

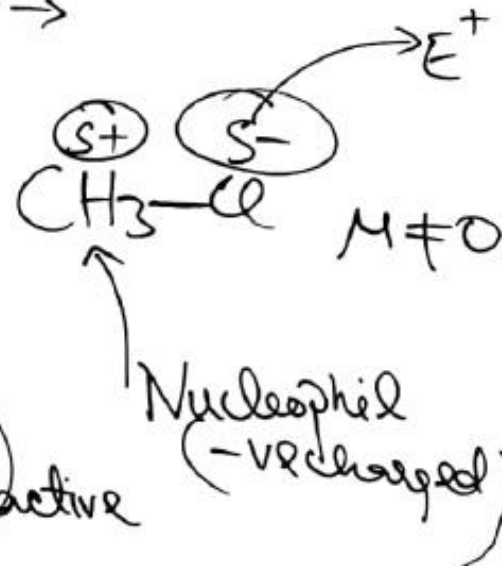
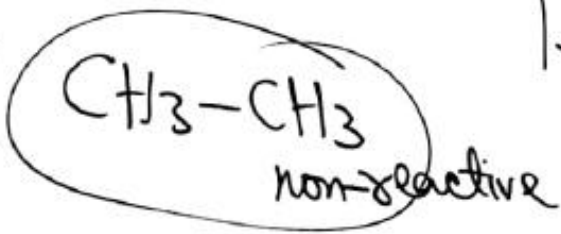
# GOC

Electronic displacement Effect →

↓ Shifting of e<sup>-</sup>s toward one part of molecule

Types of Electronic Displacement Effect

- Inductive Effect ✓
- Resonance ✓
- Hyperconjugation ✓
- Mesomeric Effect ✓

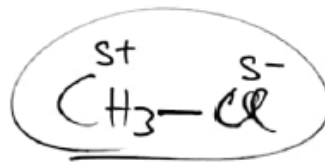


GOC

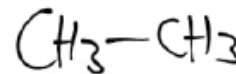
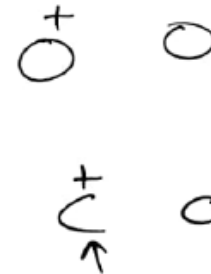
Inductive Effect

Polarisation

Shifting of  $\sigma$  e<sup>-</sup>s towards more E.N atom.



$\mu \neq 0$



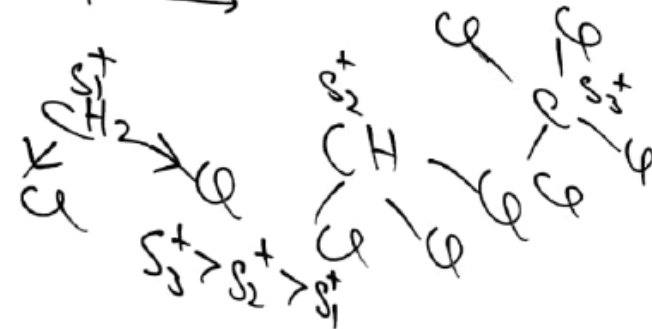
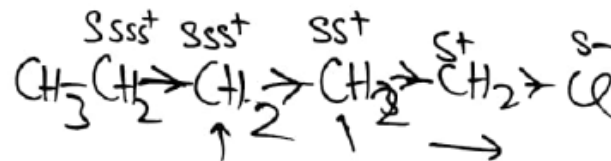
\* Cause E.N difference

\* It is a permanent effect

\* It is a weak effect

\* It is a distance dependent effect

\* It is an additive effect



# GOC

## Inductive Effect

+I effect

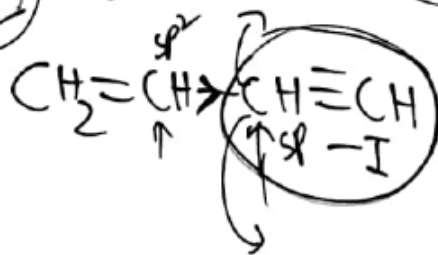
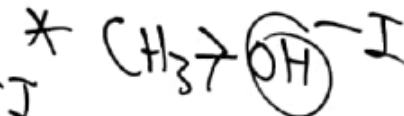
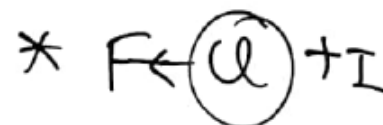
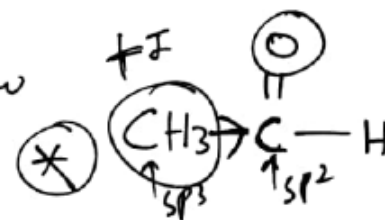
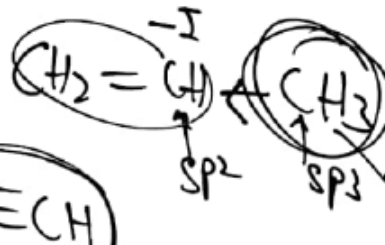
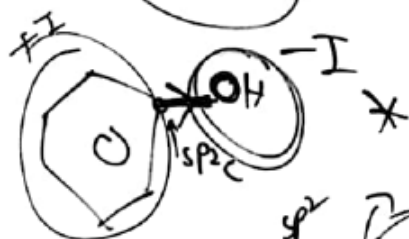
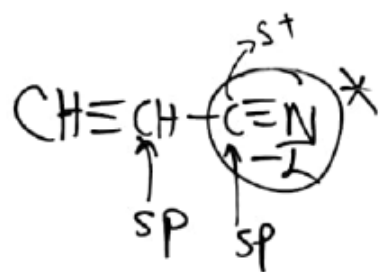
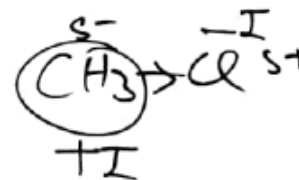
-I effect

Electron donate

(EDG)

Electron withdraw

(EWG)



$F=4$

$\text{O}=3.5$

$\text{Cl}=3.2$

$\text{N}=3$

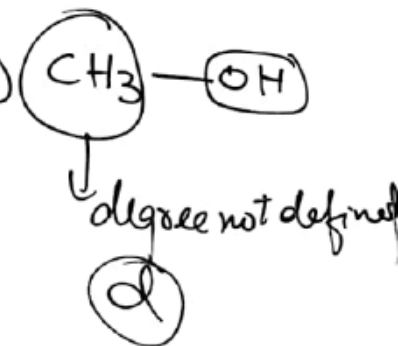
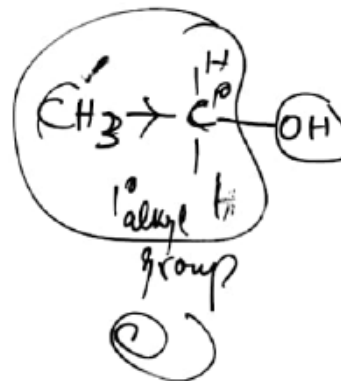
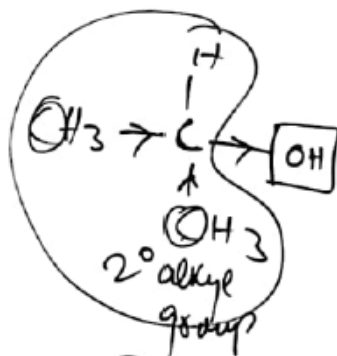
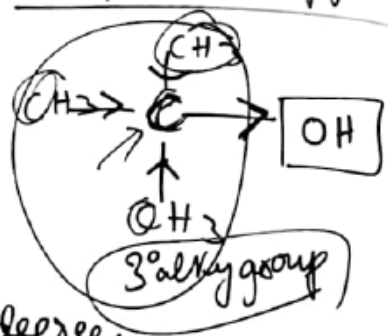
$\text{sp}^3\text{C}=2.95$

$\text{sp}^2\text{C}=2.75$

$\text{sp}^3\text{C}=2.55$

# GOC

Compare + I effect



of degree is same

bigger alkyl more + I

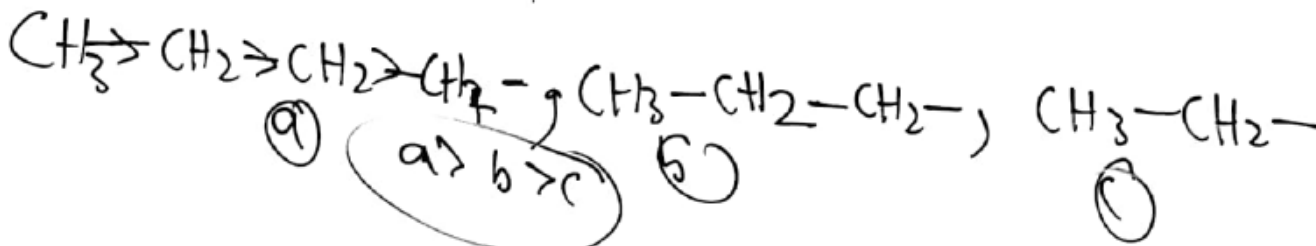
(a)

(b)

(c)

(d)

$a > b > c > d$



# GOC

## Compare -I effect

