

HALOALKANES AND HALOARENES

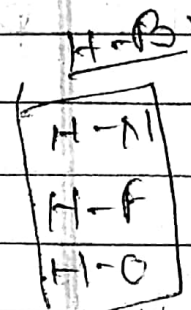
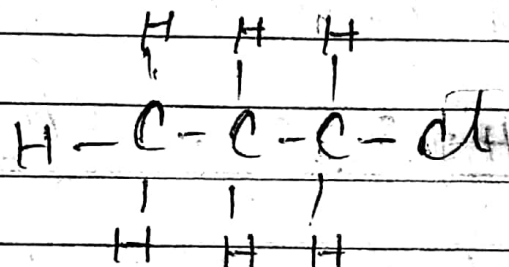
Haloalkane (alkyl halide) and haloarene (aryl halide):-

→ Haloalkane (alkyl halide):- General configuration $C_n H_{2n+1} - X$

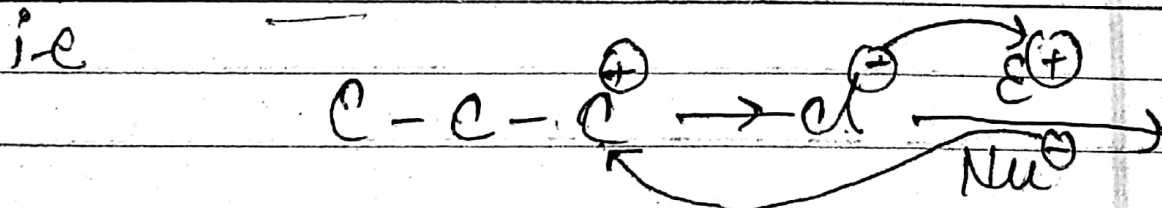
Where $n =$ any +ve integer

$X =$ halogen $= F, Cl, Br, I$

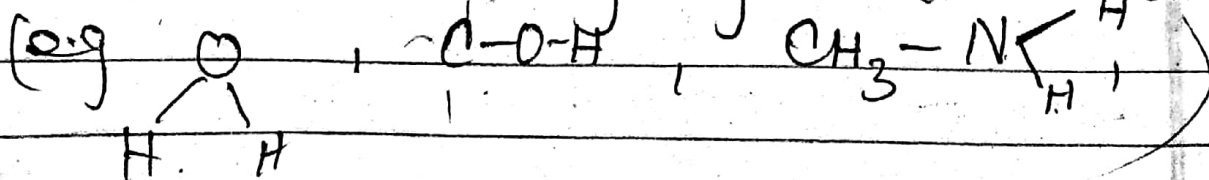
if $n=3$ and $x=Cl$ then C_3H_7-Cl



→ It is polar due to different $\epsilon.N$ value of carbon and chlorine. Due to less ~~more~~ $\epsilon.N$ of carbon it lose electron and show +q hence nucleophile attack here:

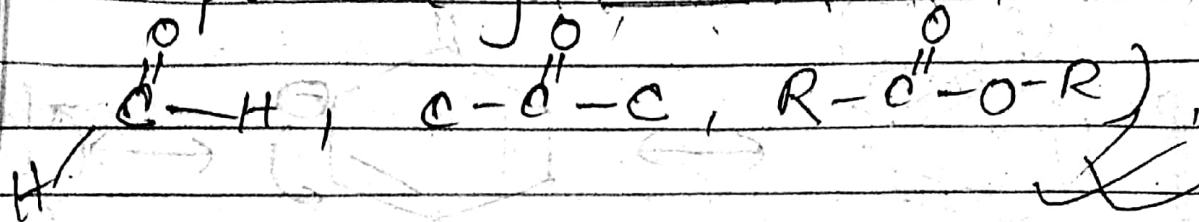


→ It does not make hydrogen bond due to absence of H-N, H-O and H-F bond (necessary for H-bond) hence insoluble in hydrogen bonded compound

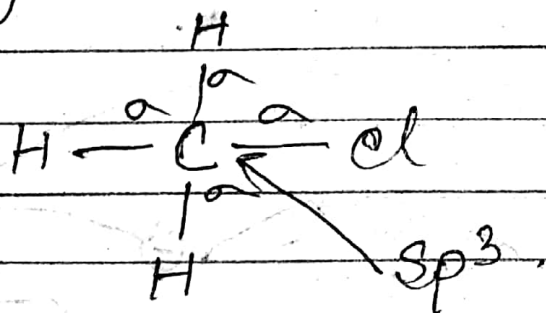


to $\text{CH}_3-\text{N} \begin{smallmatrix} \text{H} \\ \diagup \\ \text{H} \end{smallmatrix}$, $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{H}$, $\text{H}-\text{F}$) while

Soluble in non-hydrogen bonded compound (eg. $\text{C}-\text{O}-\text{C}$, $\text{C}=\text{C}$, $\text{C}=\text{C}$, $\text{H}-\text{C}\equiv\text{C}$)

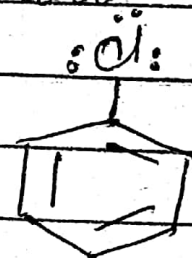


- Hybridisation $\text{C}-\text{sp}^3$, Shape/Structure
- Shape/Structure - tetrahedral.
- Bond Angle - 109°
- Bond length - $1.54 \text{ \AA}$



→ It is less acidic than haloarene (aryl halide) because it does not show resonance.

* Aryl halide (haloarene): $\text{C}_6\text{H}_5\text{Cl} \rightarrow$



It shows π resonance structure hence it is more acidic.

→ It shows π resonance structure and indicating more electron density at 2, 4 and 6 position hence electrophile attack here.

→ It shows less e^- density at 3 and 5 position hence nucleophile attack here.

