

# **BP202T. PHARMACEUTICAL ORGANIC** **CHEMISTRY –I (Theory)**



Prepared by Dr.Rajnandini singha

Assistant Professor

## **Classification, Nomenclature and Isomerism**

Structural isomerisms in organic compounds

### **PART 2**

#### **Structural isomerism in organic compounds**

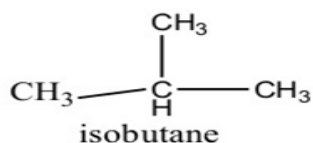
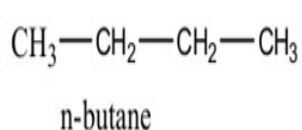
**Structural isomerism** : In structural isomerism, the isomers have the same molecular formula but differ in structural formula i.e. physical and chemical formula.

Types of Structural isomerism

1. **Chain isomerism**- e.g. n-butane and isobutane
2. **Position isomerism**- e.g. 1-bromobutane and 2-bromobutane
3. **Functional isomerism**- e.g. ethyl alcohol and dimethyl ether
4. **Metamerism**-e.g. diethyl ether and propyl ether
5. **tautomerism** – e.g. keto form and enol form

**Structural isomerism**

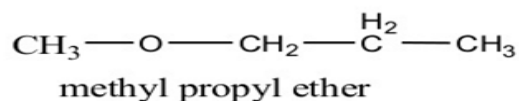
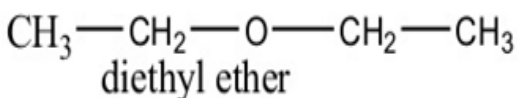
1. **Chain isomerism:** chain isomers have the same molecular formula but differ in the order in which the carbon atoms are bonded to each other.



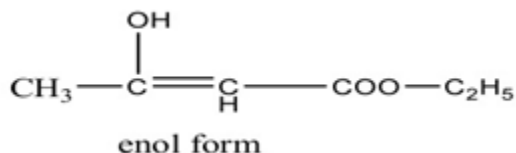
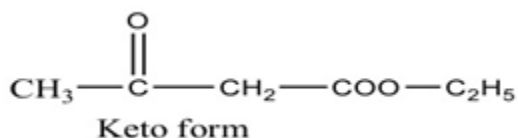
2. **Position isomerism:** Position isomers have same molecular formula but differ in the position of a functional group on the carbon chain.

3. **Functional isomerism:** Functional isomers have the same molecular formula but different functional groups.

4. **Metamerism:** this type of isomerism is due to the unequal distribution of carbon atoms on either side of functional group.



5. **Tautomerism:** It is a special type of functional isomerism in which the isomers are in dynamic equilibrium



### References:

- A textbook of organic chemistry, 22<sup>nd</sup> edition, Arun bahl, B S Bahl, S. Chand publishing. Pg no; 150-179, 121-149.
- Organic chemistry; 7<sup>th</sup> edition; Robert Thornton Morrison, S.K. Bhattacharjee, Pearson, Pg no: 5, 6, 8

- Organic chemistry; 5<sup>th</sup> edition; volume 2 stereochemistry and the chemistry of natural products ; I.L. Finar, Pearson, Pg no: 83