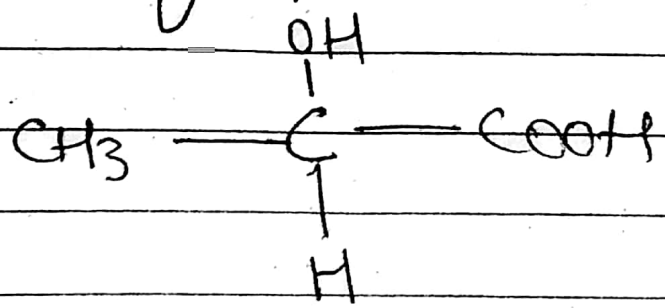
* Lactic Acid (optical Activity)

- It is mona carboxylic acid in which -OH groups present at α-position with respect to -COOH group.
- It show optical activity (optically active) due to presence of one chiral center.
- No. of optical isomers $= (2)^n = (2)^1 = 2$

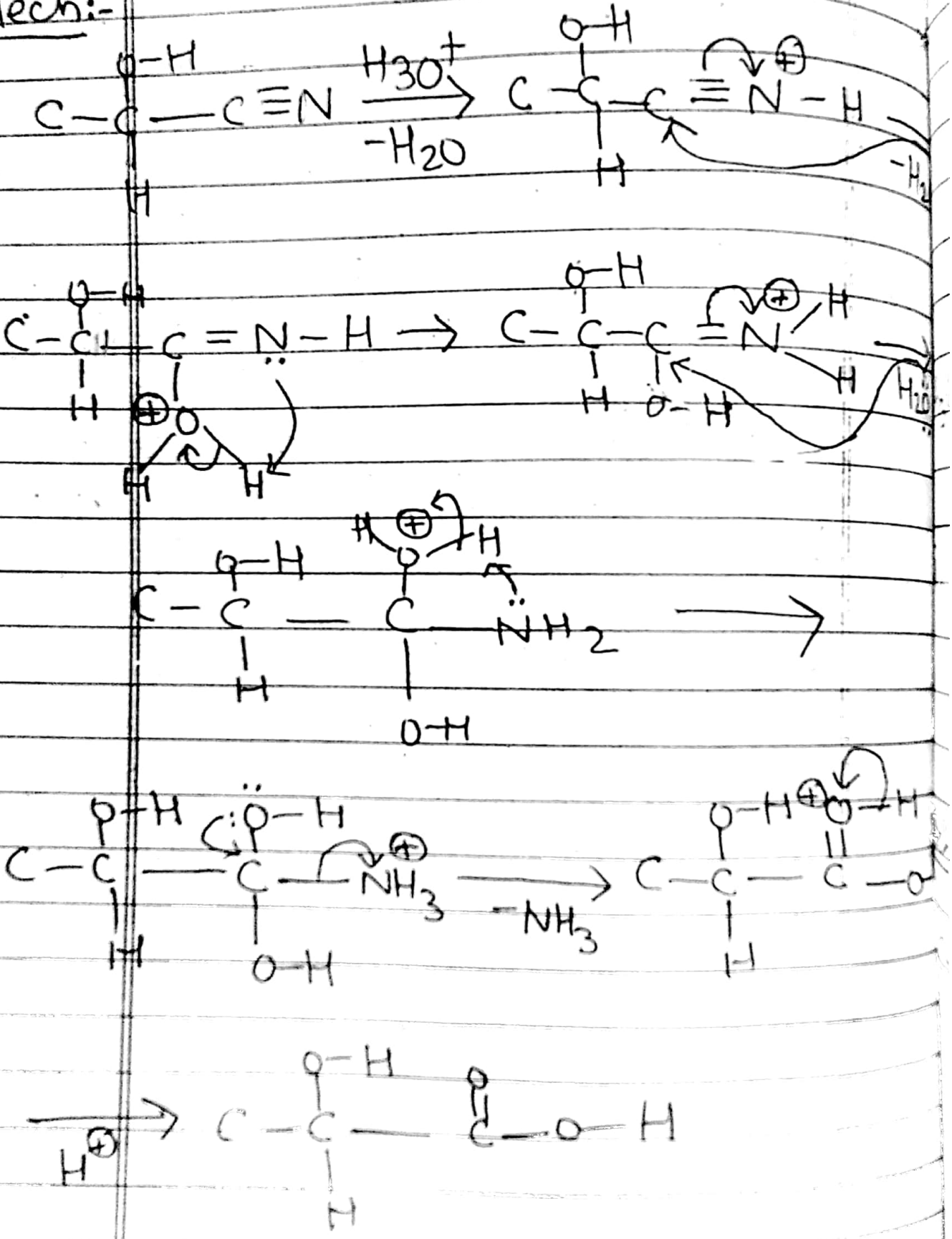


* Synthesis of lactic acid

i) From α-Hydroxy cyanide of ethane

When α-Hydroxy cyano propane react with H_3O^+ then form lactic acid.

Mechi:-



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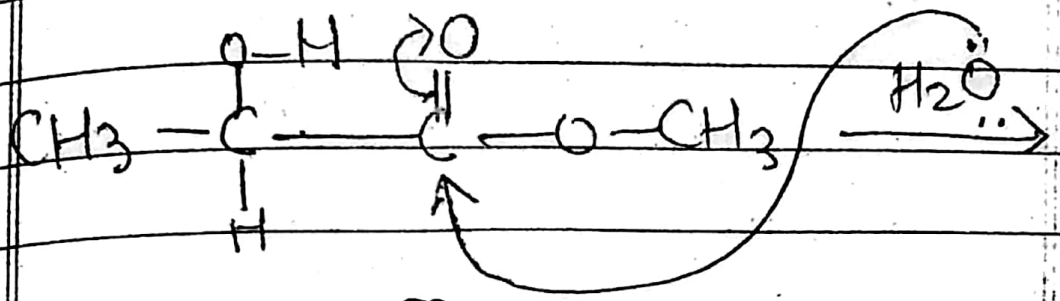
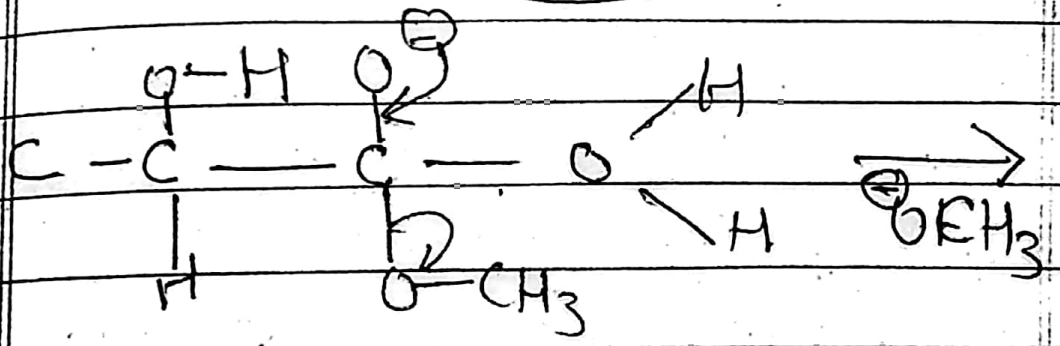
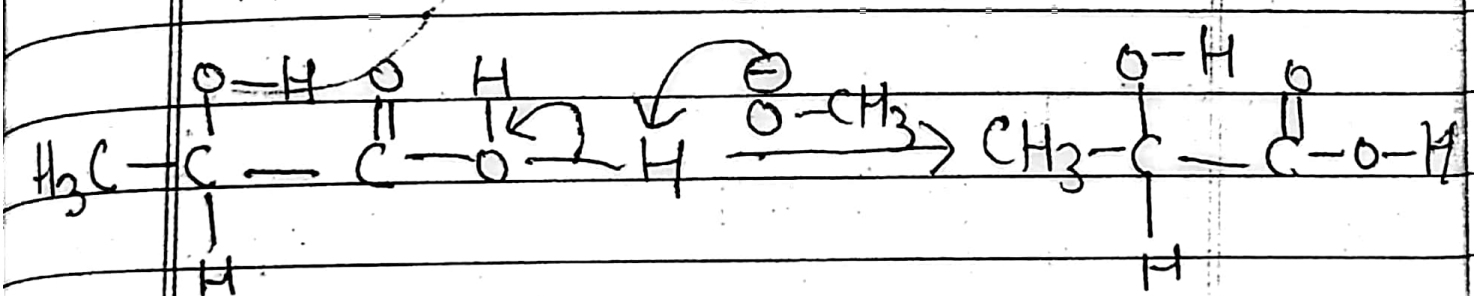
ii) From α-Hydroxy propanoate react with water then form lactic acid

Mech:







iii) When 1,1,1 trihalo propane 2-ol react with water then form 1,1,1,2 tetra hydroxy propane (unstable compound) hence loss water and form lactic acid.

Mech:-