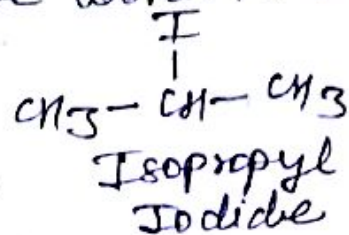
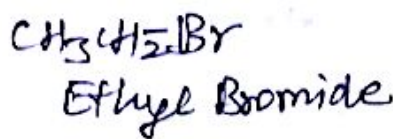
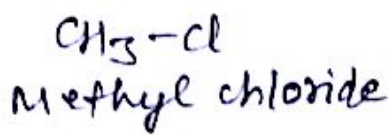


# IUPAC Rules for Naming Alkyl Halides

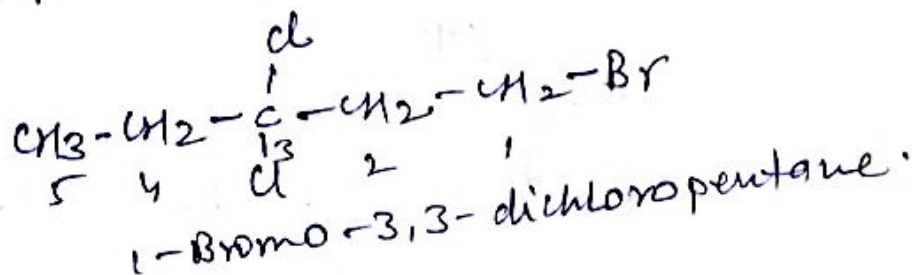
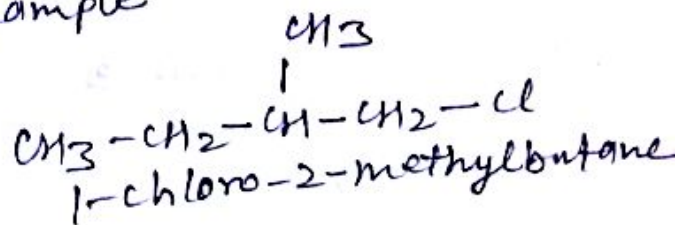
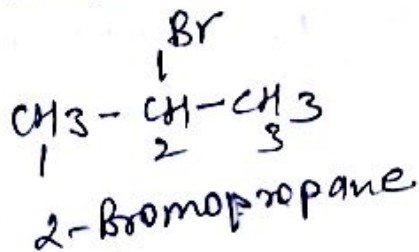
- Alkyl halides are compounds which contain carbon-halogen (C-X) bonds. They are classified as primary ( $1^\circ$ ), secondary ( $2^\circ$ ) or tertiary ( $3^\circ$ ) depending upon whether the halogen atom is bonded to a primary, secondary or tertiary carbon atom.

- The common names of alkyl halides are obtained by naming the alkyl group attached to the halogen and adding the name of the halide as a separate word. For example



## IUPAC Rules :-

- (1) Select the longest chain to which the halogen is attached and give it the name of the corresponding alkane.
- (2) Prefix the name of the alkane by chloro, bromo, iodo or fluoro.
- (3) Number the chain - In this carbon carrying halogen atom will ~~be~~ have lowest <sup>possible</sup> number.
- (4) Other substituents are numbered, named and placed as prefixes in alphabetic order. For two or more identical halogens substituents, the prefixes di, tri, tetra- etc. are used. For example

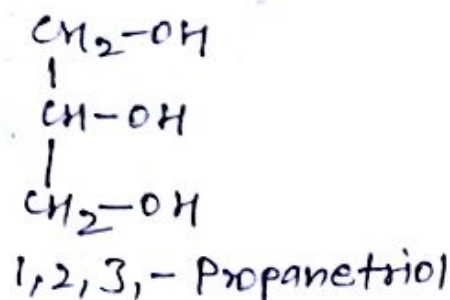
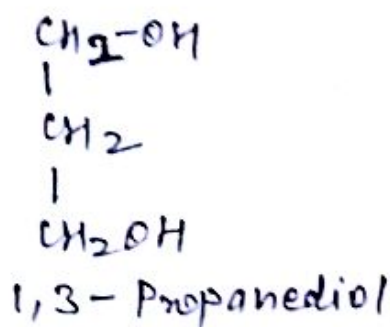






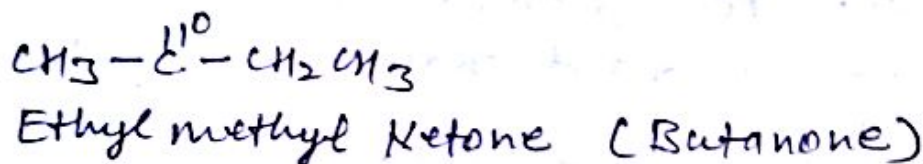
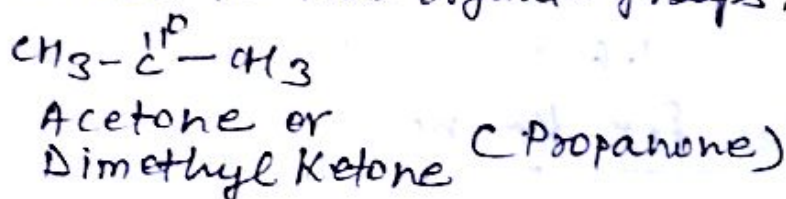


(6) Alcohols containing two or three -OH groups are named as Alkanediols and Alkanetriols respectively.



## IUPAC Rules For Naming Aldehydes and Ketones

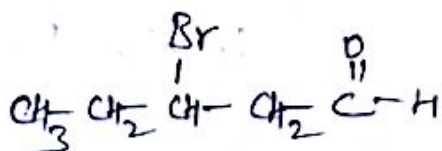
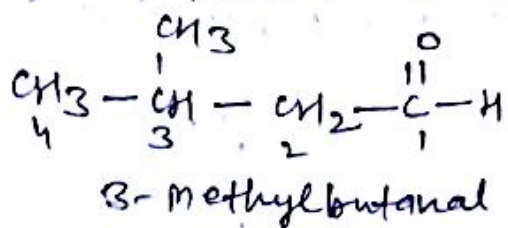
- Aldehydes are compounds in which the carbonyl group (C=O) is bonded to an organic group and hydrogen (or two hydrogens). Such as  $\text{H}-\overset{\text{O}}{\underset{\text{||}}{\text{C}}}-\text{H}$  (Formaldehyde),  $\text{CH}_3-\overset{\text{O}}{\underset{\text{||}}{\text{C}}}-\text{H}$  (Acetaldehyde)
- Ketones are compounds in which the carbonyl group (C=O) is bonded to two organic groups. Such as



## IUPAC Rules For Aldehydes

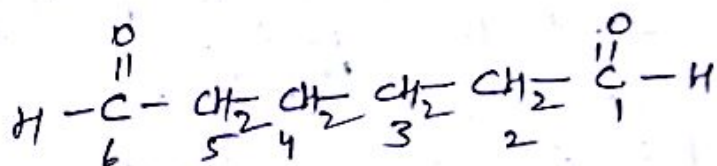
- (1) In the IUPAC system, aldehydes are named as alkanals
- (2) Select the longest chain containing the aldehyde group.
- (3) Name the longest chain - The name is obtained by Alkane - e + al = Alkanal
- (4) Number the chain - by assigning the number 1 to the aldehyde carbon. The number 1 is not used to indicate the position of the carbonyl carbon, since it is always located at the end of the chain.

(5) other substituents are numbered, named and placed as prefixes in alphabetic order. For example (10)



3-Bromopentanal

(6) Where there are two aldehyde groups in a molecule, it is named as Alkanedial.



1,6-Hexanedial

## IUPAC Rules for Ketones

(1) In the IUPAC system, ketones are named as Alkanones.

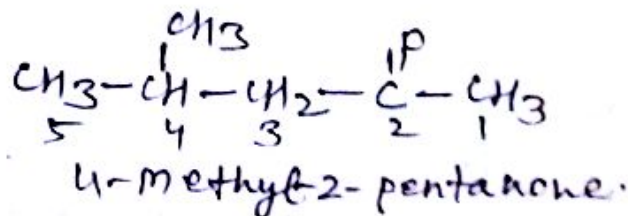
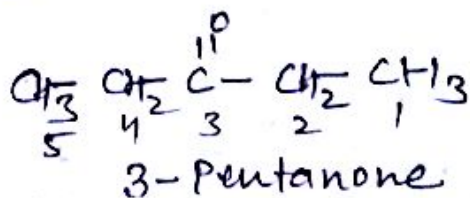
(2) Select the longest chain containing the carbonyl carbon atom.

(3) Name the longest chain — the name is obtained by

Alkane - e + one = Alkanone

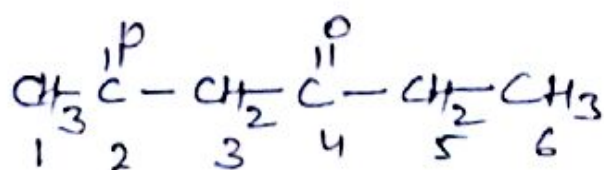
(4) Number the chain to give the lowest number to the carbonyl carbon

(5) other substituents are numbered, named and placed as prefixes in alphabetic order. For Example,





(6) When there are two carbonyl groups in a molecule, it is named as Alkanedione.



2,4-Hexanedione

## Rules for common naming of Aldehydes and Ketones

Aldehydes - The common names <sup>of Aldehydes</sup> are related to those of Carboxylic acids.

<u>Formula</u>	<u>Common Name</u>	<u>IUPAC Name</u>
$\text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$	Formaldehyde	Methanal
$\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$	Acetaldehyde	Ethanal
$\text{CH}_3\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$	Propionaldehyde	Propanal
$\text{CH}_3\text{CH}_2\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$	Butyraldehyde	Butanal

Ketones - The common names of ketones are obtained by naming the alkyl groups attached to the carbonyl group and adding the word Ketone.

<u>Formula</u>	<u>Common Name</u>	<u>IUPAC Name</u>
$\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$	Dimethyl ketone (Acetone)	Propanone
$\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2\text{CH}_3$	Ethyl methyl ketone	Butanone