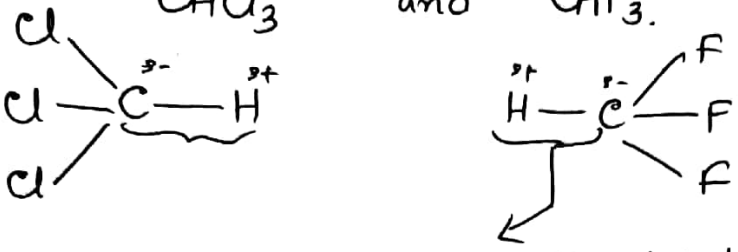
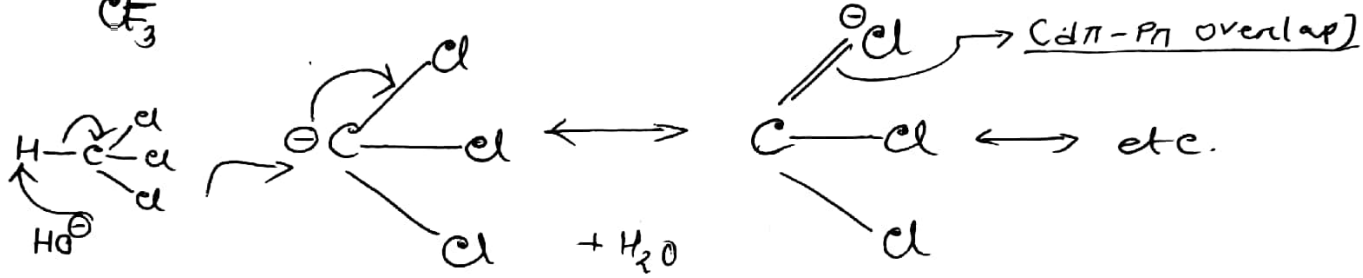
Acid & Base
Class-2

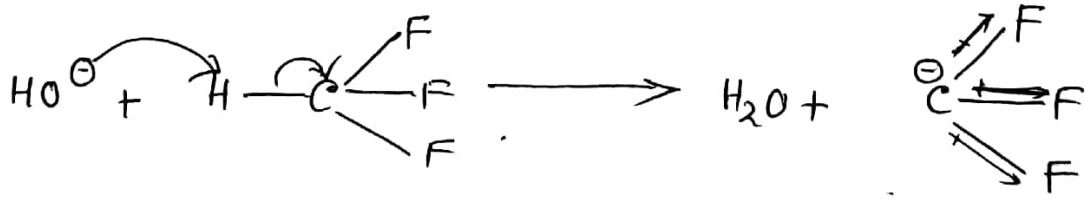
Example -2 which one more acidic and why ? $CHCl_3$ and CHF_3.



Though this bond is more Polar because F is more electronegative than Cl. but $CHCl_3$ is more acidic than CHF_3, because the conjugate base $^{\ominus}CCl_3$ is more stable than $^{\ominus}CF_3$

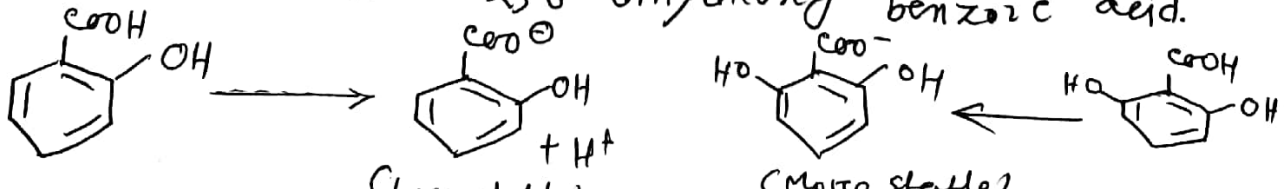


Here -ve charge on C-atom is stabilised by spreading over 3d orbital of Cl atom (not only but over 3 Cl atom), but F atom do not contain vacant d orbital as it belongs to 2nd Period. So $F_3C^{\ominus}$ ion is less stable

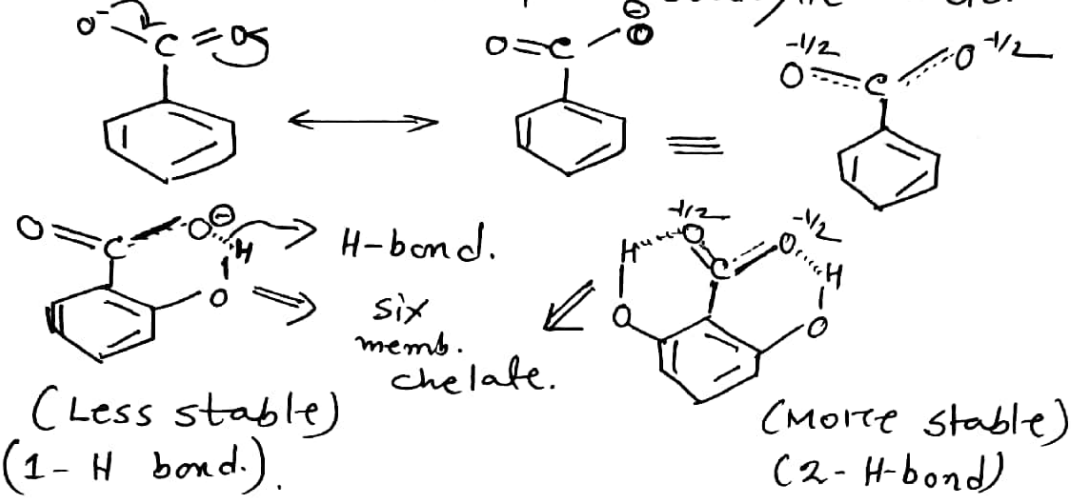


So $CHCl_3$ is more acidic than CHF_3.

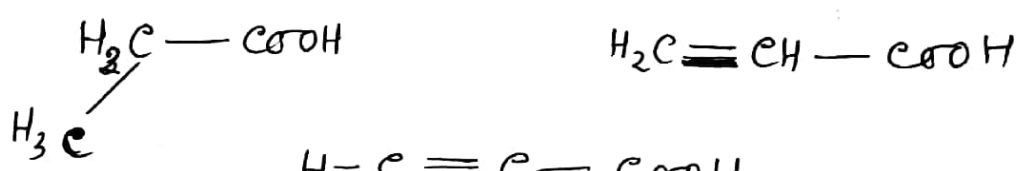
Example -3 Compare acidity of salicylic acid and 2,6-dihydroxy benzoic acid.



* The resonance hybrid of carboxylate ion is more stabilised by 2- intramolecular H-bond as in case of 2,6-dihydroxy derivative. while less stabilised by one intramolecular H-bond in case of salicylic acid.



Example-4



Compare acidity ⟶ HW.

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* Ortho tertiarybutyl benzoic acid is more acid than Para tertiary butyl benzoic acid. Explain.