

GENERAL CONCEPTS OF ^{1.} HYBRIDISATION

DEG-I (SUB.) ,LECTURE-6 ,10/12/2020

CHAPTER-1 , GROUP-C

INDUCTIVE EFFECT

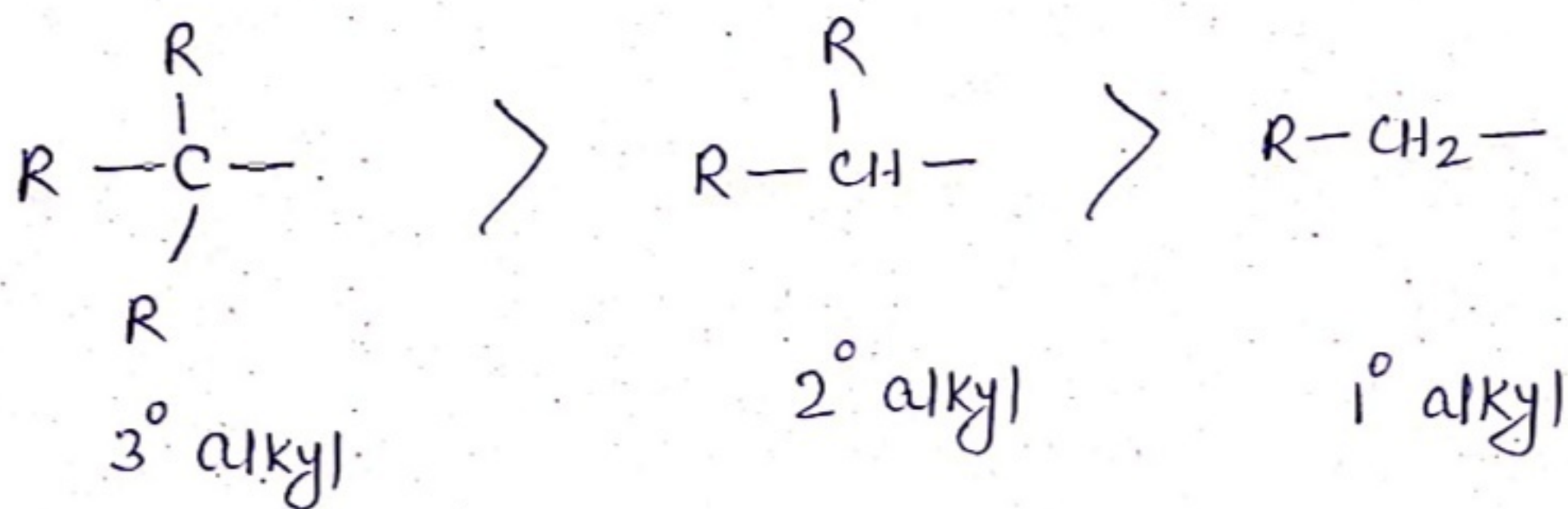
Session 2020-23

- * It involves σ -electron.
- * Since, different atom have different electronegativity value (ie; different power of attracting the electron in the bond), the σ -electron which forms a co-valent bond are rarely shared equally between the two atoms.
- * The electron are displaced towards the more electronegative atom.
- * Due to this displacement of electron certain degree of polarity is introduced in the bond.
- * More electronegative atom acquires a partial negative (δ^-) charge and the less electronegative atom acquires a partial positive (δ^+) charge.

example;

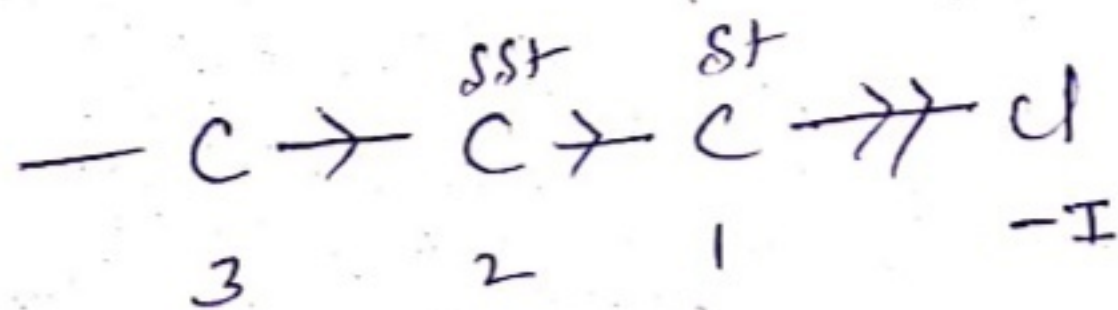


- * The Inductive effect refers to the polarity produced in a molecule as a result of higher electronegativity of one atom compared to another.
- * It is also denoted as I-effect.
- * The carbon-hydrogen bond is used as a standard zero effect is assumed in this case.
- * Atoms or groups which lose electrons towards a carbon atom are said to have a +I effect.
- * Such groups are known as electron-releasing.
- * Those atoms or groups which draw electron away from a carbon atom are said to have a -I effect.
- * Such groups are known as -I effect.
- * Tertiary alkyl group exert greater +I effect than secondary which in turn exert a greater effect than primary.



* An inductive effect is not confined to the polarization of one bond.

* It is transmitted along a chain of carbon atoms, although it tends to be insignificant beyond the second carbon.



* So, this effect is a distance bound effect.

* The Inductive effect results in a permanent state of the molecule i.e.; it is a permanent effect because it arises due to electronegativity differences.

Inductive Effect Completed