Inductive Effect

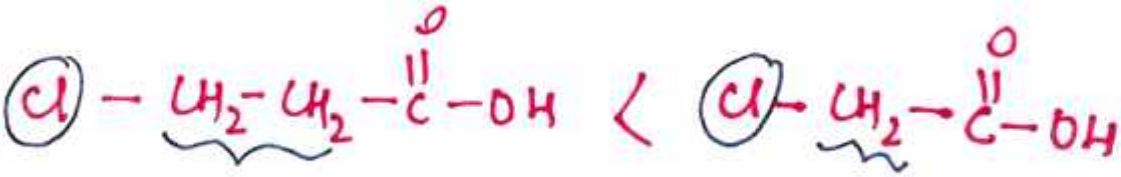
⊛ Relative Strength of acids :-

Acid strength is defined as the tendency to give up a proton. An acid is said to be strong if it has greater tendency to donate a proton.

⊛ The presence of electron withdrawing groups make the acid stronger.

(-I effect) → Stronger the acid.

e.g.

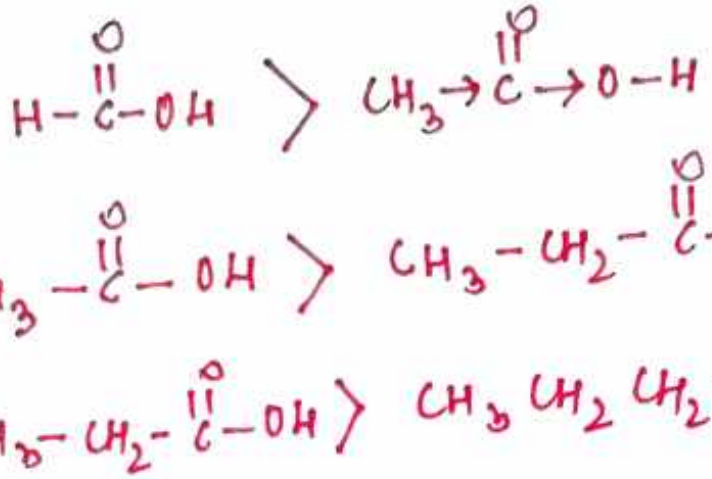


⊛ The presence of electron donating groups attached to -COOH group make the acid weaker.

+I effect → Electropositive group

Weaker acid.

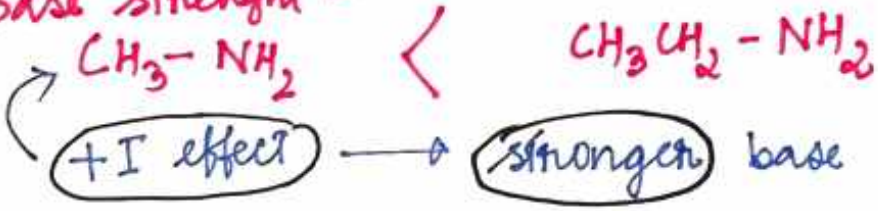
e.g.

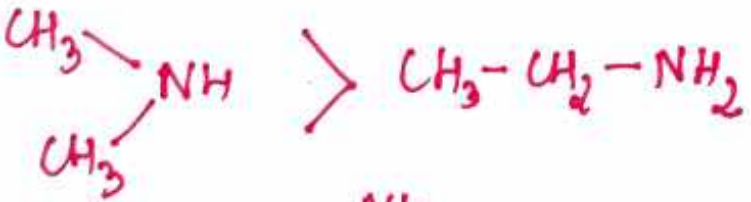


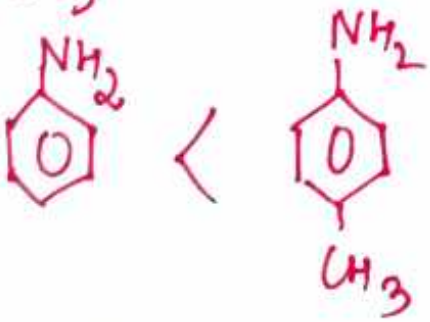
⊛ **Relative strength of base :-**

Base strength may be defined as the Tendency to accept a proton. A base is said to be strong if it has a greater tendency to accept a proton.

Base strength -

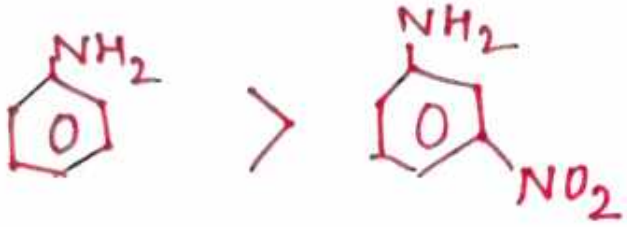






⊛ ~~base~~ According to Lewis theory - base is a electron pair donor. So, easily donate $e^{\ominus}$ ⇒ Stronger the base

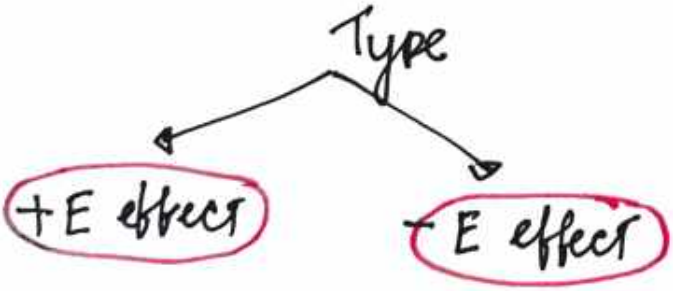
- -I effect makes the base weaker.



$-NO_2$ is ERG

ELECTROMERIC EFFECT

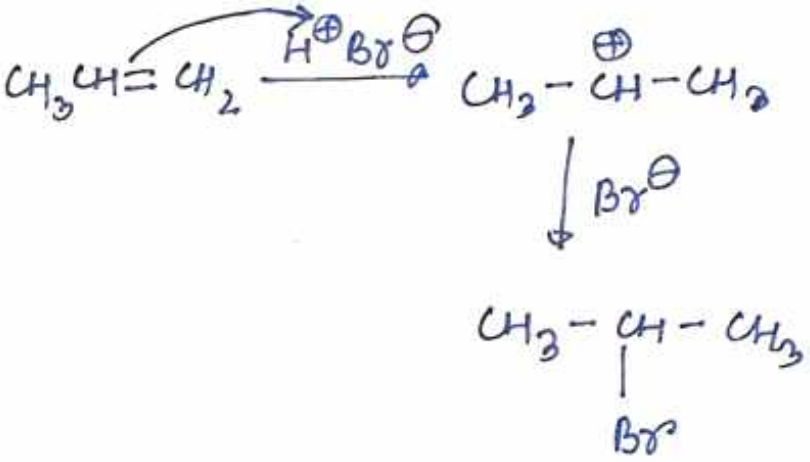
Definition:- Complete transfer of a shared pair of electrons of a multiple bond to one of the bonded atoms under the influence of the attacking reagent is known as the electromeric effect.



+E effect

⊛ When the transfer of π-e$^{\ominus}$s takes place towards the attacking reagent (electrophile), then the effect is called +E effect.

e.g.



−E effect

⊛ When the transfer of π-electrons takes place away from the attacking reagent (nucleophile), the effect is called −E effect.