

SOME BASIC PRINCIPLES AND

1.

Lecture-4 TECHNIQUES 10/12/2020

CHEMISTRY, CLASS-XI, UNIT-12

Session 2020-22

STRUCTURE REPRESENTATIONS OF ORGANIC COMPOUNDS

* Complete, Condensed and Bond Line

Structural Formulas :-

* Structure of organic compounds are represented by several ways.

1. Lewis structure or dot structure

2. Dash structure

3. Condensed structure

4. Bond line structural formulas

* Lewis structures can be simplified by representing a single bond by single dash (—).

a double bond by double dash (=).

a triple bond by triple dash (\equiv).

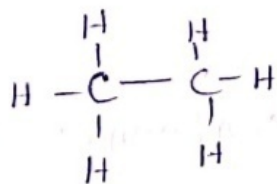
By-Dr.Rinky

* Lone pairs of electrons on heteroatoms (e.g. O, N, S, X (halogen), etc.) may or may not be shown.

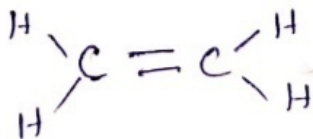
* Such structural representations are called complete structural formulas.

e.g. C_2H_6 (ethane)

Complete Formula



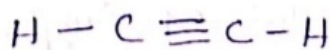
C_2H_4 (ethene)



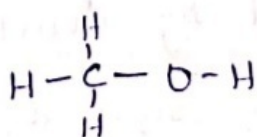
Complete Formula

Complete Formula

C_2H_2 (ethyne)



CH_3OH (methanol)



3.

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* These structural formula can be abbreviated by omitting some or all of the dashes representing covalent bonds and by indicating the number of identical groups attached to an atom by a subscript.

* The resulting expression of the compound is called a condensed structural formula.

* Thus ethane, ethene, ethyne and methanol can be written as :-



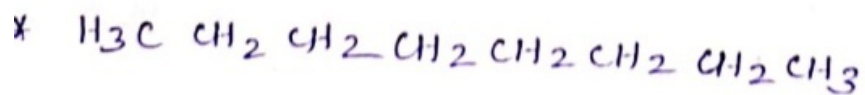
Ethane

Ethene



Ethyne

Methanol



can be further condensed to $\text{H}_3\text{C}(\text{CH}_2)_6\text{CH}_3$

To be continued in next lecture..