

* Intermediate $\rightarrow$ Those species which are formed between reactant and product.

$\rightarrow$ It determines which product formed in major form (more amount or, more %) & which product formed in minor product (less amount or, less %).

$\rightarrow$ More stable intermediate give major product while less stable intermediate give minor product.

Types of intermediate

Carbocation /
Carbonium ion

Carbo-
anion

Free radical

Carbene

Nitrene

Benzene

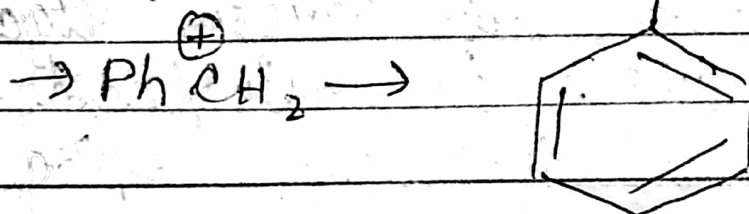
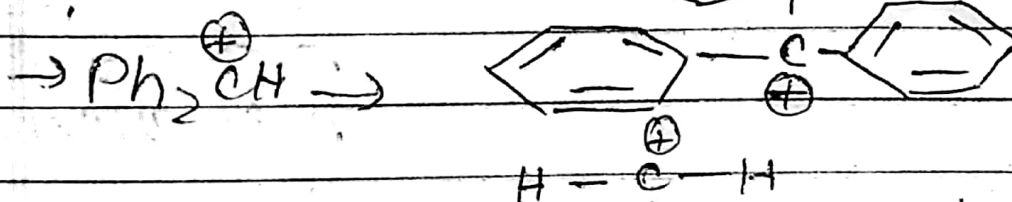
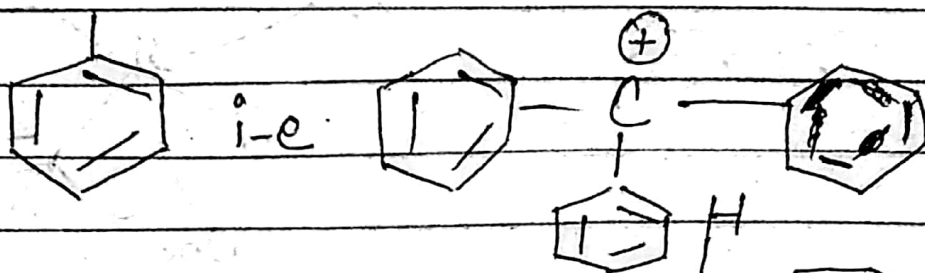
Imines.

1) Carbocation :- Carbon containing
 C^{+} positive charge.
eg - CH_3^+ , $C_2H_5^+$ etc.

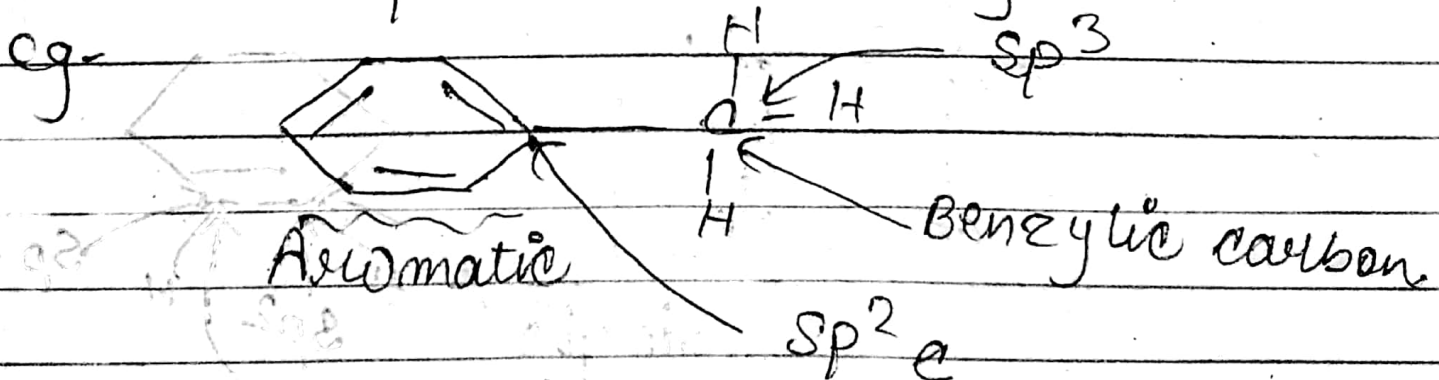
Stability order of carbocation

$\rightarrow \text{Ph}_3\text{C}^{\oplus} > \text{Ph}_2\text{CH}^{\oplus} > \text{PhCH}_2^{\oplus}$ or
 benzylic > allylic > $3^\circ > 2^\circ > 1^\circ > \text{methyl} >$
 vinylic > acetylic > Brønsted

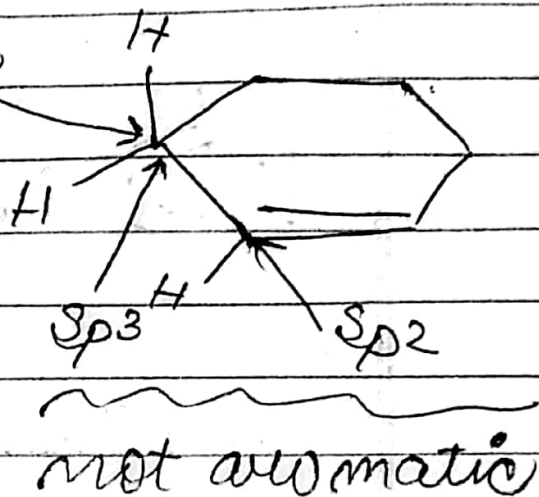
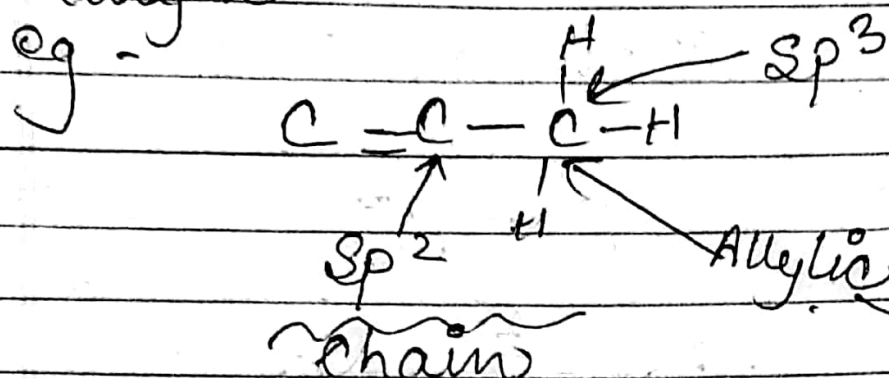
$\rightarrow \text{Ph}_3\text{C}^{\oplus} \rightarrow \text{Ph} = \text{phenyl} = \text{C}_6\text{H}_5 =$



$\rightarrow$ Benzylic: — When Sp^3 carbon attach with Sp^2 carbon in aromatic ring then Sp^3C called benzylic.



→ **Allylic**:- when sp^3 carbon attach with sp^2 carbon in chain/ not aromatic ring then sp^3 c, called allylic.



→ **Vinylic**:- when sp^2 carbon attach with sp^2 carbon in chain/ not aromatic ring then sp^2 c, called vinylic carbon.

