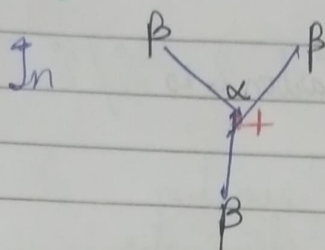
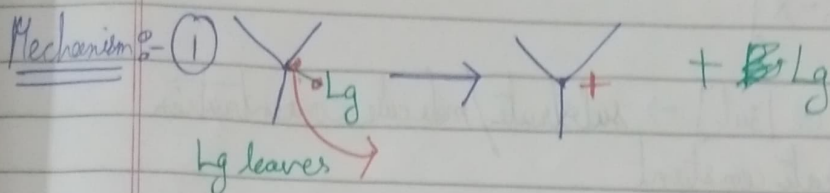


3) $E^1 \rightarrow$ Unimolecular Elimination

Here, Elimination = eliminate β -H & Lg (leaving group)
(β -elimination)

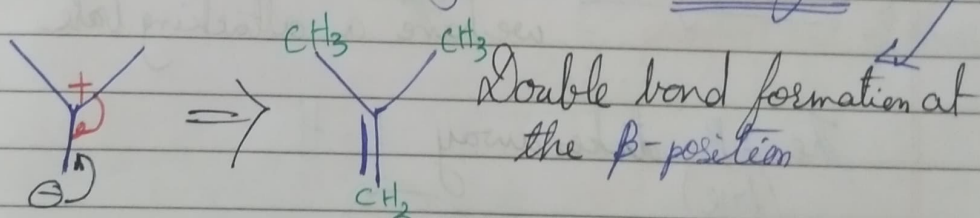
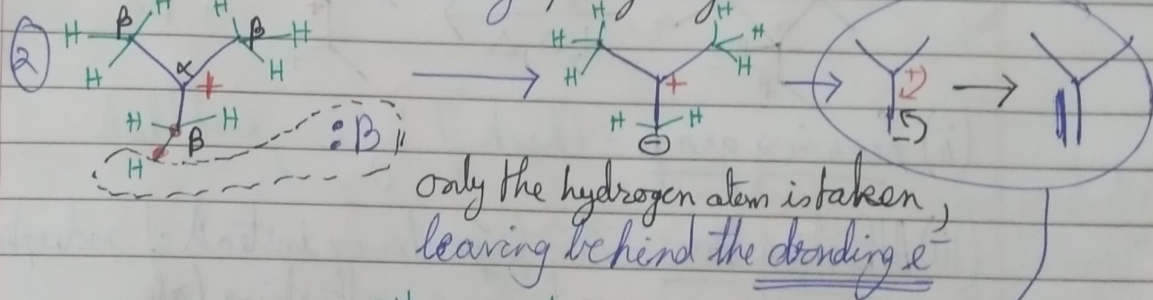
Unimolecular = reaction takes place 1 molecule at a time
(1st order reaction)



- The carbon with Lg/has + charge is the α -Carbon
- The next carbon/surrounding carbon(s) are β -Carbon

Now, let $:B \rightarrow$ base

This base will take away β -hydrogen :-



- Step ① \rightarrow Lg leaves substrate \Rightarrow Carbocation formation
- Step ② \rightarrow $:B$ takes away β -hydrogen \Rightarrow Alkene formation (base)

\therefore The $:B$ base eliminates β -hydrogen after Lg leaves the substrate/molecule

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Rate :- Step ① is the rate determining step (slow step)

In terms of Kinetics,

Rate is dependent on the substrate concentration

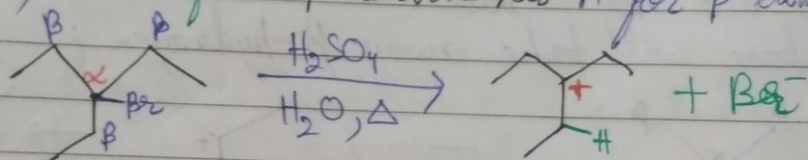
$$\therefore \text{Rate} = k[R-X]$$

where $[R-X]$ or $[sul]$ \rightarrow substrate/molecule concentration
 $k \rightarrow$ rate constant

Conditions :- (i) Alkyl chain :- Check if it has α -Carbon & is $2^\circ/3^\circ C$

$1^\circ C$ are not favoured for E^1 reaction
 2° & $3^\circ C$ are favoured for E^1 elimination

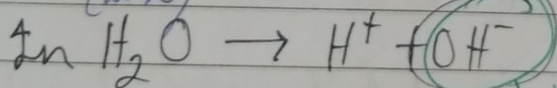
Also, check if the β -Carbons has H for β -elimination



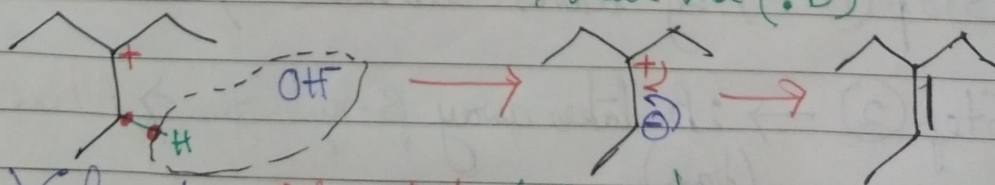
(ii) Leaving group :- Check if Lg is good/bad

(iii) Attacking base :- This ~~time~~ time, instead of nucleophile, we have a attacking base

The :B (base) takes away $\beta\text{-H}$



\rightarrow weak base (:B)



(iv) Solvent :- Polar Protic (like H_2O)



Here, Δ indicates $E > S_N$ reaction