



Complete
CHEMISTRY

IIT-JEE · NEET · CBSE eBOOKS

CLASS 11 & 12th



Learning Inquiry
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CLASS 11th

IUPAC Nomenclature

misostudy



01. Format for IUPAC Name

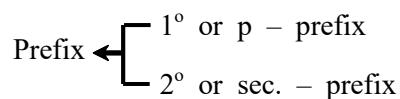
2° - prefix	1° - prefix	word root +	1° - suffix	+ 2° - suffix
Substituents with locants	Cyclo	Alk word according to carbon in parent C chain	- ane - ene - yne - diene - triene - diyne	According to main functional group given in priority table

(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

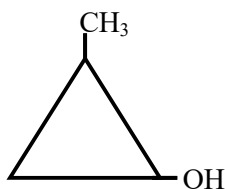
Prefix (es) are written in alphabetical order before root word.



Cyclo is 1° prefix and used for cyclic compound.

2° prefix is used for substituents and written before 1° prefix.

For cyclic compounds : 2° prefix + 1° prefix + Root word + 1° suffix + 2° suffix

Example

2° prefix + 1° prefix + Root word + 1° suffix + 2° suffix
2-methyl + cyclo + prop + ane + ol

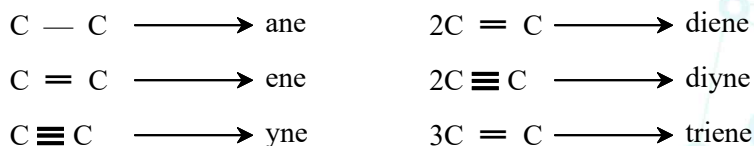
For acyclic compounds : 2° prefix + Root word + 1° suffix + 2° suffix.

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

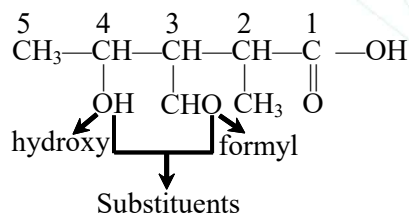
(iii) **Root word** : According to number of carbons in parent C-chain.

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

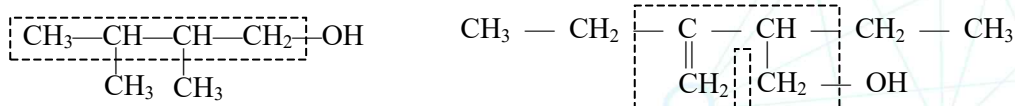
- (a) Selection of longest continuous parent carbon chain
 (b) Numbering in selected parent carbon chain.

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



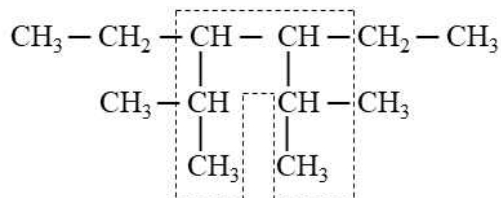
Sub rule (ii) : If carbon containing functional group is present then include carbon of that functional group in parent chain.

Example



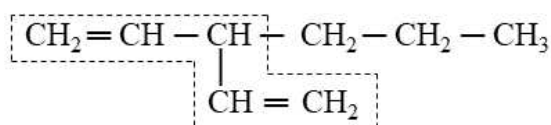
Sub rule (iii) : If more than one equal chains of carbon are possible then select one which containing maximum number of substituents.

Example



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

Example

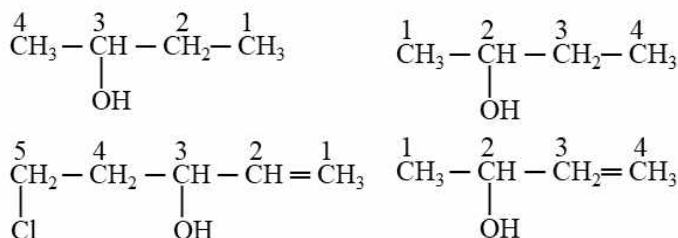


(a) Numbering in selected parent carbon chain :

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

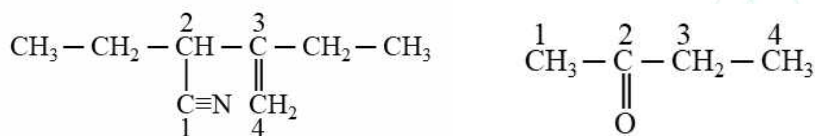
Priority order : Functional group > Multiple bond > Substituents

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.