

Isomerism and its types

[DEPTH OF BIOLOGY]

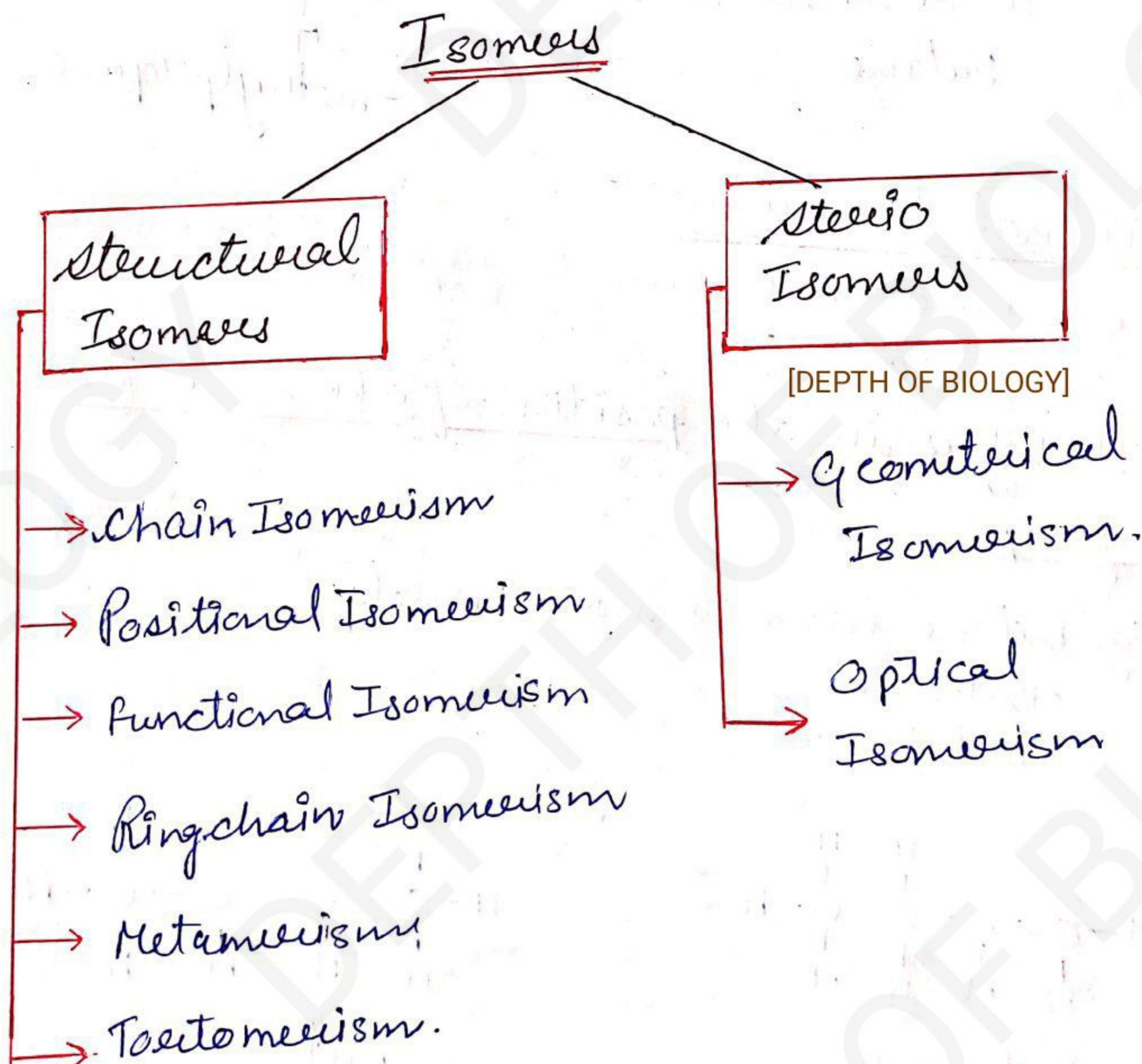
The organic comp. having same M.F. but different structural formula are known as Isomers.

This phenomena is known as Isomerism.

In other words if the organic compound having same molecular formula but different arrangement of carbon atoms are known as Isomer

Classification of Isomerism

[DEPTH OF BIOLOGY]



① Chain Isomerism

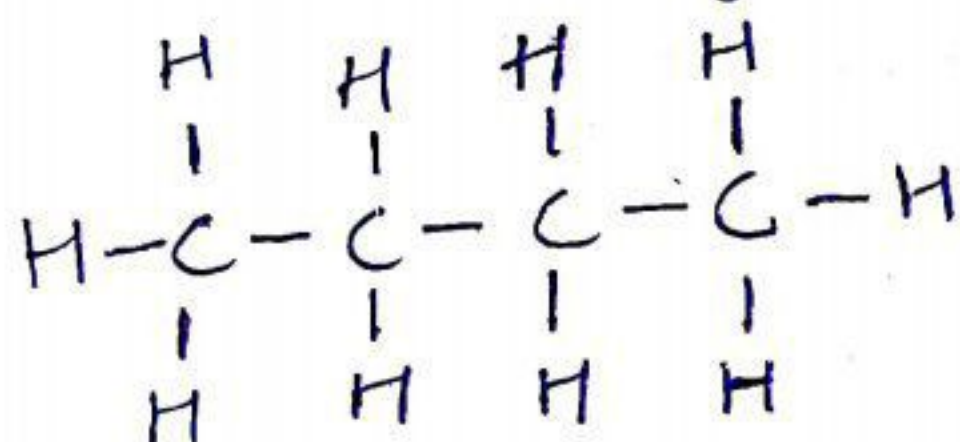
* same molecular formula represent 2 or more compounds. [DEPTH OF BIOLOGY]

- It differs in the nature of carbon chain.
(straight or branched)

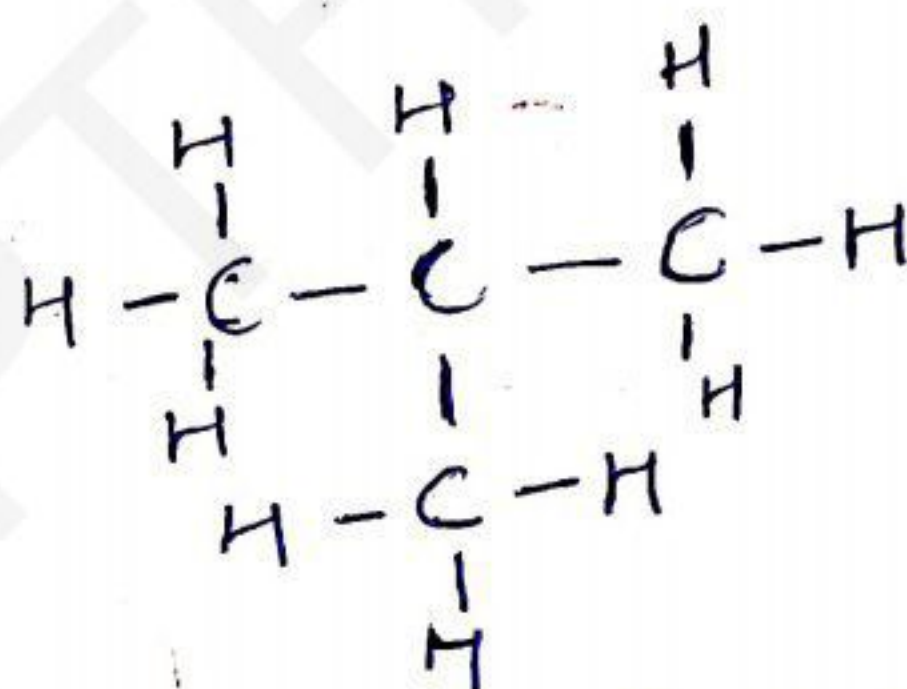
Eg: C_4H_{10} (Butane) has 2 chain isomers namely

- Butane

- 2-methylpropane.



Butane



2-methylpropane

② Positional Isomerism

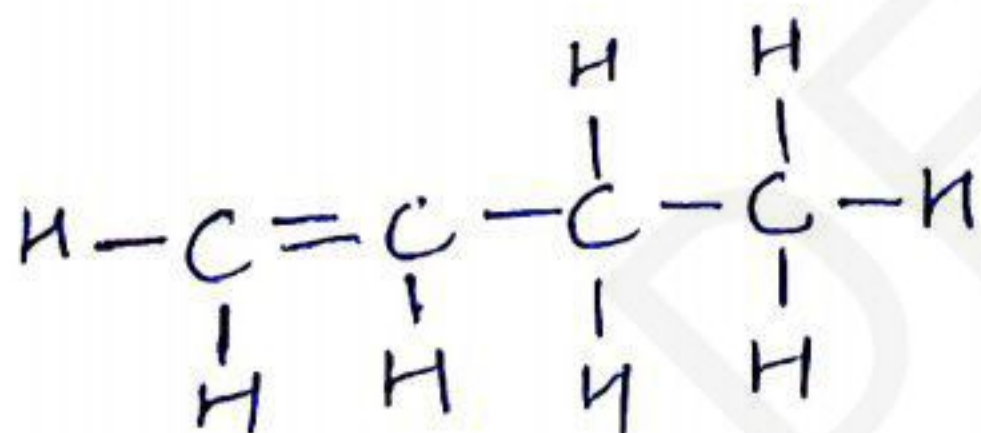
* same molecular formula represent 2 or more compounds. [DEPTH OF BIOLOGY]

- It differs in the position of the same functional group. [DEPTH OF BIOLOGY]

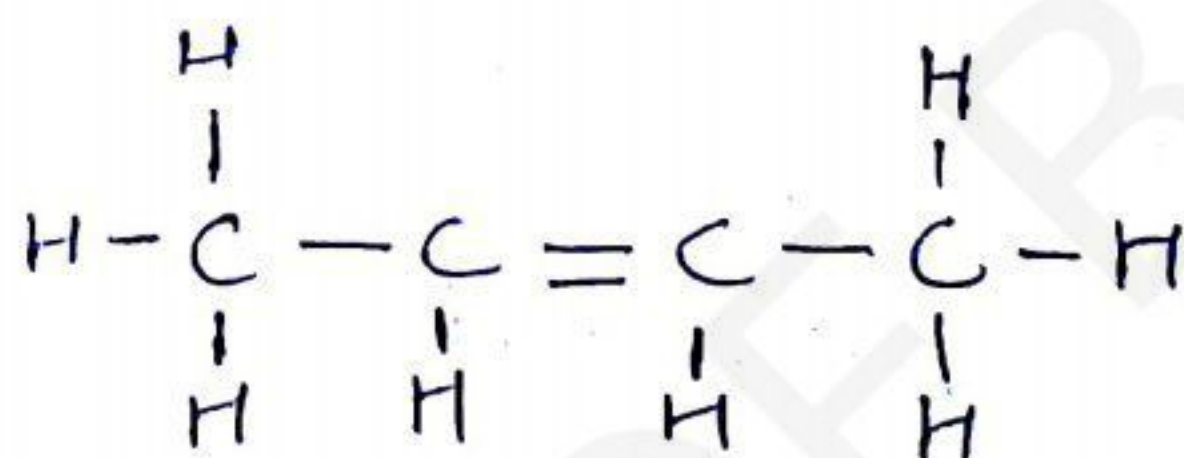
Eg: Butene has 2 isomers namely

- But-1-ene

- But-2-ene



But-1-ene



But-2-ene

[DEPTH OF BIOLOGY]

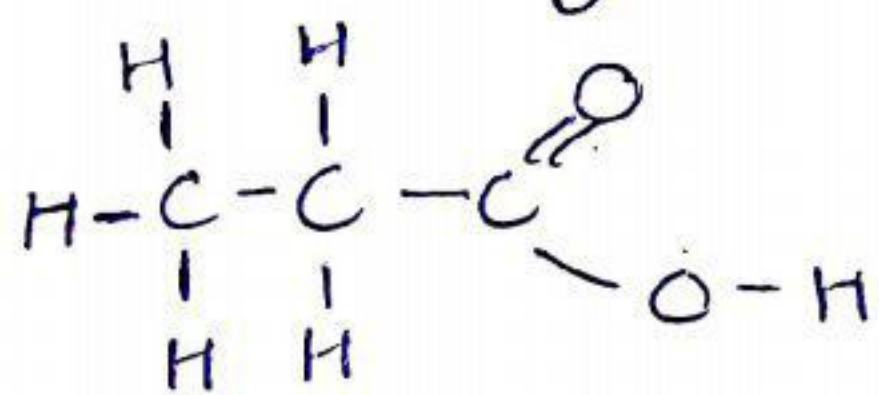
③ Functional Isomerism

* same molecular formula represent two or more compound.

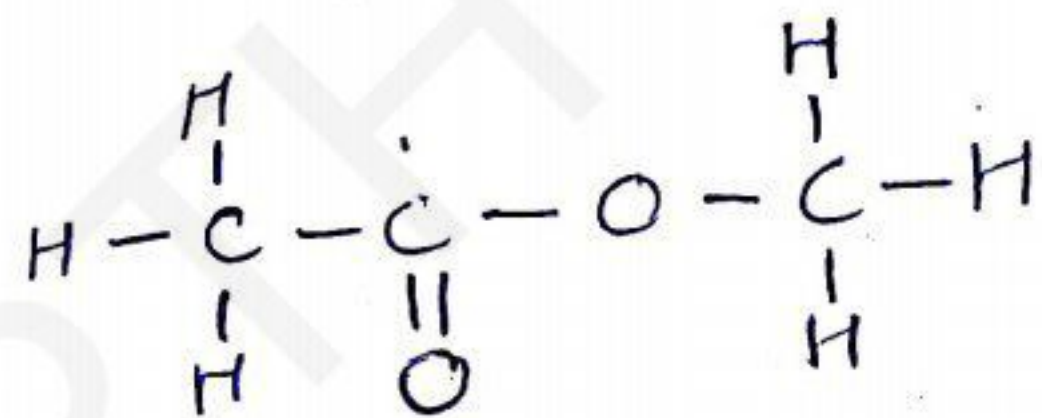
• It differs in the nature of functional group.

Eg:- $C_3H_6O_2$ has two Isomers namely

- propanoic acid [DEPTH OF BIOLOGY]
- methyl ethanoate



Propanoic acid



Methyl ethanoate

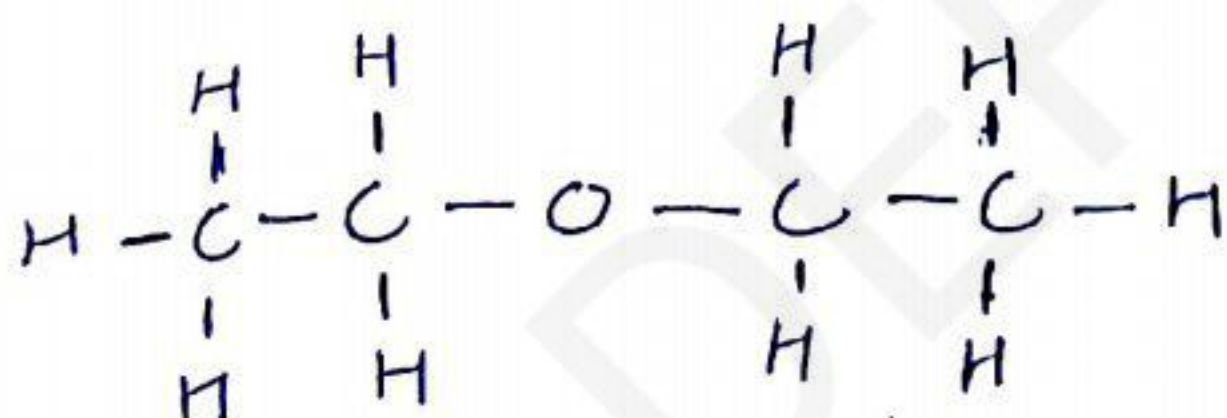
④ Metamerism Isomerism [DEPTH OF BIOLOGY]

* same molecular formula represent 2 or more compounds.

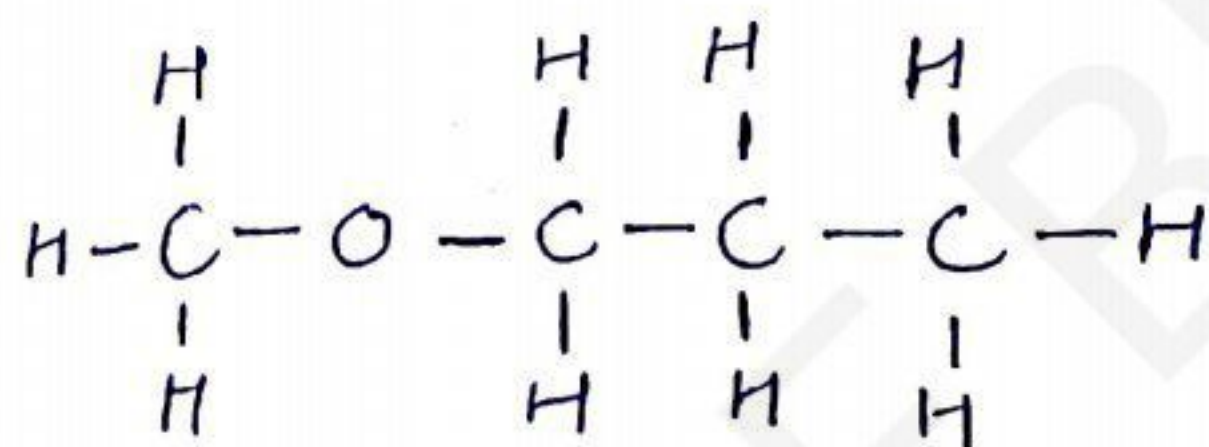
• It differs in the nature of the alkyl groups attached to the same functional group. [DEPTH OF BIOLOGY]

Eg:- Metamerism isomers are

- Diethylether
- Methylpropyl ether.



Diethylether



Methylpropyl ether.

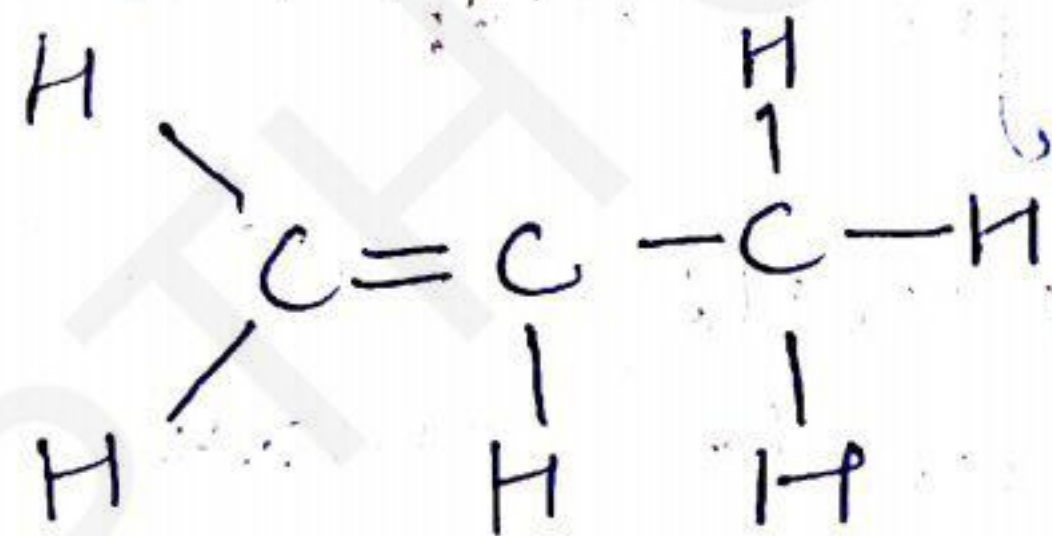
⑤ Ring chain Isomerism

* same molecular formula represents 2 or more compounds. [DEPTH OF BIOLOGY]

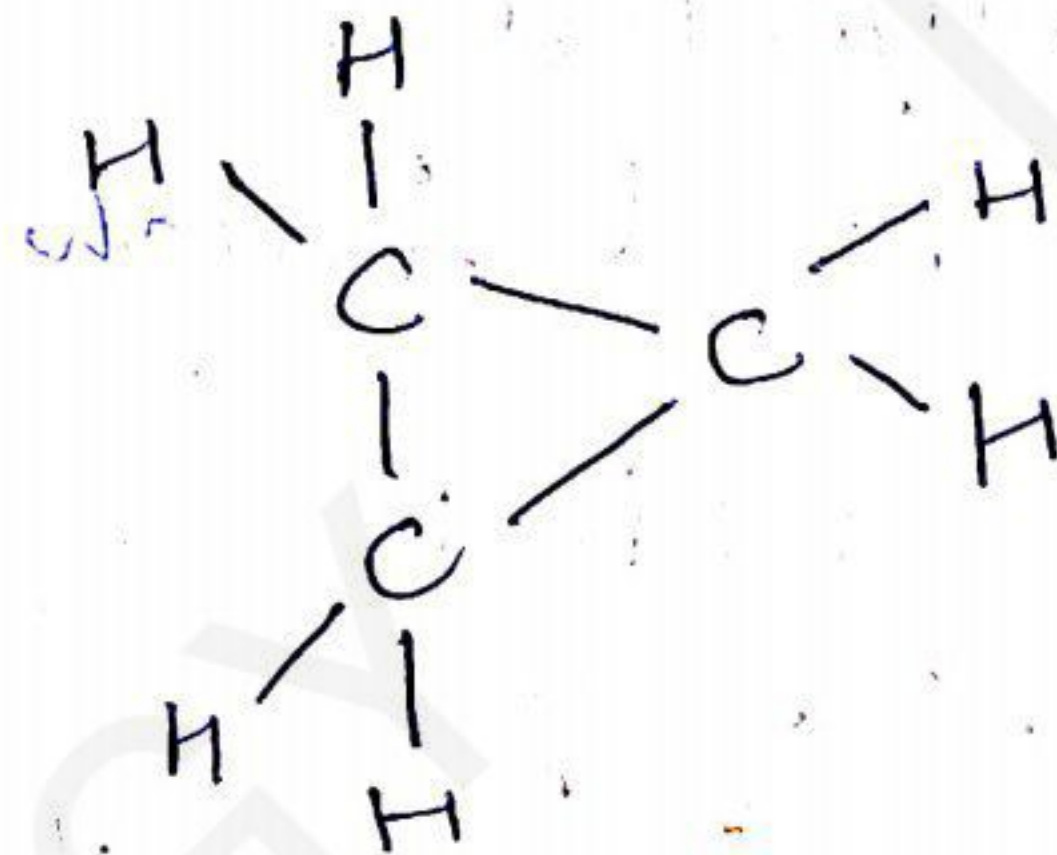
- It differs in the mode of linkage of carbon atoms.
- The isomers have either open chain or closed chain

Eg: Ring chain isomers are namely

- Propene [DEPTH OF BIOLOGY]
- Cyclopropene



Propene



cyclopropene