

GENERAL CONCEPTS OF 1.

LECTURE-7 HYBRIDISATION 11/12/2020

DEG-I(SUB.), CHAPTER-1, GROUP-C

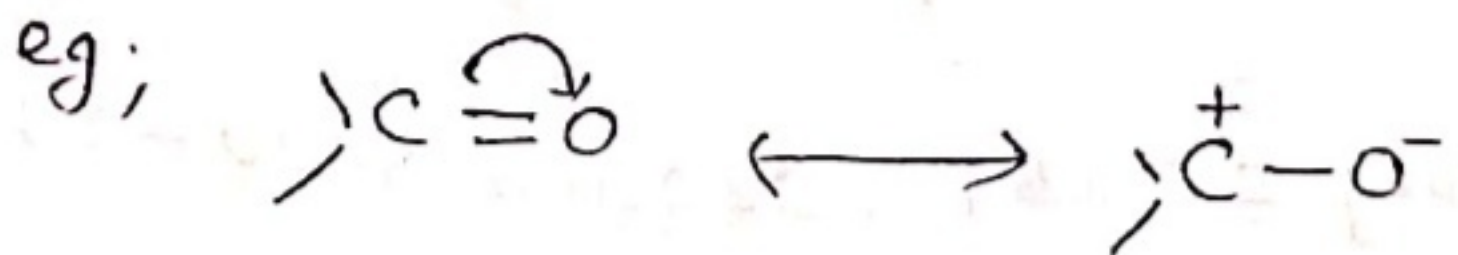
SESSION 2020-23

MESOMERIC EFFECTS

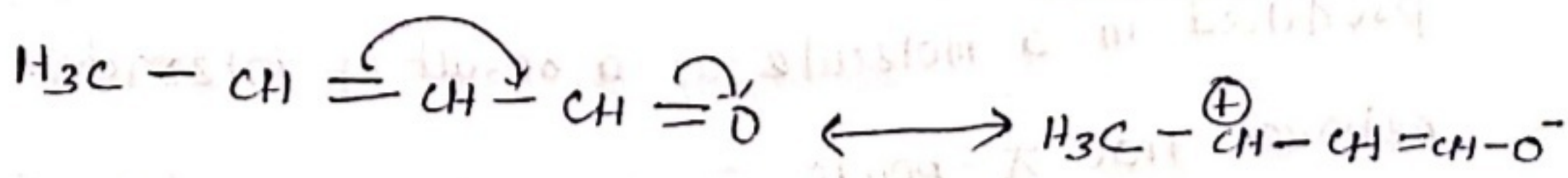
or, Resonance Effects

- * It involves π electrons of double and triple bonds.
- * The mesomeric effect (m-effect) refers to the polarity produced in a molecule as a result of interaction between two π -bonds or a π -bonds and lone pairs of electrons.
- * The effect is transmitted along a chain in a similar way as are in inductive effects.
- * The mesomeric effect takes place in conjugated compound (i.e.; double bond and single bond in alternate position or double bond and lone pair in alternate position).
- * In such system the π -electrons get delocalised as a consequence of mesomeric effect, giving a number

of resonance structure of the molecules.

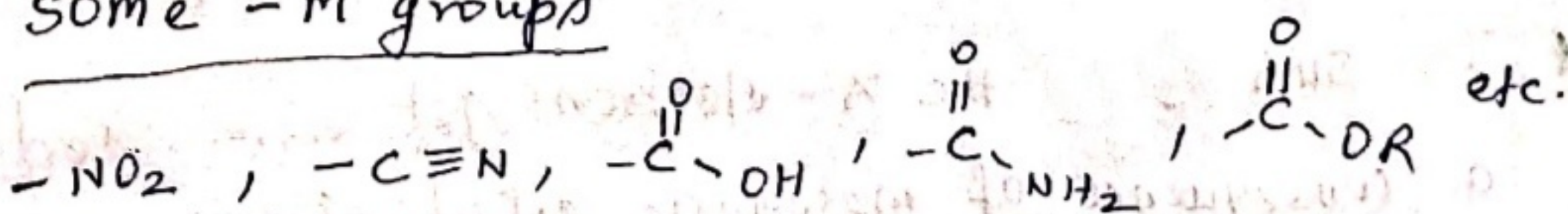


- * The mesomeric effect is represented by a curved arrow.
- * The head of arrow indicates the movement of a pair of π -electrons.
- * If a carbonyl group is conjugated with a carbon-carbon double bond, the above polarisation will be transmitted further via the π -electrons.



- * This effect also may be +ve or negative.
- * Atoms which lose electrons towards a carbon atom are said to have a +m-effect.
- * Those atoms or groups which draw electrons away from a carbon atom are said to have a -m-effect.

* Some -m groups



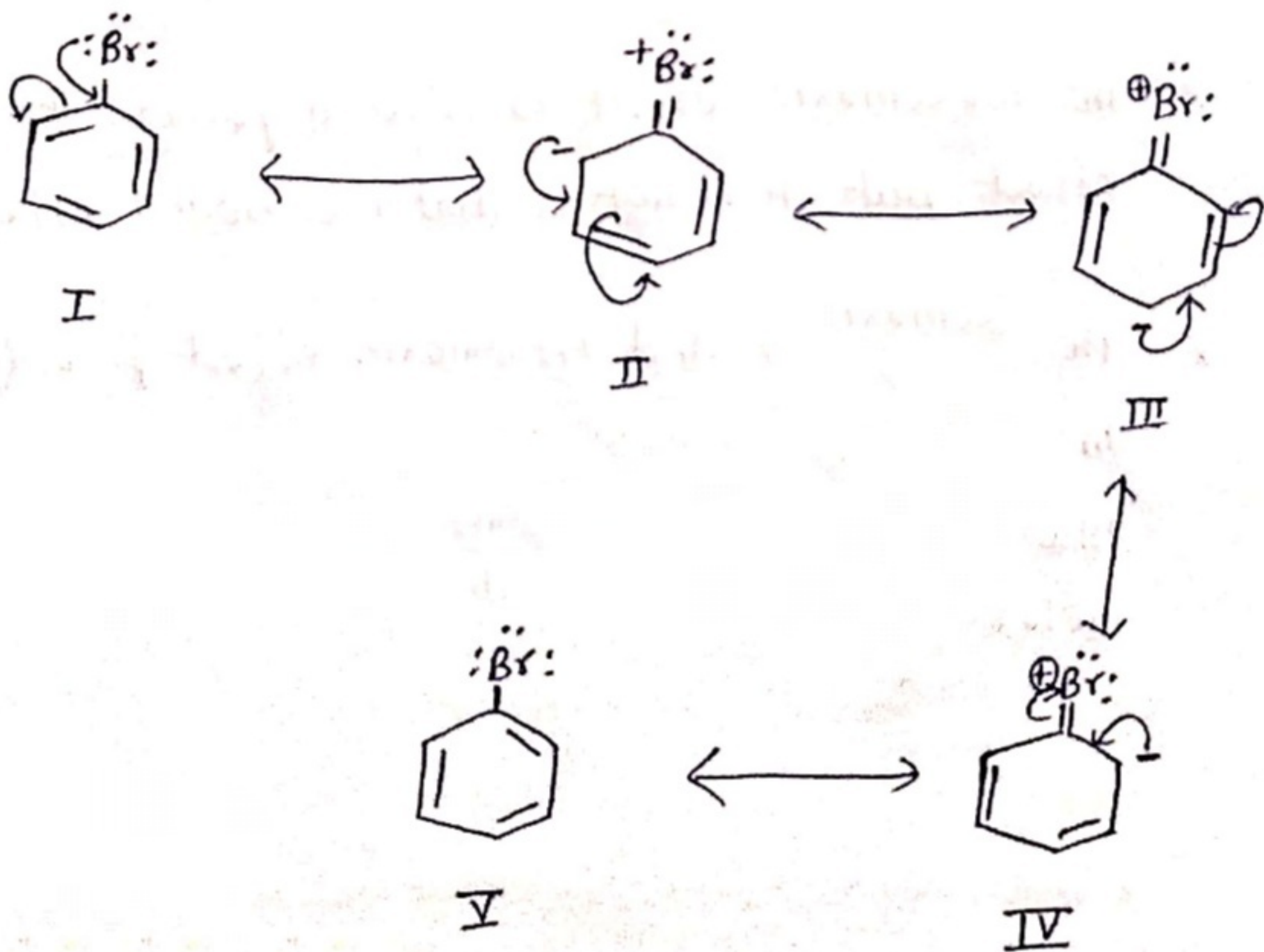
Some +M groups:

3.

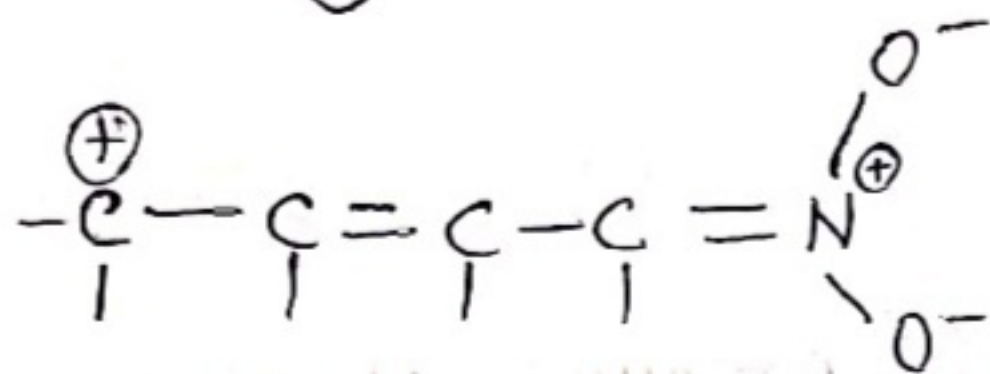
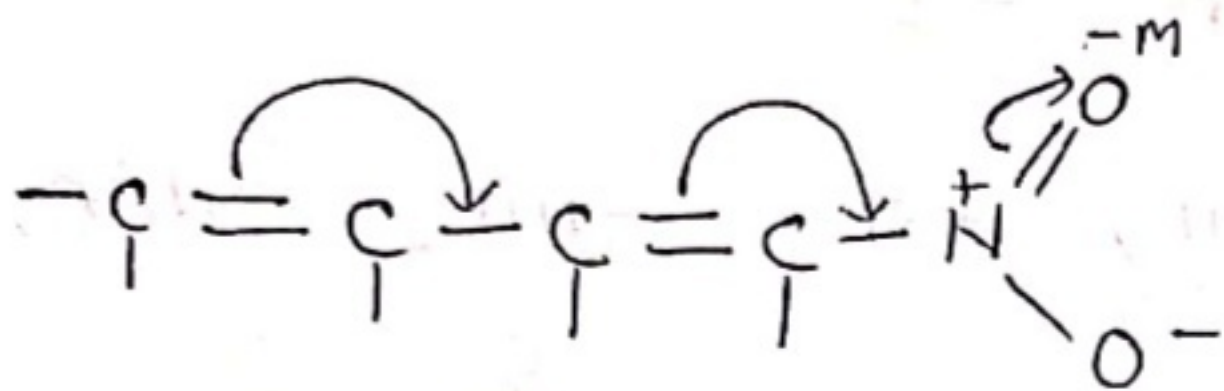
-F, -Cl, -Br, -I
-OH, -OR, -SH, -SR, -NH₂, -NHR,
-NR₂, -O-C(=O)-OR, -NH-C(=O)-OR, -O⁻,
-S⁻ etc...

Example:

The +M effect of Bromine atom:



-M effect of Nitro group



- * The mesomeric effect is also a permanent effect but it is not a distance bound effect.
- * Both Inductive and mesomeric effect provide an effective way of determining the point of attack of electrophiles and nucleophiles on the molecule.

=

**MESOMERIC EFFECTS
Completed**