to the Ministry of Education.*

**(25 scores)**

**ITEM 2: GROUP 2 ELEMENTS.**

AgriDelta Uganda, a company supplying fertilizers to dry regions like Karamoja and Acholi, is developing a new high-efficiency powder fertilizer for acidic and semi-arid soils. The head of the lab, Dr. Maria Courtney, wants the final product to be a mixture of Group 2 members and compounds, chosen for specific roles:

- *One hydroxide to neutralize soil acidity.*
- *One sulphate to supply essential ions.*
- *One carbonate to buffer pH and withstand extreme heat.*
- *One powdered metal atom to increase density or binding in dry soils.*
- *One fused metal atom with a very high melting point.*

To succeed in these conditions, the:

- *Hydroxide and Sulphate should have very high solubilities in soil water.*
- *Carbonate should withstand very hot temperatures during the dry season.*
- *Powdered metal atom should have a very big atomic radius & high density.*
- *Fused metal atom should have a very high melting point.*

Dr. Courtney shortlists the following compounds and metals:

**Hydroxides:**

- *Magnesium hydroxide Vs Barium hydroxide*

**Sulphates:**

- *Calcium sulphate Vs Strontium sulphate*

**Carbonates:**

- *Beryllium carbonate Vs Barium carbonate*

**Powdered metal atoms:**

- *Strontium Vs Barium*

**Fused metal atoms:**

- *Beryllium Vs Magnesium Vs Calcium Vs Strontium Vs Barium*

**? Task:**

*As a learner of Chemistry, help Dr. Courtney recommend one hydroxide, one sulphate, one carbonate, one powdered metal atom and one fused metal atom that should be blended to form the fertilizer. Explain your recommendations.*

**(25 scores)**

**END!!!**

- READ THE CONGRATULATIONS AND GOOD-NEWS BELOW!!!**

**CONGRATULATIONS!!!!!!!:**

- 100% OF THE CHEM TOPICS OF TERM 1 & 2 AS PAR THE NEW SYLLABUS BOOK HAVE BEEN ASSESSED BY CMoS AS FOLLOWS:
- C001 HAD MASSES OF ATOMS AND MOLE CALCULATIONS, CHEMICAL FORMULAE & CHEMICAL EQUATIONS, SOLUTIONS & CONCENTRATIONS AND ELECTRONIC CONFIGURATION- THE FIRST 3 SUB-TOPICS ARE UNDER 1 TOPIC CALLED MOLES & EQUATIONS- MAKING IT (2) TOPICS.
- C002 HAD THERMOCHEMISTRY, INTRODUCTION TO ORGANIC CHEMISTRY I, BONDING & STRUCTURE- MAKING IT (3) NEW TOPICS.
- C003 HAD RADIOACTIVITY & ITS APPLICATION, THE PERIODIC TABLE, PERIOD 3 ELEMENTS, THERMOCHEMISTRY AND ALKANES (THE PERIODIC TABLE AND PERIOD 3 ELEMENTS FALL UNDER THE SAME TOPIC CALLED PERIODICITY I, RADIOACTIVITY FALLS UNDER THE SAME TOPIC WITH ELECTRONIC CONFIGURATION CALLED ATOMIC & ELECTRONIC STRUCTURE, ALKANES FALL UNDER ORGANIC CHEMISTRY I)- MAKING IT WITH (1) NEW TOPIC.
- C004 HAS ALKENES AND ALKYNES (UNDER ORGANIC CHEMISTRY I) AND GROUP 2 ELEMENTS (UNDER PERIODICITY I)- WITH (0) NEW TOPICS.
- THIS MAKES IT (6) TOPICS ASSESSED OUT OF THE (6) TOPICS OF TERM 1 & 2 AS PAR THE SYLLABUS BOOK\_\_NO TOPIC LEFT OUT\_\_\_\_ THIS MAKES IT 100% SUCCESS OF CHEMISTRY ASSESSMENT BY CMoS\_\_CONGS TO CMoS & PAULTUTOR!!!
- STAY TUNED AND ENSURE THAT YOU RECEIVE OTHER ASSIGNMENTS FOR S.5 TERM 3 AND S.6 TOPICS I.E IN C005, C006, C007, C008 E.T.C
- SIMILAR ASSIGNMENTS FOR MATH I.E M001, M002, M003, M004, ETC ARE ALSO AVAILABLE,"TO ACCESS THEM PLUS THEIR SCORING GUIDES", READ THE GOOD-NEWS ON THE NEXT PAGE BELOW!

**GOOD NEWS!!!!:**

- I HEREBY ANNOUNCE THAT OUR HOLIDAY ONLINE LESSONS ARE BEGINNING ON **MONDAY 11<sup>TH</sup> AUGUST, 2025** AND THE MISSED LESSONS SHALL BE ACCESSED ON OUR WEBSITE AND PREMIUM GOOGLE DRIVE SINCE THEY ARE ALWAYS RECORDED BE REMINDED THAT THE LESSONS SHALL BE **FREE!!!** FOR THAT WEEK, SO ENDEAVOUR TO BE PART OF THE FREE CLASSES FOR THAT WEEK- THIS IS FOR SCHOOLS BREAKING OFF **AROUND 8<sup>TH</sup> AUGUST.**
  - SCHOOLS THAT SHALL BREAK-OFF LATER SHALL ALSO HAVE THEIR FREE WEEK OF LESSONS SCHEDULED- BE REMINDED THAT OUR VIDEO LESSONS INCLUDE THE ANSWERING OF OUR ASSIGNMENTS (SCENARIO ITEMS) FROM SCRATCH I.E C001, C002, C003, M001, M002, M003 ETC!!!
  - TO JOIN OUR ONLINE HOLIDAY-COACHING PROGRAMME, TO ACCESS THE MISSED ASSIGNMENTS C001 -C003 & OTHER ACADEMIC MATERIAL SUCH AS TEXTBOOKS, SUMMARISED NOTES, SCORING GUIDES, ETC
- ↓
- TAP THE LINK BELOW :
  - <https://chat.whatsapp.com/F7DJbOPetAvAQHQ3Kk4p9h> (for more INFO!)

*Many of you, ask yourselves, what CMoS is?!*

**CMoS stands for; C - Chem**

**M - Math**

**o - Online**

**S - School**

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