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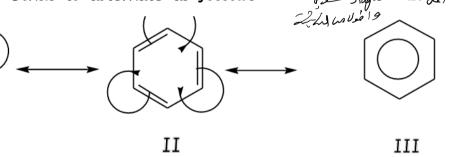
When the state of the sta 1. Benzene have the molecular formula C6H6 2- The structure of benzene is highly unsaturated cyclic compound. The suggested structure as shown below,

3- All carbon atoms are sp² hybridized →

4- There is a single and double bonds. This means there should be two length c-c bonds one represents a single bond and the other represents a  $\lesssim$  double bond.

But using x-ray measurement, it shows that all c-c bonds length are equal which is an intermediate between a single and a double one

This because there is a resonance in the molecule which causes the single and double bonds to alternate as follows re2 Single Ji es del



5- Despite it has C-C double bonds, it does not undergoes addition reactions like alkenes. It undergoes substitution reactions.

Monse Muchange

 $C_6H_6 + Br_2 \frac{FeBr_3}{catalyst} C_6H_5Br + HBr$ bromobenzene

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m -brom on itrobenzene

o-eth yln itro ben zene

p-brom oethylbenzene

m-bromotoulene

o-hydroxybenzaldehyde (salicylaldehyde)

m-xylene