

**IB Chemistry HL Notes**

**Option A**

# **Modern Analytical Chemistry**

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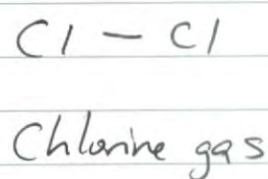
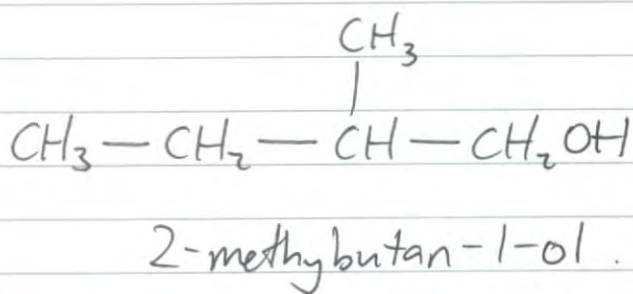
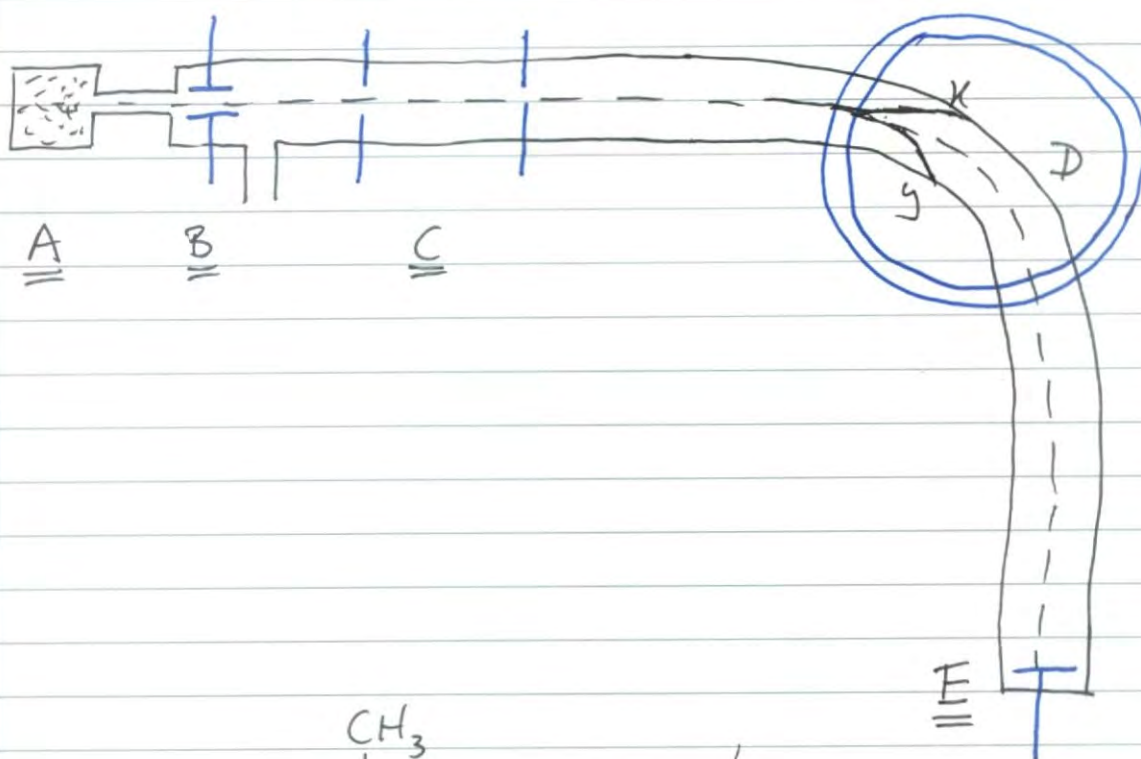
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# Modern Analytical Chemistry

## Mass Spectroscopy

Date

No.



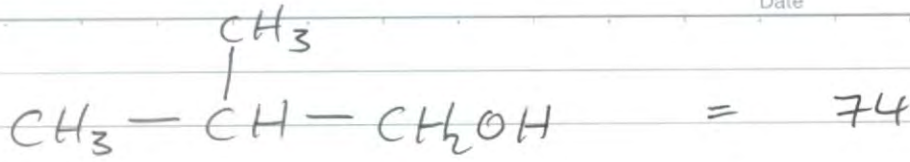
• Difference between using organic molecule and inorganic compound:

- Organic compound is generally much larger.
- $\text{Cl}_2$  will go through  $e^-$  gun.
- Org. compound will be broken apart

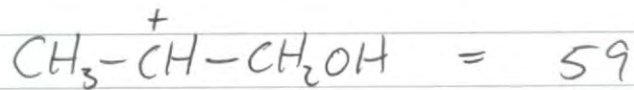
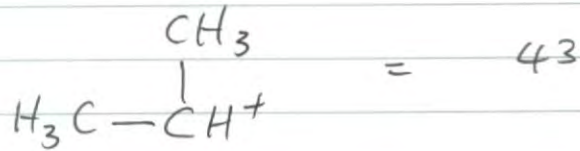
### FRAGMENTATION

• Molecule ion  $\left[ \begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{CH}_2 - \text{CH} - \text{CH}_2\text{OH} \end{array} \right]^+$

• For mass spectrometer, always +ve molecule ions.

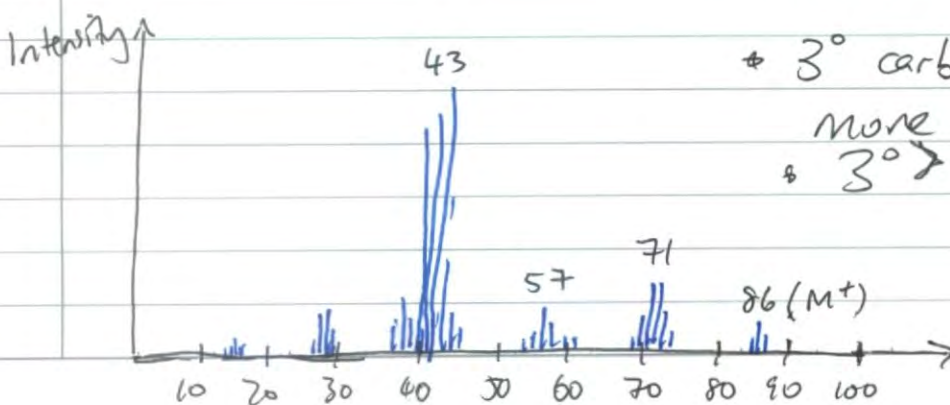
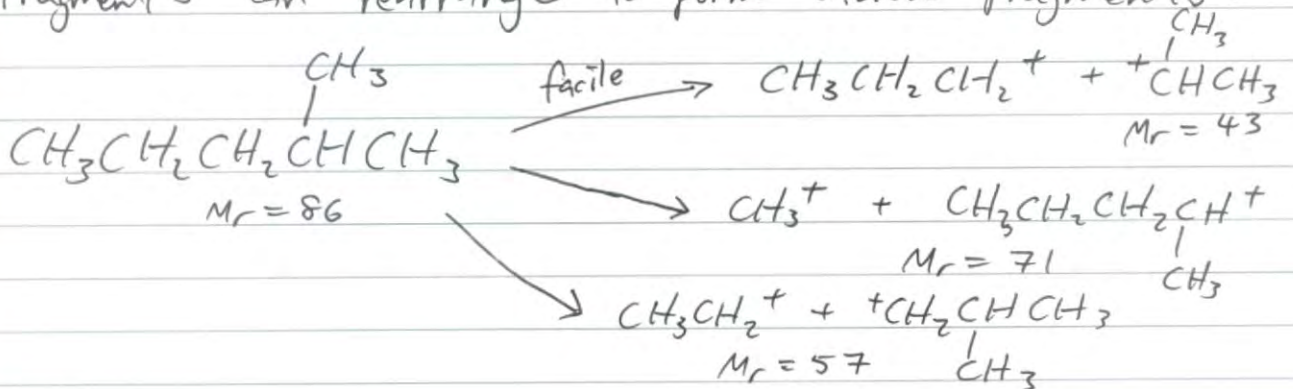


\* Possible fragments: \*  $\text{CH}_3^+ = 15$



\* Fragments depend on energetics. In  $e^-$  gun, strongest bonds won't be broken. Weaker bonds will more likely form fragment.

\* Fragments can rearrange to form stable fragments.



\*  $3^\circ$  carbocations are more stable.

\*  $3^\circ > 2^\circ > 1^\circ$