

ORGANIC CHEMISTRY

BASIC NOTES

Lesson 12
ORGANIC CHEMISTRY
Some Basic Principles And Techniques

Tetravalency:-
 $\text{val. of C} = 2, 4$
Valency = number of unpaired electron.

Ground state
 $1s^2 2s^2 2p^2$
 $\begin{array}{|c|c|c|} \hline \uparrow\downarrow & \uparrow\downarrow & \uparrow\downarrow \\ \hline \end{array}$

Excited state
 $1s^1 2s^1 2p^2$
 $\begin{array}{|c|c|c|} \hline \uparrow & \uparrow & \uparrow\downarrow \\ \hline \end{array}$

Define
1. Catenation
2. Isomerism
3. Tetravalency

Open chain - When the carbon atoms are attached to each other in straight or branched form.
Ex: Ethane, Butane
 $\text{H}-\text{C}-\text{C}-\text{H}$
 $\text{H} \quad \text{H}$

Closed chain - When the carbon are arranged in the ring form or cyclic form called closed chain.
Ex: Alkylcyclic, Aromatic
 $\text{H}-\text{C}-\text{C}-\text{C}-\text{H}$
 $\text{H} \quad \text{H} \quad \text{H}$

Homocyclic - When only carbon atoms are arranged in the ring.
Ex: Naphthalene
Benzene - C_6H_6

Aromatic - When carbon atoms are linked with one or more double bond.
Ex: Naphthalene
Benzene - C_6H_6

1. Catenation - The property of atoms of an element to link with one another by stable covalent bonds to form straight chains, branched chains or rings is called catenation.

2. Isomerism - When two or more compounds having the same molecular formula possess either different chemical structures or different arrangement of atoms in space, the phenomenon is known as isomerism and such compounds are referred to as isomers.

3. Tetravalency -

4. Carbon forms 4 covalent bonds which are directed towards 4 corners of a tetrahedron. It is a bond angle $\text{H}-\text{C}-\text{H}$ is $109^\circ 28'$.

Classification of Organic Compound

Open chain (Acyclic)
Example - Methane

Closed chain (Cyclic)
Homocyclic
Heterocyclic