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**CHEMISTRY**

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CLASS 11 & 12th



Learning Inquiry  
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CLASS 11th

# IUPAC Nomenclature

misostudy



## 01. Format for IUPAC Name

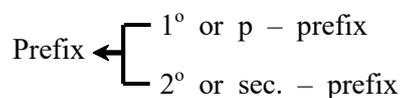
$2^\circ$ - prefix	$1^\circ$ - prefix	word root +	$1^\circ$ - suffix	+ $2^\circ$ - suffix
Substituents with locants	Cyclo	Alk word according to carbon in parent C chain	- ane - ene - yne - diene - triene - diyne	According to main functional group given in priority table

## (i) Locant :

- Locants are separated by (,) comma.
- Locants and alphabates are separated by hyphen (-). [2, 3 - dimethyl pentane]
- cis, trans, sec., tert and meso are separated by hyphen (-) [cis-2-butene]
- di, tri, iso, neo and cyclo are neither separated by comma nor by hyphen

## (ii) Prefix :- According to substituents

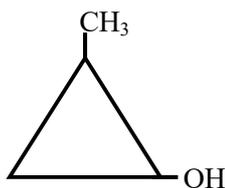
Prefix (es) are written in alphabetical order before root word.



Cyclo is  $1^\circ$  prefix and used for cyclic compound.

$2^\circ$  prefix is used for substituents and written before  $1^\circ$  prefix.

**For cyclic compounds :**  $2^\circ$  prefix +  $1^\circ$  prefix + Root word +  $1^\circ$  suffix +  $2^\circ$  suffix

*Example*

$2^\circ$  prefix +  $1^\circ$  prefix + Root word +  $1^\circ$  suffix +  $2^\circ$  suffix  
 2-methyl + cyclo + prop + ane + ol

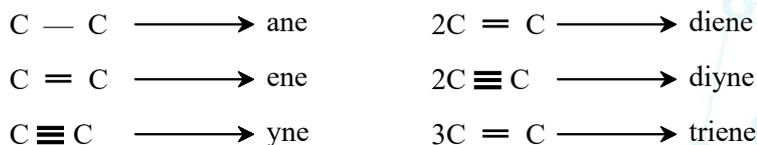
**For acyclic compounds :**  $2^\circ$  prefix + Root word +  $1^\circ$  suffix +  $2^\circ$  suffix.

Substituents	Prefix	Substituents	Prefix
— R	Alkyl group	— OR	Alkoxy
— X (F, Cl, Br, I)	Halo		Nitro
— O — N = O	Nitrite	— N = O	Nitroso
— CH <sub>2</sub> OH	Hydroxy methyl	— CH <sub>2</sub> Cl	Chloro methyl
— NHC <sub>2</sub> H <sub>5</sub>	Ethyl amino		

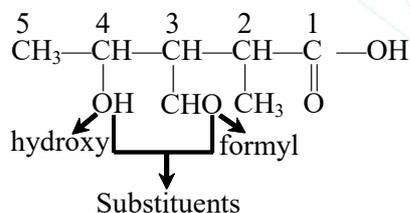
(iii) **Root word** : According to number of carbons in parent C-chain.

Number of carbons	Root word	Number of carbons	Root word	Number of carbons	Root word
1	Meth	6	Hex	11	Undec
2	Eth	7	Hept	12	dodec
3	Prop	8	Oct	13	tridec
4	But	9	Non	20	Eicos
5	Pent	10	Dec		

(iv) **Primary suffix** : According to saturation and unsaturation.



(v) **Suffix** : According to senior most of F. G.



3-formyl-4-hydroxy-2-methyl pentanoic acid

## 02. IUPAC Rules

(a) Selection of longest continuous parent carbon chain

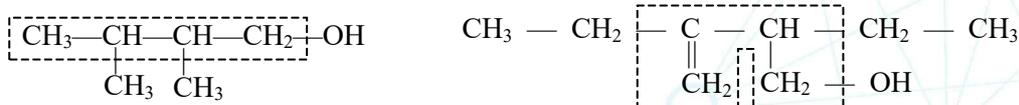
(b) Numbering in selected parent carbon chain.

**Selection of longest continuous parent C – chain :**

**Sub rule (i) :** Selection of longest continuous parent C – chain containing functional group or multiple bond or substituents.

**Priority order :** Functional group > Multiple bond > Substituents

*Example*



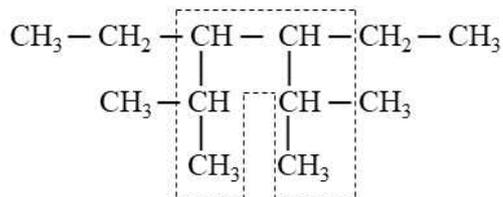
**Sub rule (ii) :** If carbon containing functional group is present then include carbon of that functional group in parent chain.

*Example*



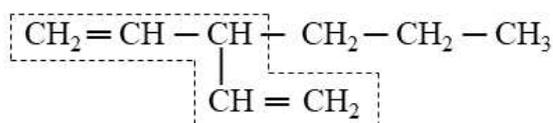
**Sub rule (iii) :** If more than one equal chains of carbon are possible then select one which containing maximum number of substituents.

*Example*



**Sub rule (iv) :** If more than one multiple bonds are present then select one which containing maximum number of multiple bonds.

*Example*

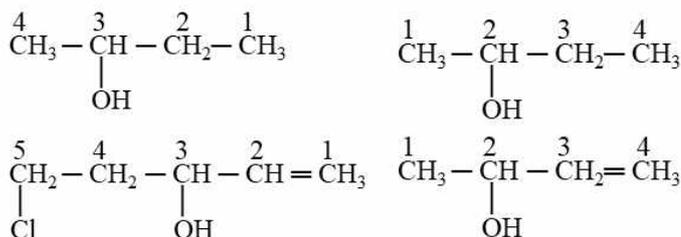


(a) Numbering in selected parent carbon chain :

**Sub rule (i) :** Selected parent carbon chain is numbered from that side from which functional group or multiple bond or substituents gets lowest number.

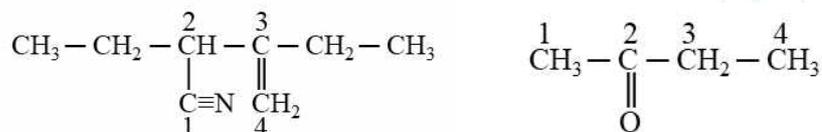
**Priority order :** Functional group > Multiple bond > Substituents

*Example*



**Sub rule (ii) :** If carbon containing functional group is present then give lowest possible number to carbon of that functional group.

*Example*



**Sub rule (iii) :** Only for symmetrical conditions

(a) When only two substituents are present at symmetrical position then follow alphabetical order.