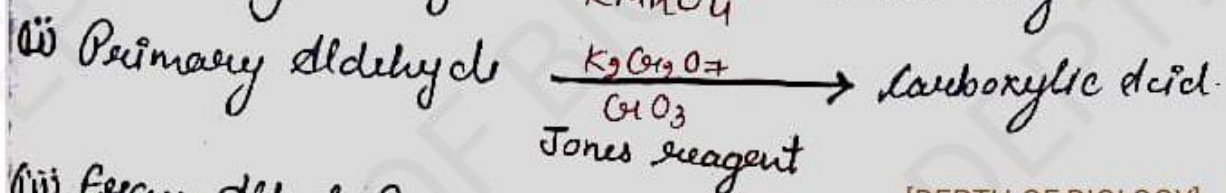
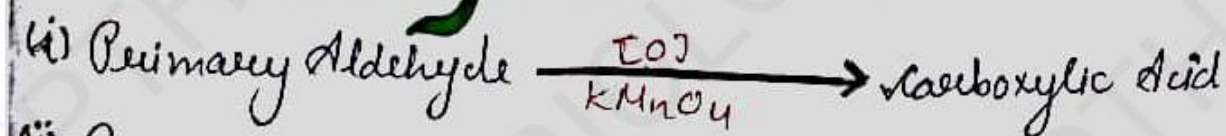
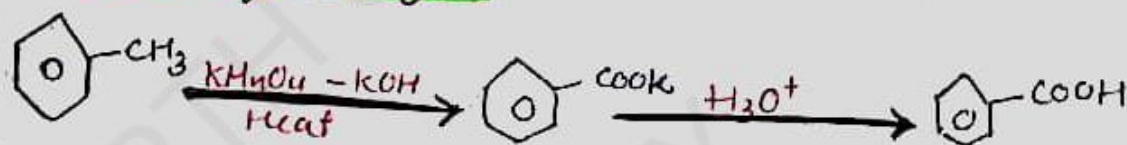


Preparation of COOH Carboxylic Acid

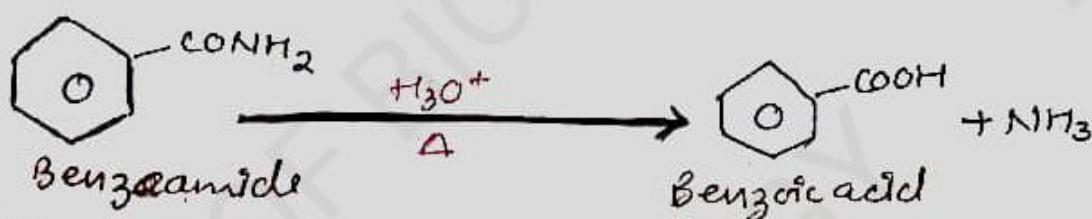
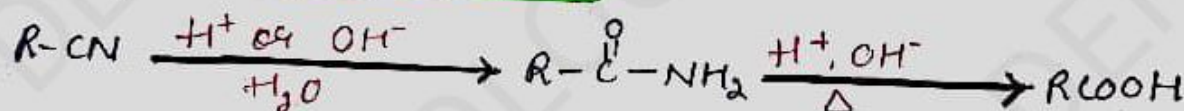


(iii) From alkyl Benzene

[DEPTH OF BIOLOGY]

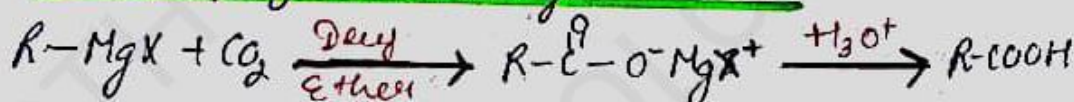


(iv) By Nitrile and Amides

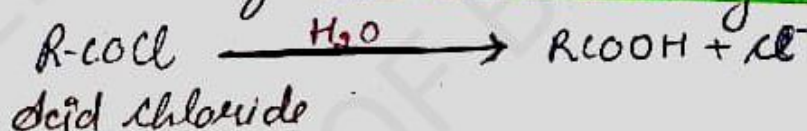


[DEPTH OF BIOLOGY]

(v) From Grignard's Reagent (C.R.)



(vi) From acyl Halide and Anhydrides.



(vii) From Ester

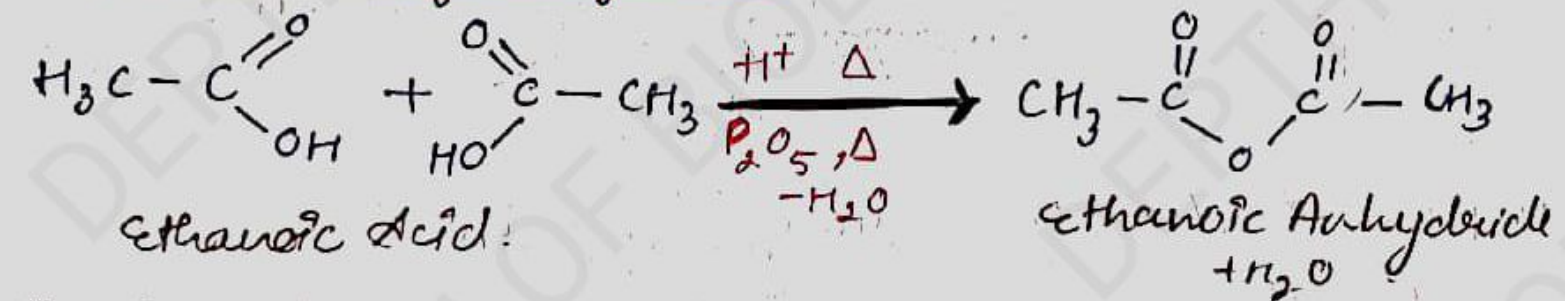
[DEPTH OF BIOLOGY]



But when react with base like NaOH it gives
 $\text{COONa} \xrightarrow{+\text{H}_3\text{O}^+}$ COOH

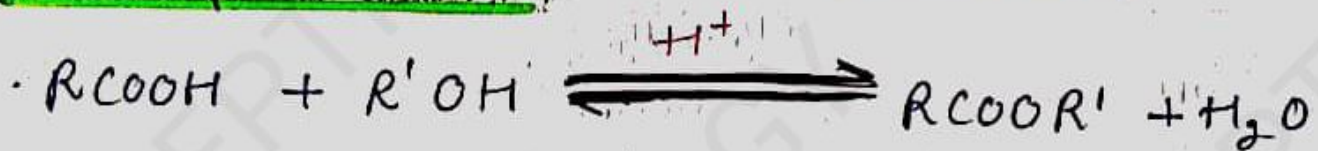
Reactions of COOH

(i) Formation of Anhydride

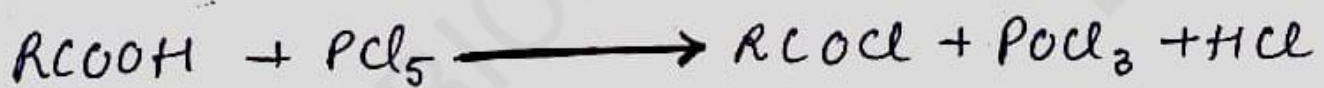


(ii) Esterification

[DEPTH OF BIOLOGY]

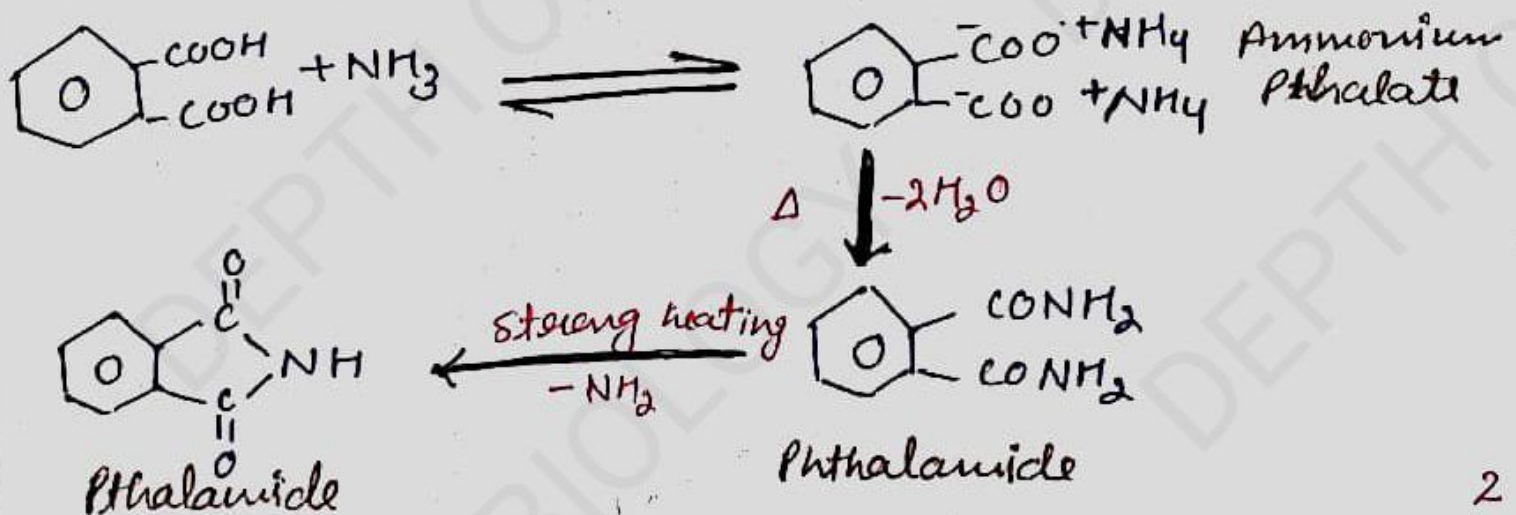
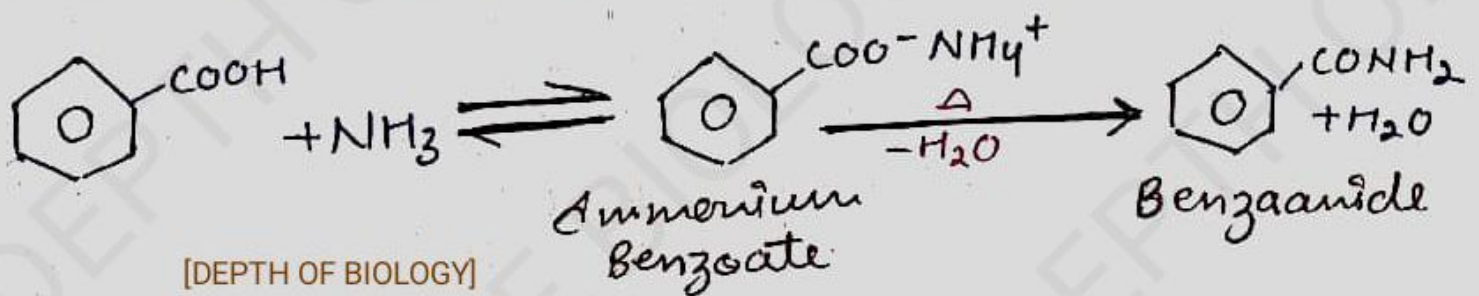


(iii) Reaction with PCl₃, PCl₅, SOCl₂ (Thionyl chloride)



(iv) Reactions with NH₃

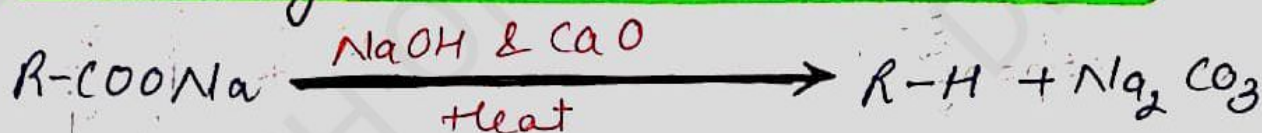
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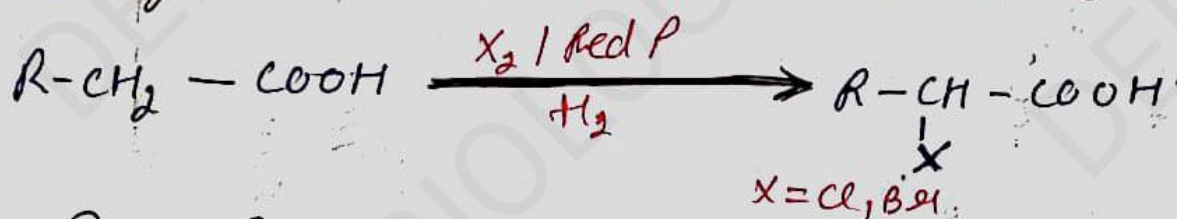
(v) Reduction



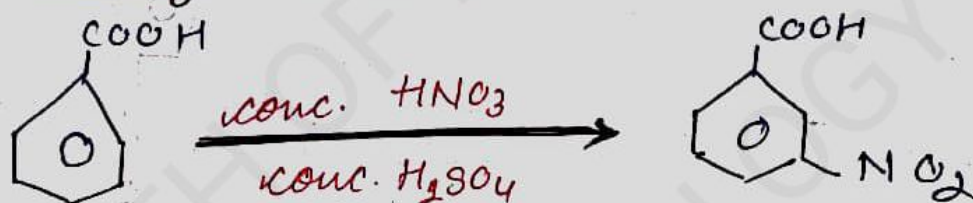
(vi) Decarboxylation (Kolbe's Electrolysis)



(vii) Halogenation (Hellvolhard Zelinsky Rxn)



(viii) Ring Substitution



Aromatic COOH undergoes ESR. C-Gr acts as a deactivating and meta directing group.

