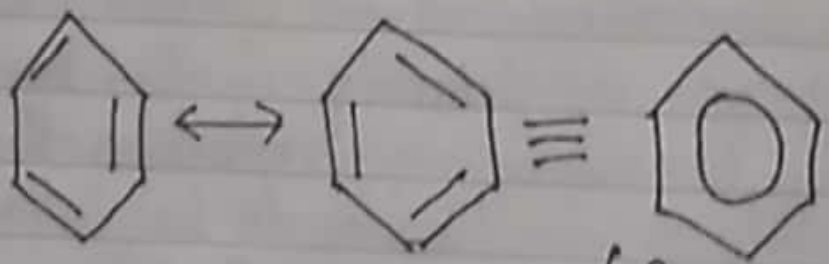
NOTES Date

Resonance or Mesomeric Effect:

The phenomenon in which two or more structures, involving identical position of atoms, can be written for a particular compound, is called resonance.

The benzene molecule can be expressed as a resonance hybrid of the two contributing kekule structures.



(Resonance Hybrid)

This canonical structure of a system is a set of various structures which are sufficient to define all the possible electron distributions.

(i) (−M effect):

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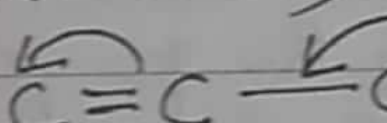
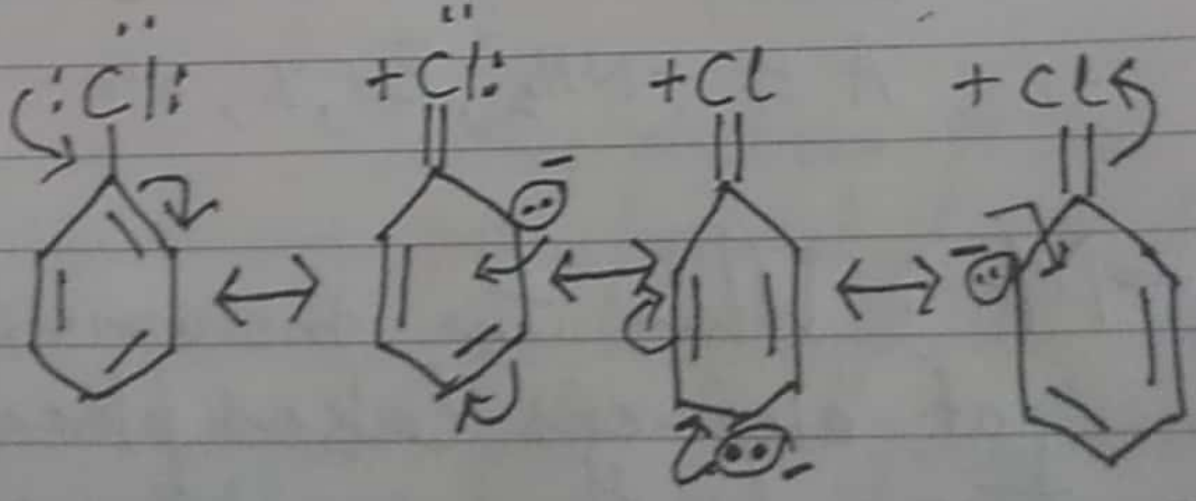
Conjugated system, attached to electron deficient atom with vacant p-orbital. (−M effect)

(ii) (+M effect) :

conjugated system attached to electron rich atom or that atom should have filled orbital or free lone pair. (+M effect).



(iii) lative



I II III IV

NOTES

V VI

Structure I and V are equivalent and have equal contribution in resonance hybrid (VI)

+M : When movement of electron starts from the gr: towards the carbon chain.

A = $-NH_2$, $-OH$, X, etc.

−M : When the movement of electrons takes place towards the group (away from the carbon chain)

B where B = $-NO_2$, $-CN$, $-CHO$, etc