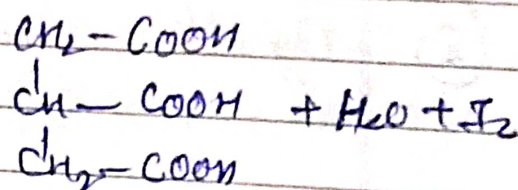
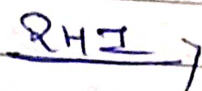
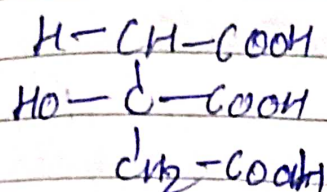
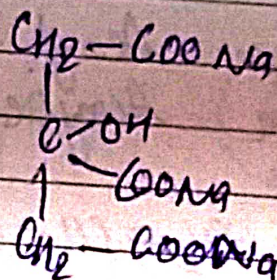
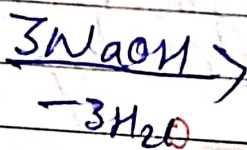
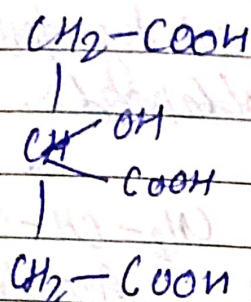


(3) Reactⁿ by HI $\rightarrow$

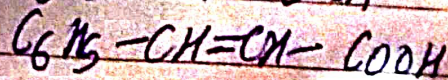
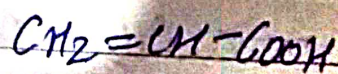


(4) Reactⁿ with NaOH



Unsaturated Carboxylic Acid

When unsaturation and COOH group are present in the molecule then such acids are known as unsaturated carboxylic acid.



Acrylic acid [Propenoic]

crotonic acid [trans-2-butenoic]

Cinnamic acid [3-phenylpropenoic]

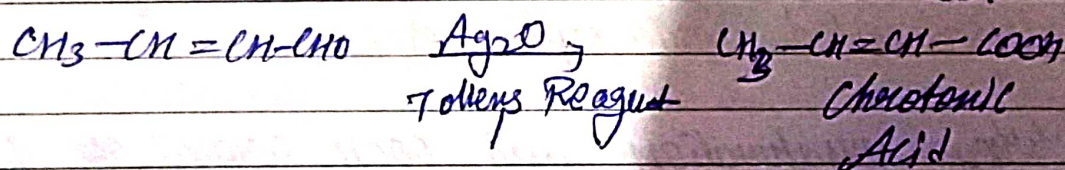
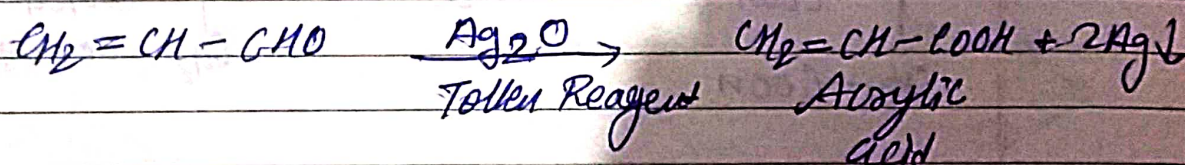
Preparation of unsaturated carboxylic acid

(1) By Perkin Reacⁿ → By Unit III or II

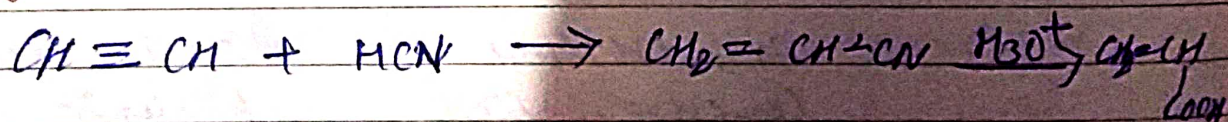
(2) By Nemanzyl Reacⁿ → By Unit III or II

(3) By Acryl Aldehyde

When Acryl Aldehyde is oxidised by Tollen's Reagent then Acrylic acid is obtained.

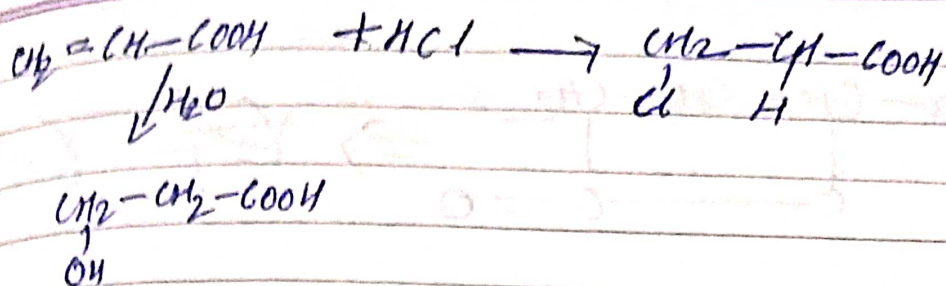


(4) By Acetylene



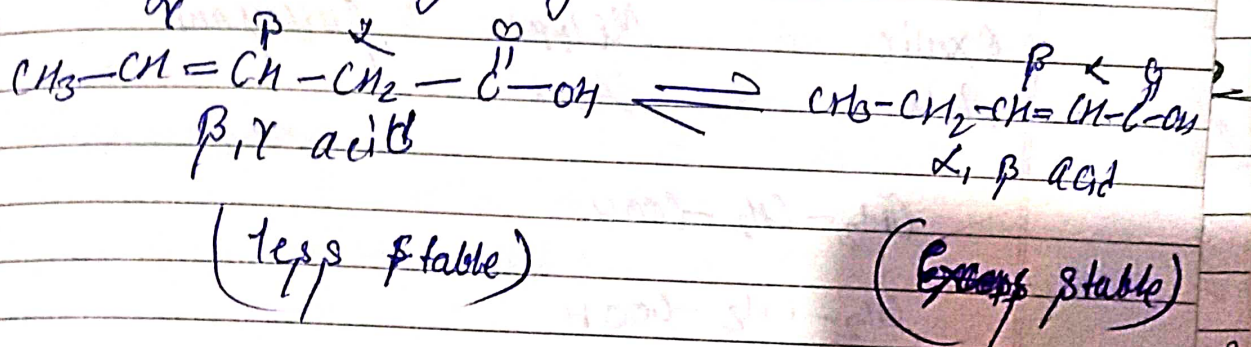
Chemical Properties of Unsaturated carboxylic acid

(1) Addition Reacⁿ → These compd. give Electrophilic Rule acc to Anti Markovni Kausff Rule

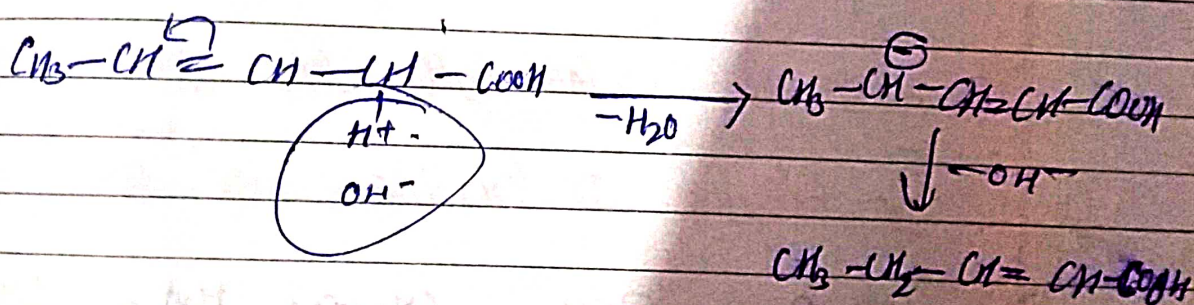


Displacement of $=$ bonds

When these acids are heated in presence of base then $\equiv$ bond will be displaced, which is clear by following eq.

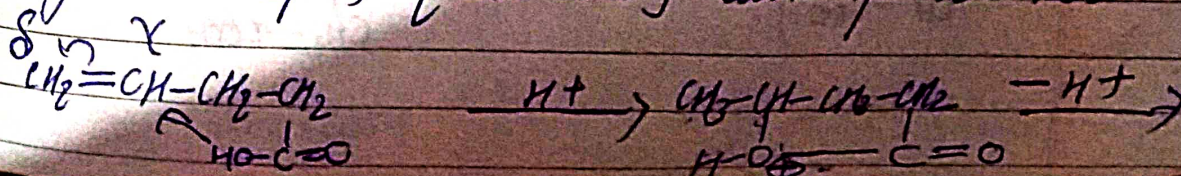


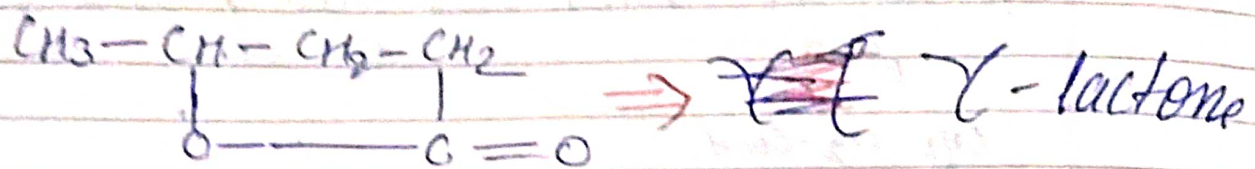
Mechanisms



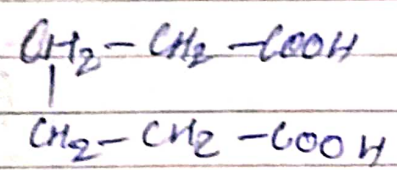
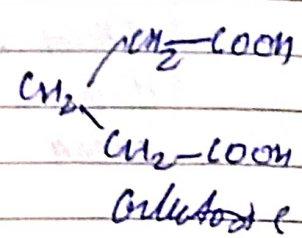
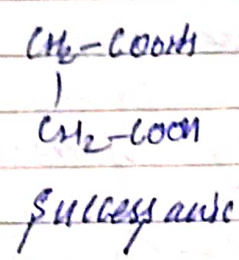
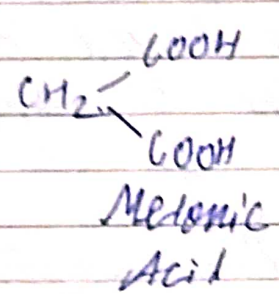
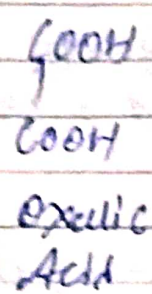
③ Polymerisation of lactone [cyclic Ester]

When these acids [Except α , β and β,γ] are heated in presence of mineral acids then cyclic ester [lactone] is obtained.





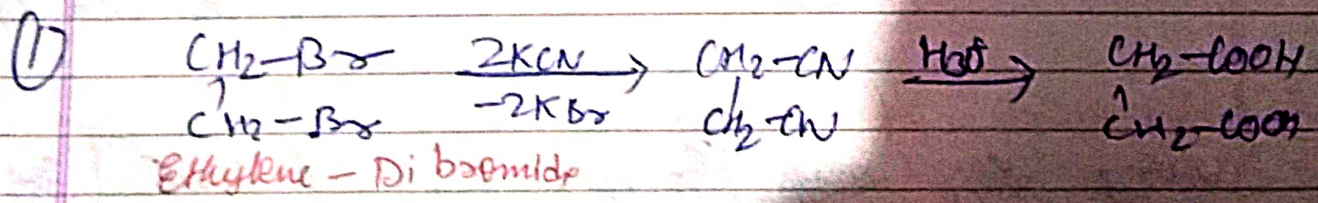
Di Carboxylic Acid



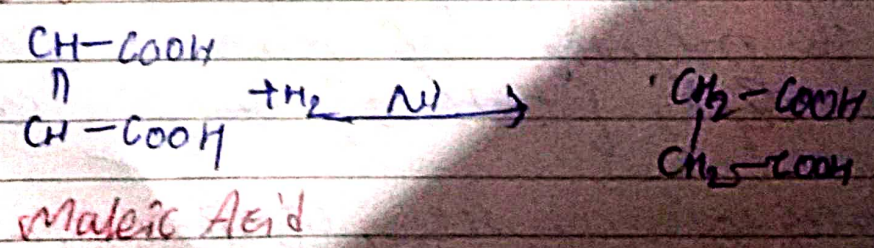
Adipic Acid

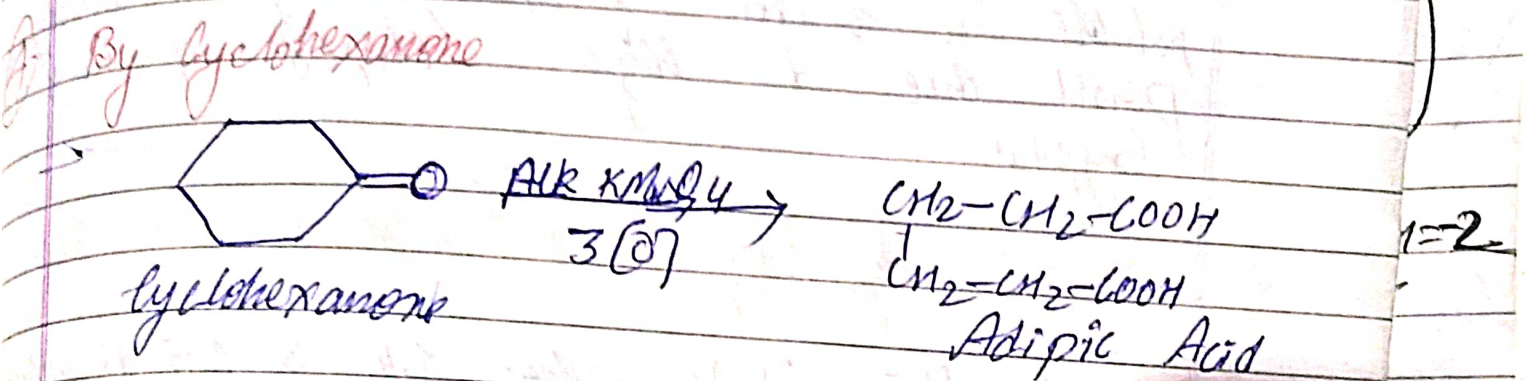
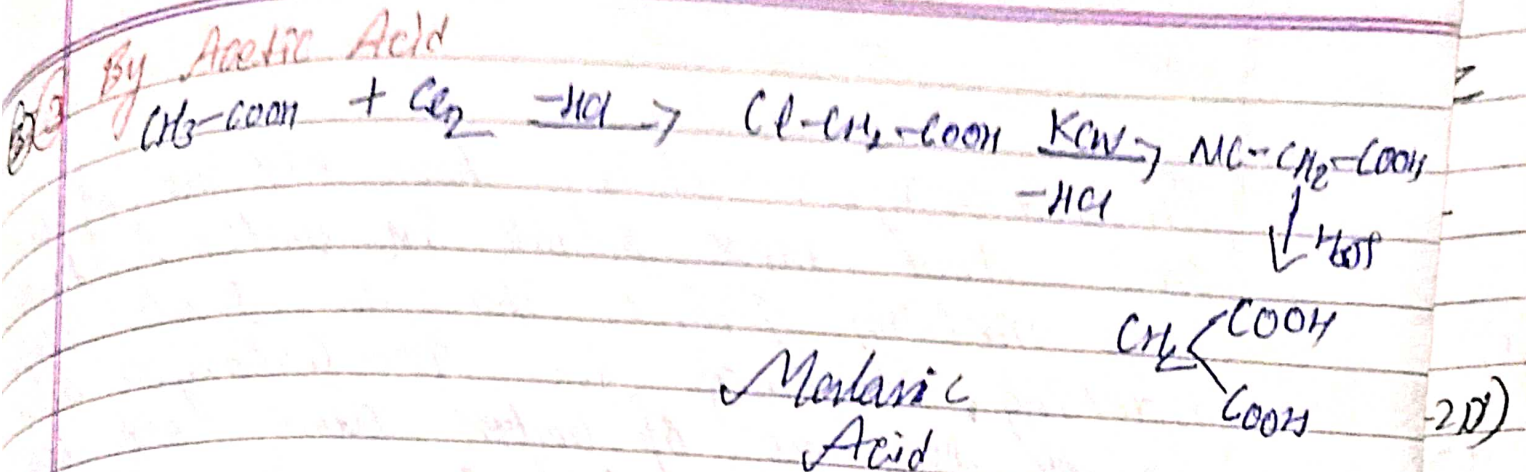
Preparation of Di-Carboxylic Acid

(1) By Ethylene - Di bromide



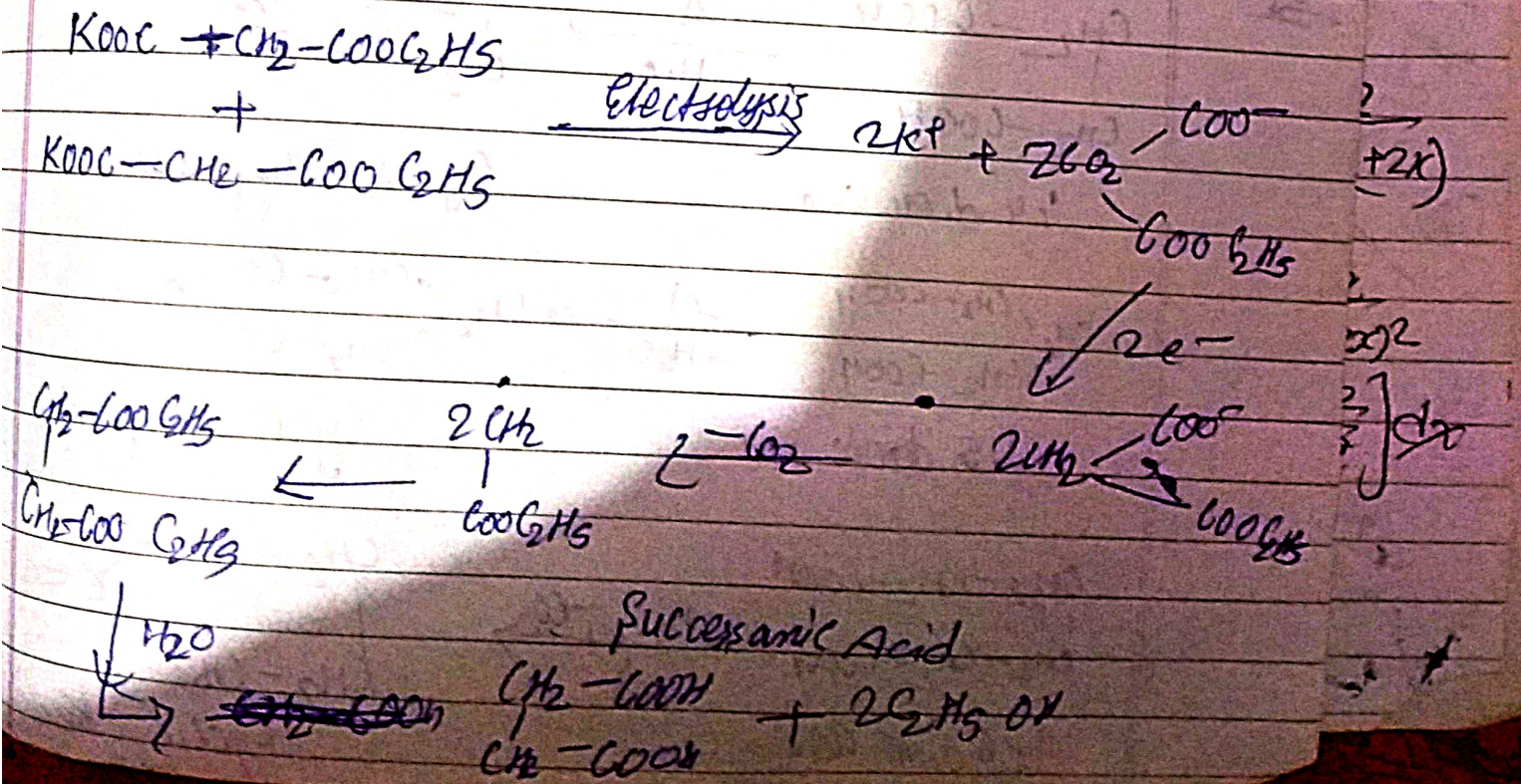
(2) By Maleic





By Collman - Brown Walker method of Electrolysis

When Potassium ethyl malonate ~~Success~~ is electrolysed (anode)
Succinic acid is obtained at anode



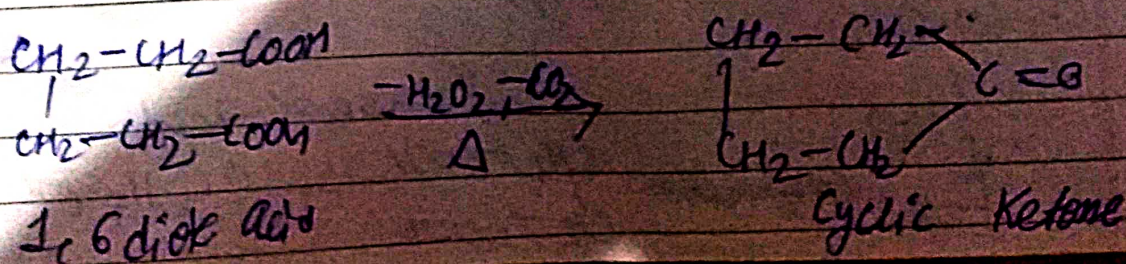
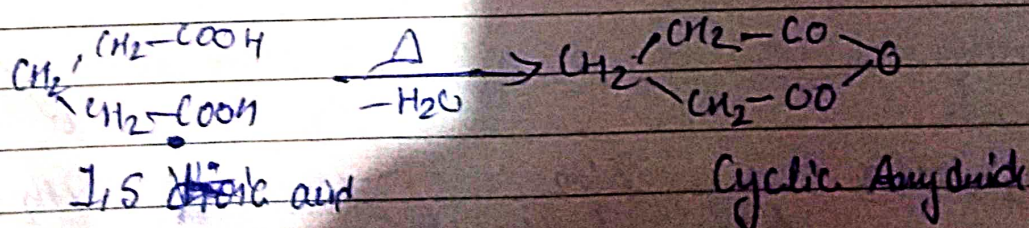
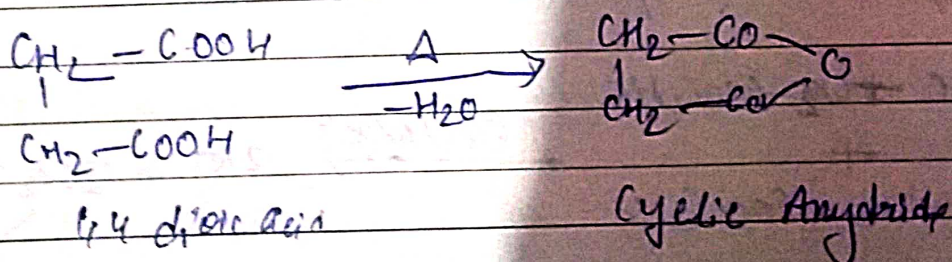
Physical Properties of Dicarboxylic Acids

The Di-carboxylic Acid have odd no of carbon atom have more soluble in water & having low melting point due to weak closed packing. Whereas the Di-carboxylic acid having even no of carbon atom are less soluble in water & having high melting point due to high closed packing in the crystal.

(5) Temp & Effect on Di-carboxylic Acid (Blanc Rule)

Acc to this rule when 1,4 & 1,5 di-carboxylic acids are heated then cyclic anhydride is obtained, when 1,6 & 1,7 di-carboxylic acid are heated then cyclic ketone is obtained.

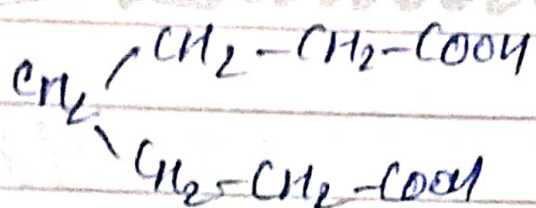
Eg



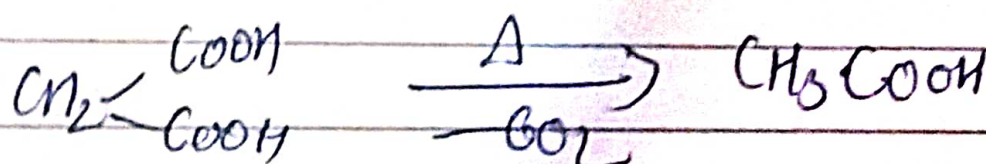
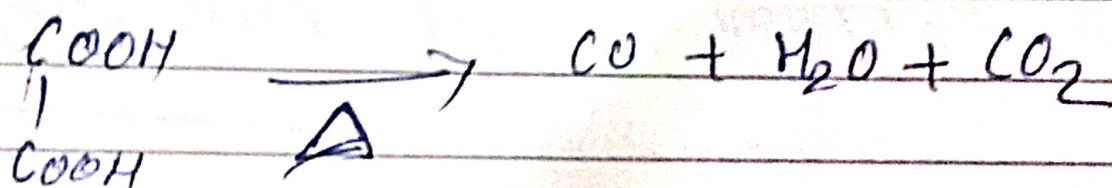
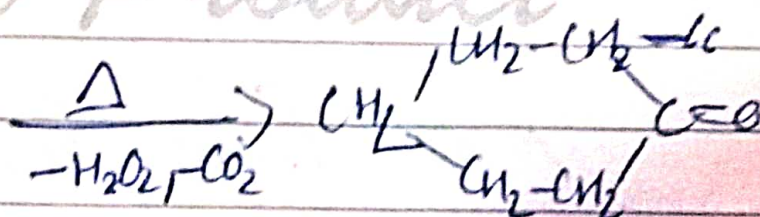
Chemistry

Unit - 4

Remaining



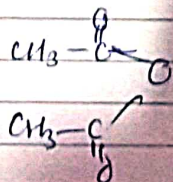
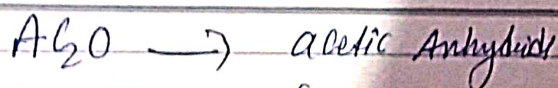
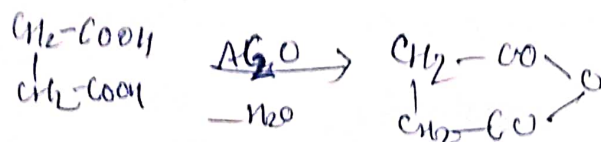
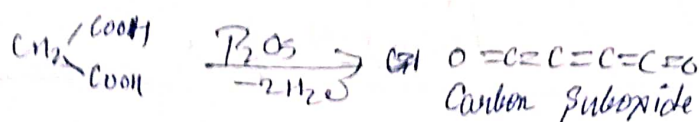
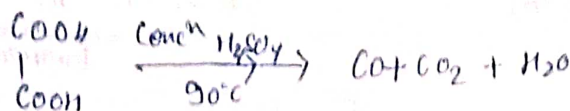
1,7 diol acid



Effect of Dehydrating Agent on Dicarboxylic Acid

[H_2SO_4 , P_2O_5 , ZnCl_2 , H_3PO_4]

Concⁿ acid like Concⁿ H_2SO_4 , H_3PO_4 etc & Lewis acid like ZnCl_2 , P_2O_5 etc act as a dehydrating agent



- Q write a short notes on following
- (1) HVZ Reacⁿ
 - (2) Favorskoid Reacⁿ
 - (3) Blanc's Rule
 - (4) Effect of Temp^r on carboxylic acid
 - (5) Find the following
 - (1) Adipic acid by cyclohexanone
 - (2) Malic acid by malic acid
 - (3) Tartaric acid by tartaric acid
 - Q what happen when the reduction of following is take place
 - (1) lactic acid
 - (2) tartaric acid
 - (3) Malic acid
 - (4) Citric acid