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25 - Carboxylic acids and acyl compounds.

Q-1) Compare acidic nature of carboxylic acids, phenol and alcohols.

> CARBOXYLIC ACIDS > PHENOL > ALCOHOL

Most acidic. Least acidic.

$$R\text{-}COOH \rightleftharpoons RCOO^- + H^+$$

> The carboxylate ion is stabilised by the delocalisation of electrons around the COO^- group so the negative charge spreads out over the $-COO^-$ group.

> In the phenoxide ion, the oxygen is still the most electronegative ∴ it's less acidic than -COOH.

* Electron withdrawing Cl groups weaken the OH bond ∴ forms a stronger acid.

Q-2) Compare hydrolysis of Acyl, Alkyl and Aryl chlorides

> Acyl chlorides (R-COCl) react vigorously with cold water.

Alkyl chlorides (R-Cl) and Aryl chlorides (⬡-Cl) don't react with water because the lone pair of electrons on Cl becomes part of delocalised electrons in the benzene ring.

> Alkyl Chlorides react with NaOH but Acyl chlorides are

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Q-3) more reactive because the Carbon atom is more electropositive because of 2 electron withdrawing groups.