

COMMON NAMES

1. ALKANES

Methane : CH_4

Hexane : C_6H_{14}

Ethane : C_2H_6

Heptane : C_7H_{16}

~~Butane~~ Propane : C_3H_8

Octane : C_8H_{18}

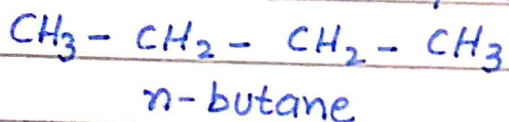
Butane : C_4H_{10}

Nonane : C_9H_{20}

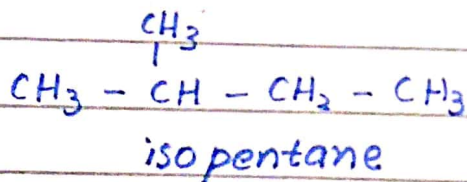
Pentane : C_5H_{12}

Decane : $\text{C}_{10}\text{H}_{22}$

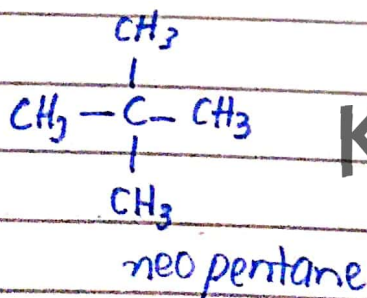
* For continuous chain prefix n- is used e.g



* iso : When a methyl group ($-\text{CH}_3$) is attached to second last carbon of continuous chain e.g



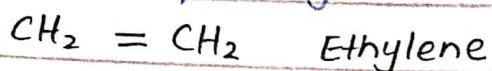
* neo : when two methyl groups attached to second last carbon of continuous chain e.g



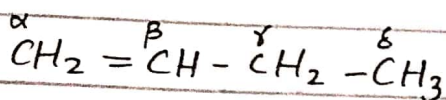
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2. ALKENES

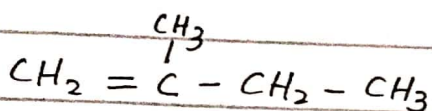
→ Replacing corresponding alkanes by 'ylene'



→ Greek letters α , β , γ etc are used to distinguish isomers having double bond at different positions



α -Butylene

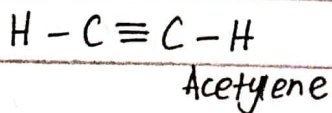


β -methyl- α -butylene

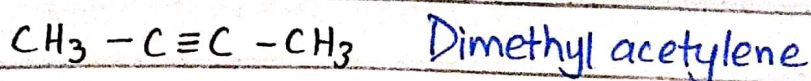
3. ALKYNES

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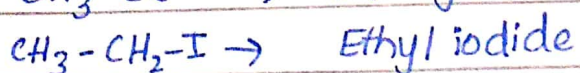
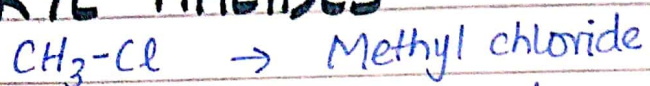
→ First member is named as Acetylene



→ Higher alkynes are regarded as alkyl derivatives of acetylene e.g



4. ALKYL HALIDES



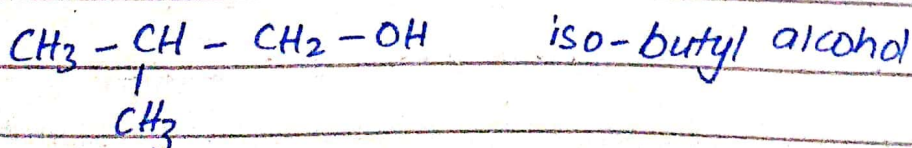
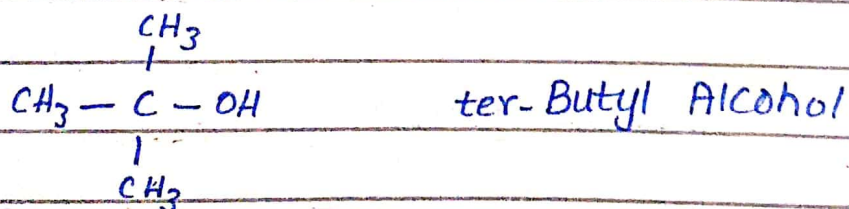
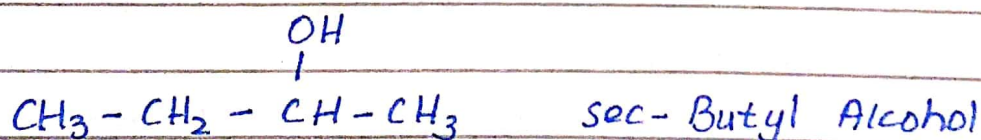
5. ALCOHOL

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As Alkyl Alcohols

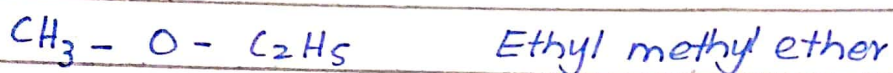
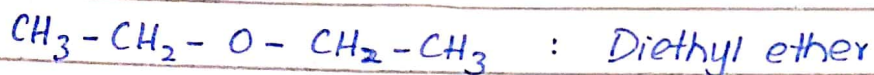


* For higher members, it becomes necessary to indicate primary (pri), secondary (sec.) and tertiary (ter) eg

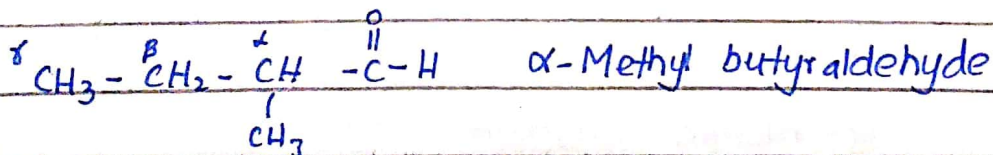
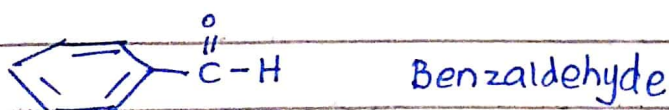
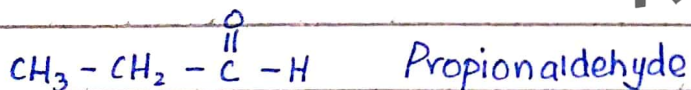
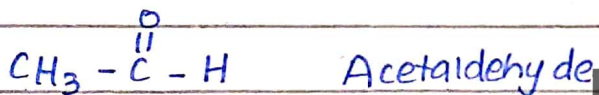
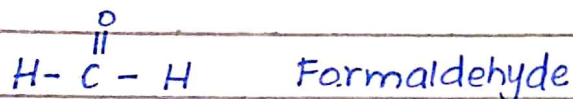


6. ETHERS

The two alkyl or aryl groups that are attached to the oxygen atom are named in alphabetical order and word ether is added.



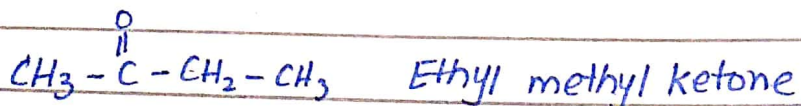
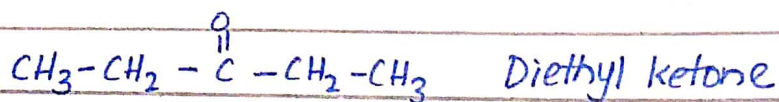
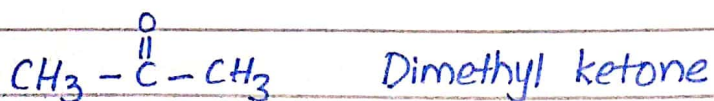
7. ALDEHYDES



The Greek lettering starts from carbon atom adjacent to formyl group

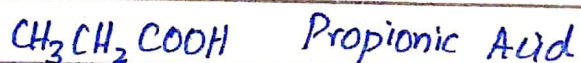
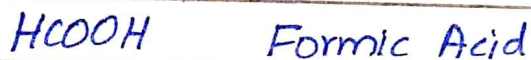
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8. KETONE

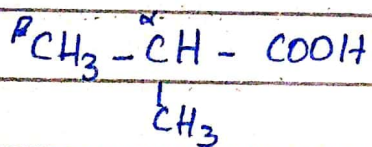
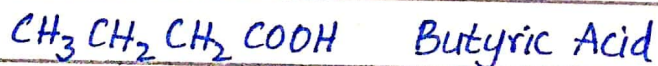


If two alkyl groups attached to carbonyl carbon are the same the ketone is called symmetrical and if different, it is called unsymmetrical ketone.

9. CARBOXYLIC ACIDS



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α -Methyl propionic acid
(iso-Butyric Acid)

IUPAC NAMING

1. Alcohols -ol
2. Phenol phenol
3. Ethers Alkoxyethane
4. Aldehydes -al
5. Ketones -one
6. Carboxylic Acids -oic acid
7. Esters -ate
8. Alkyl Halides haloalkanes
9. Amines Aminoalkane

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The steps of naming an organic compound are:

1. Identification of the parent hydrocarbon chain. This chain must obey the following rules, in order of precedence:

* It should have maximum length

2. Identification of the parent functional group, if any, with the highest order of precedence 1-e

cations e.g. NH_4^+

Carboxylic Acids

Carboxylic Acid Derivatives

→ Esters

→ Acyl halides

→ Amides

Nitriles

Aldehydes

Ketones

Alcohols

Amines

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3. Identification of side chains.

4. Identification of remaining functional groups, if any, and naming them by their ionic prefixes (such as hydroxy for $-\text{OH}$, oxy for $=\text{O}$, oxyalkane for O-R etc). Different side chains and functional groups will be grouped together in alphabetical order. (The prefixes di-, tri etc are not taken into consideration for grouping alphabetically e.g. ethyl comes before dihydroxy or dimethyl)

5. Identification of double / triple bonds.

6. Numbering of the chain. This is done by first numbering the chain in both directions (left to right and right to left) and then choosing the numbering which follows these rules, in order of precedence

a. Has the lowest-numbered locant for the suffix functional group. Locants are the numbers on the carbons to which the substituent is directly attached.

b. Has the lowest-number locants for multiple bond

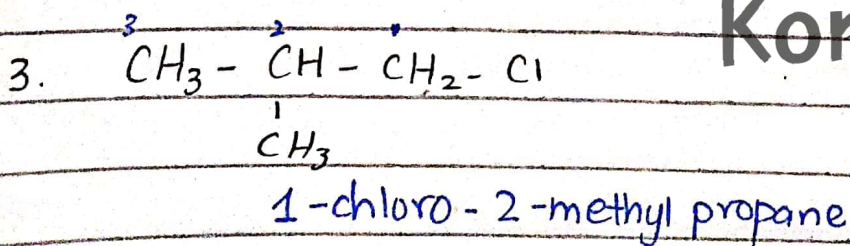
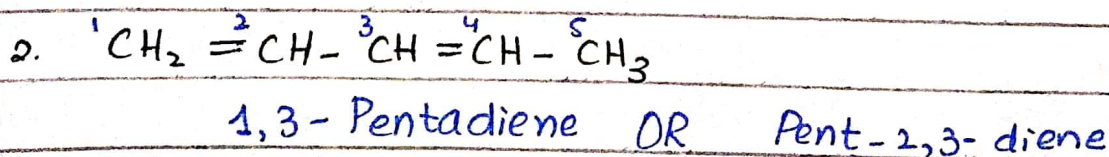
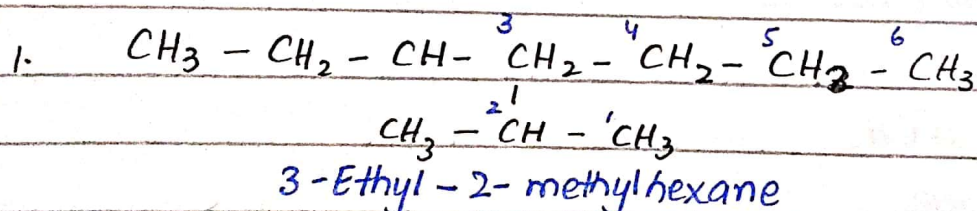
c. Has lowest-numbered locants for prefixes

* Commas are put between numbers.

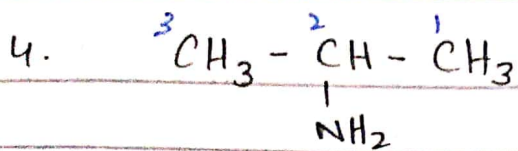
* Hyphens are put between a number and a letter

* Successive words are merged into one word.

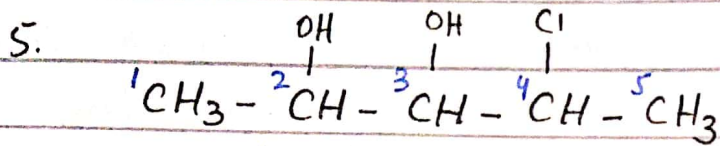
IUPAC uses one-word names throughout. This is why all parts are connected.



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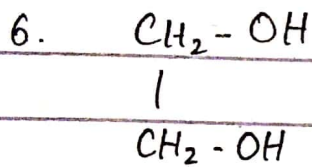


2-Aminopropane



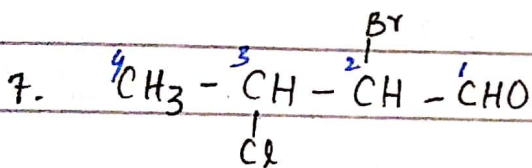
4-chloropenta-2,3-diol OR

4-chloro-2,3-pentadiol

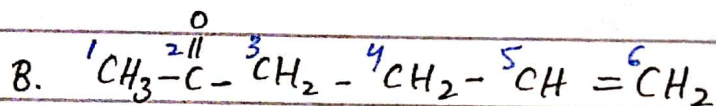


Ethane-1,2-diol

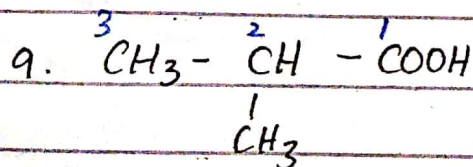
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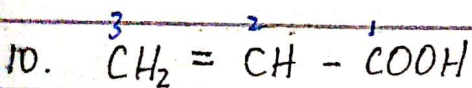
2-Bromo-3-chlorobutanal



5-Hexene-2-one



2-Methylpropanoic acid



2-Propenoic acid