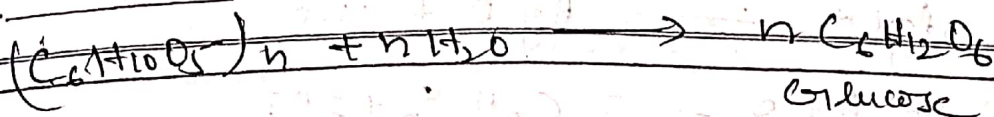


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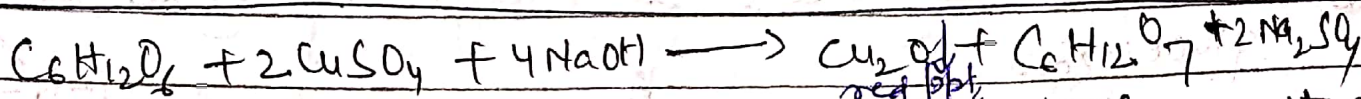
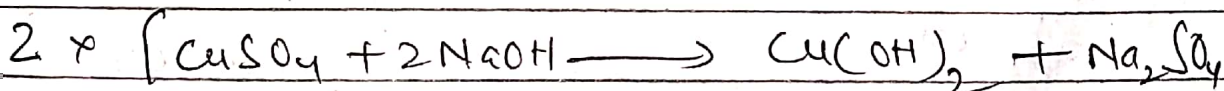
The resulting solution is cooled and neutralized with $CaCO_3$

$CaCO_3 + H_2SO_4 \rightarrow CaSO_4 + CO_2 + H_2O$
 calcium sulphate is precipitated and glucose remains in solution. It is separated by filtration. The filtrate containing glucose is decolourised with animal charcoal. It is concentrated in vacuum till glucose crystallises.

(iii) By the hydrolysis of wood cellulose, wood cellulose is hydrolysed with dil. H_2SO_4 and glucose is obtained.

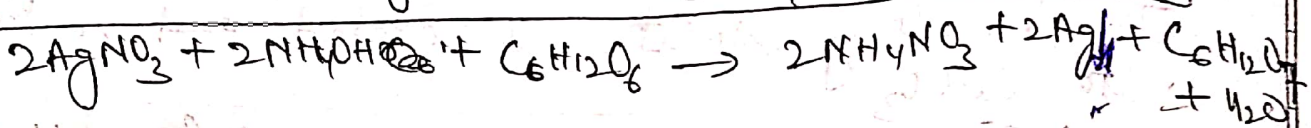
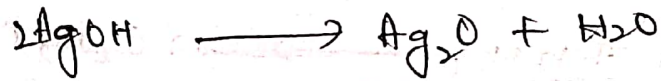
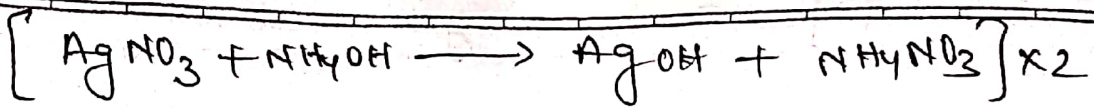
Properties :- Physical properties :- It is a crystalline solid; m.p., $146^\circ C$. Monohydrate glucose melts at $86^\circ C$. It is soluble in water & ether.

Chemical properties :- It reduces Fehling solution giving red precipitate of Cu_2O (cuprous oxide) and being itself oxidised to gluconic acid.



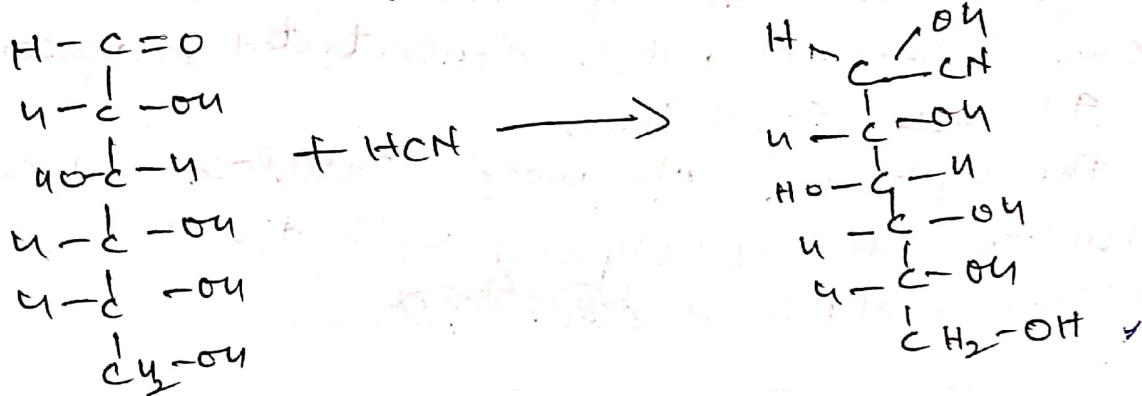
(2) It reduces Tollen's reagent (ammonical silver nitrate soln) giving silver mirror and being itself oxidised to gluconic acid.

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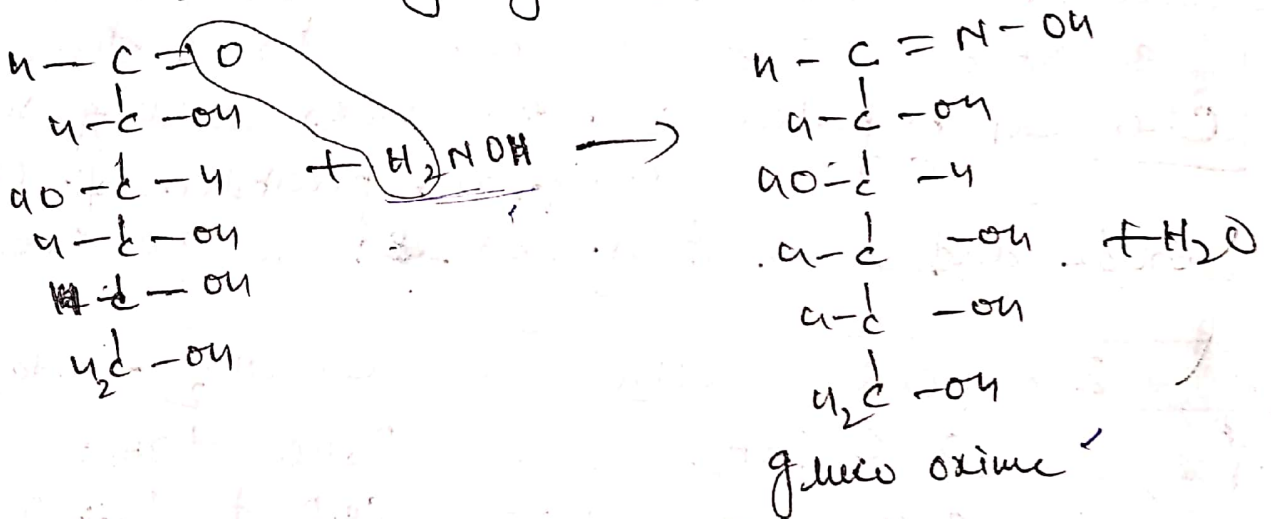


③ When heated with NaOH solution it is turned to brown

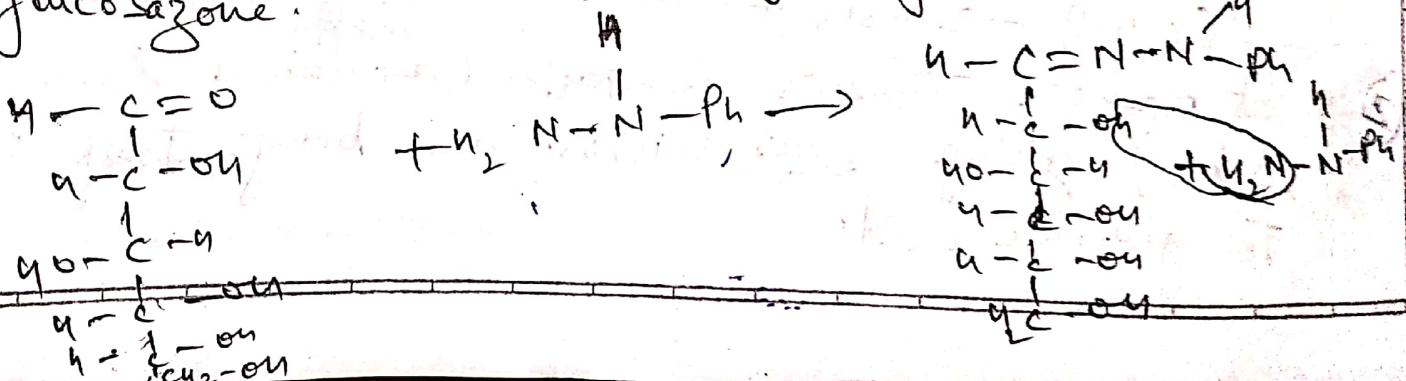
④ It reacts to HCN to form glucose cyanohydrin

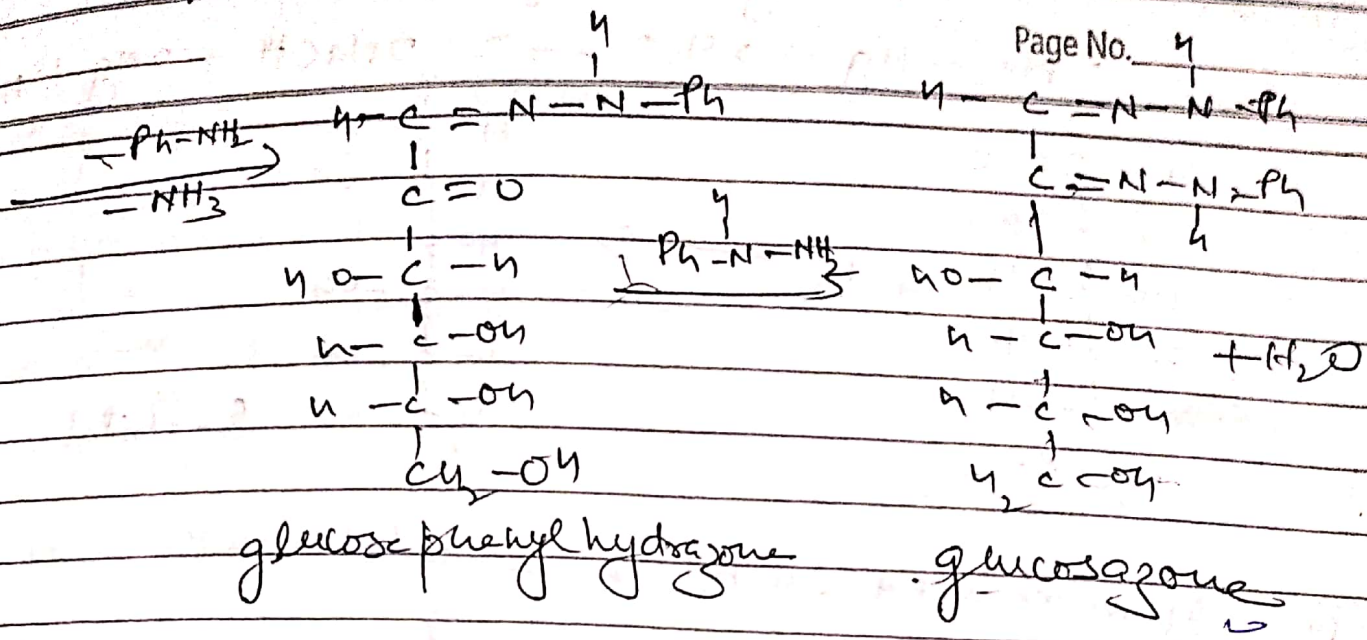


⑤ It reacts with hydroxyl amine to form oxime

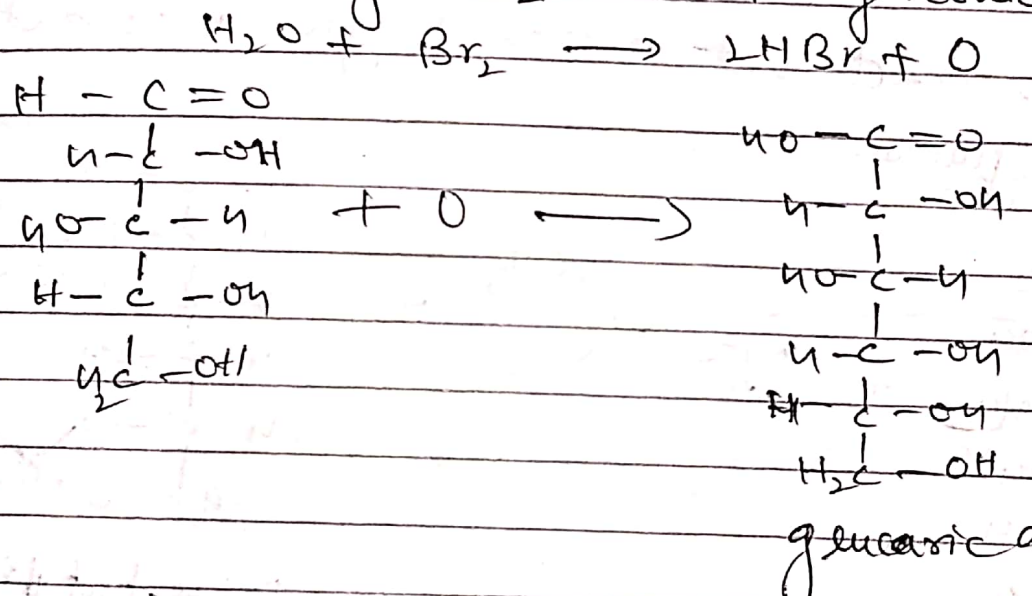


⑥ It reacts with excess of Phenyl hydrazine to form glucosazone.

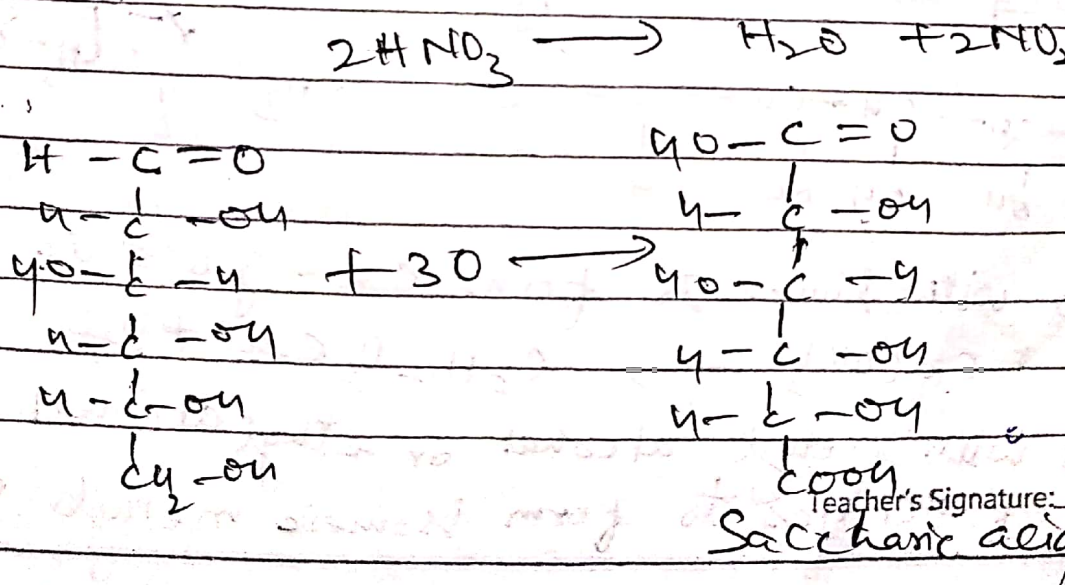




⑦ It is oxidised by Br₂ water to gluconic acid

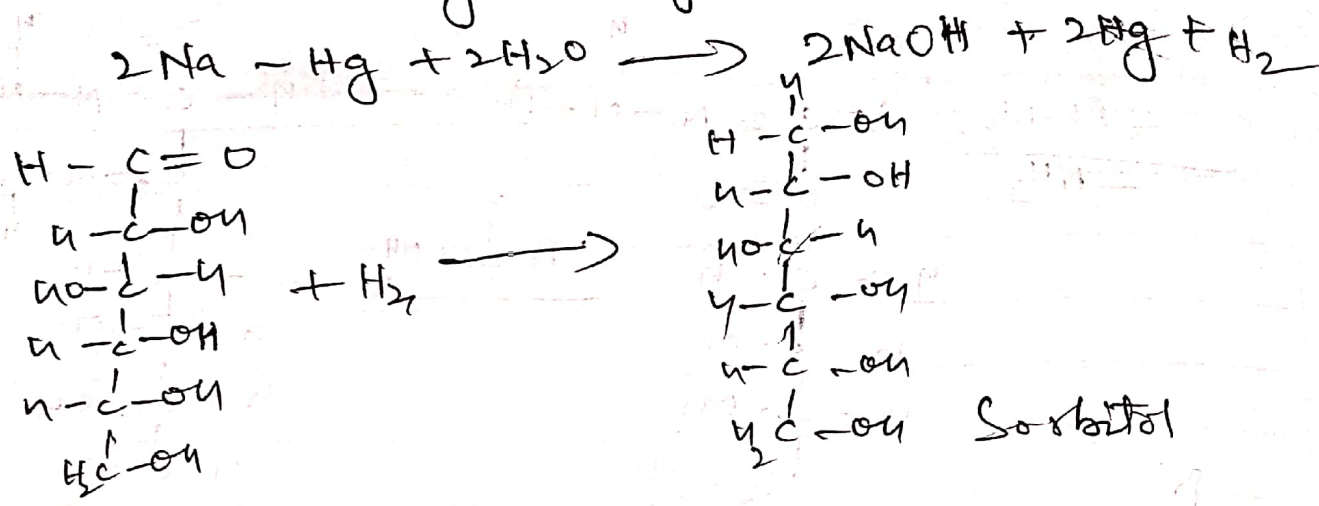


⑧ On oxidation with Conc. HNO₃ acid give saccharic acid

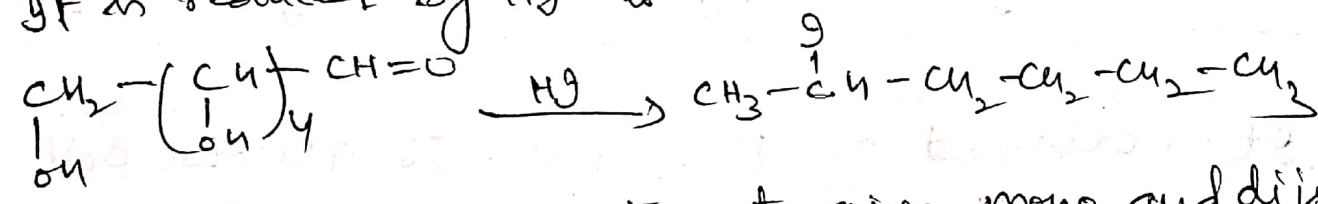


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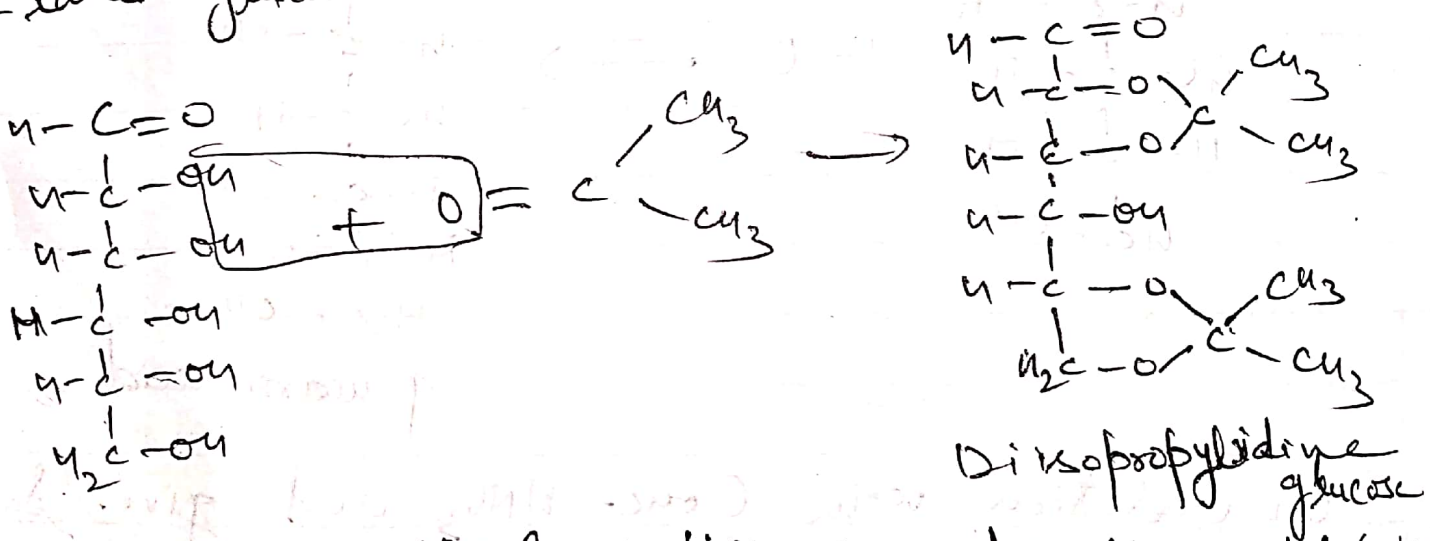
9) It is reduced by Na-Hg to Sorbitol



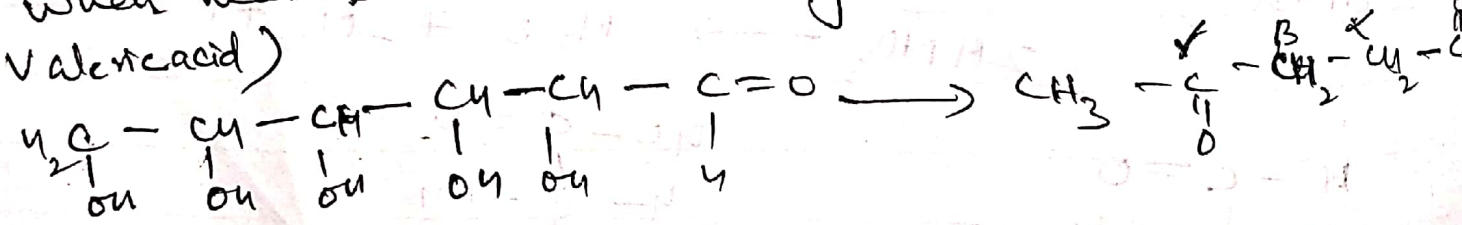
10) It is reduced by Hg to 2-iodohexane



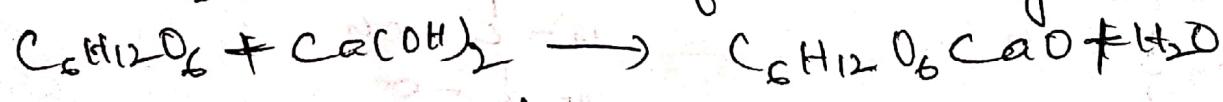
11) Glucose reacts with acetone to give mono and diisopropylidene glucose.



12) When heated with Conc. HCl gives lauric acid (γ-keto valeric acid)



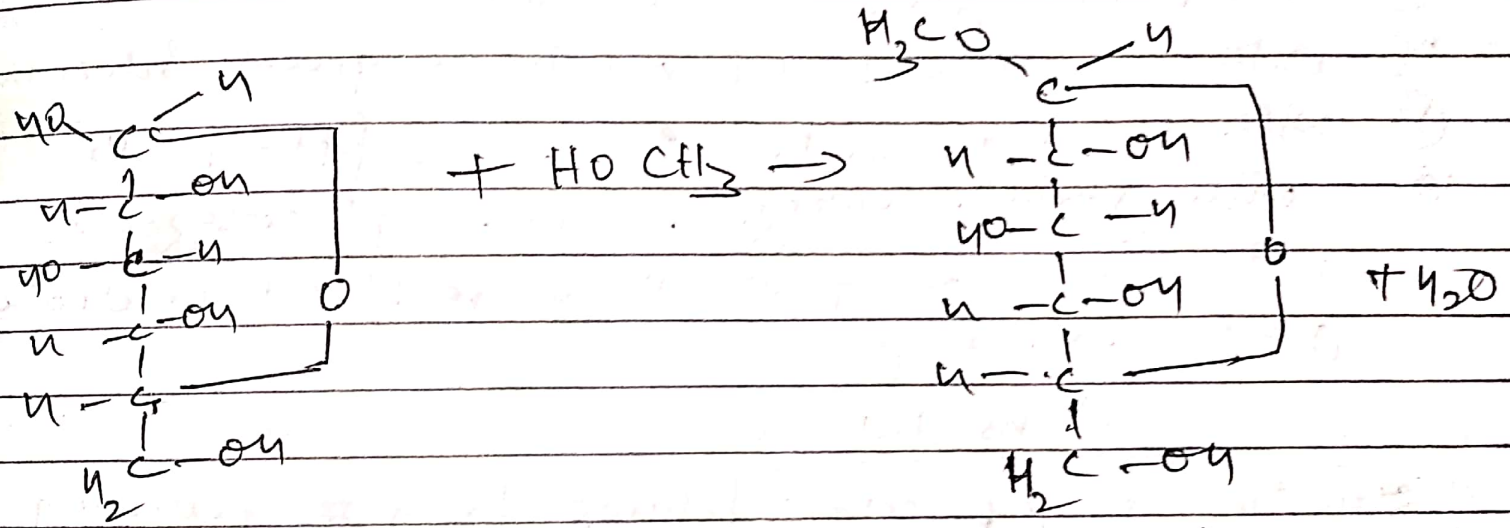
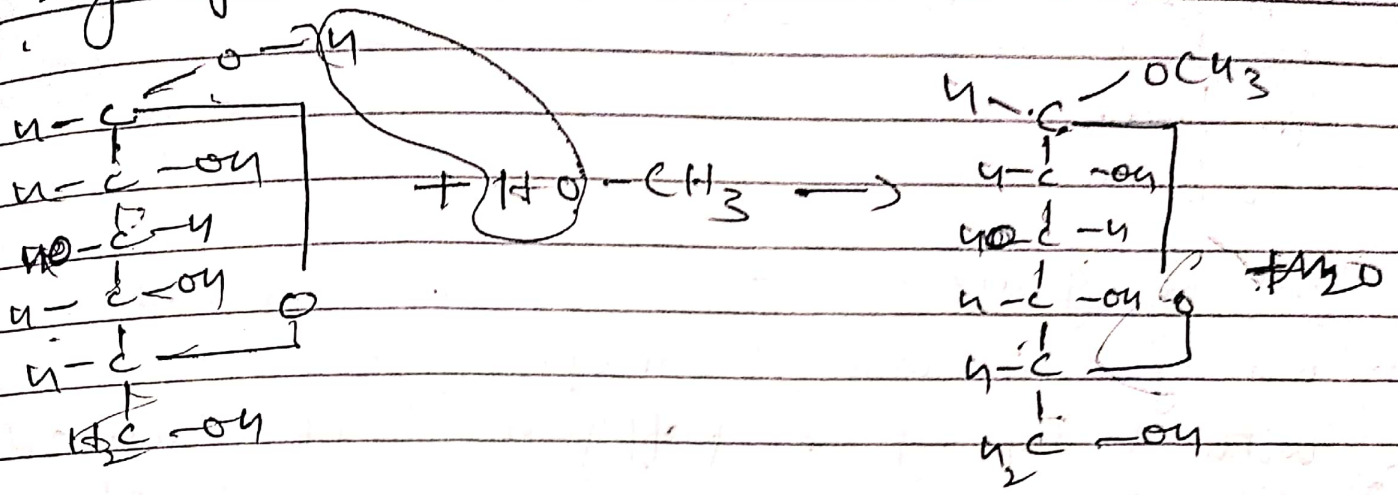
13) It reacts with lime to form Ca-glucosate



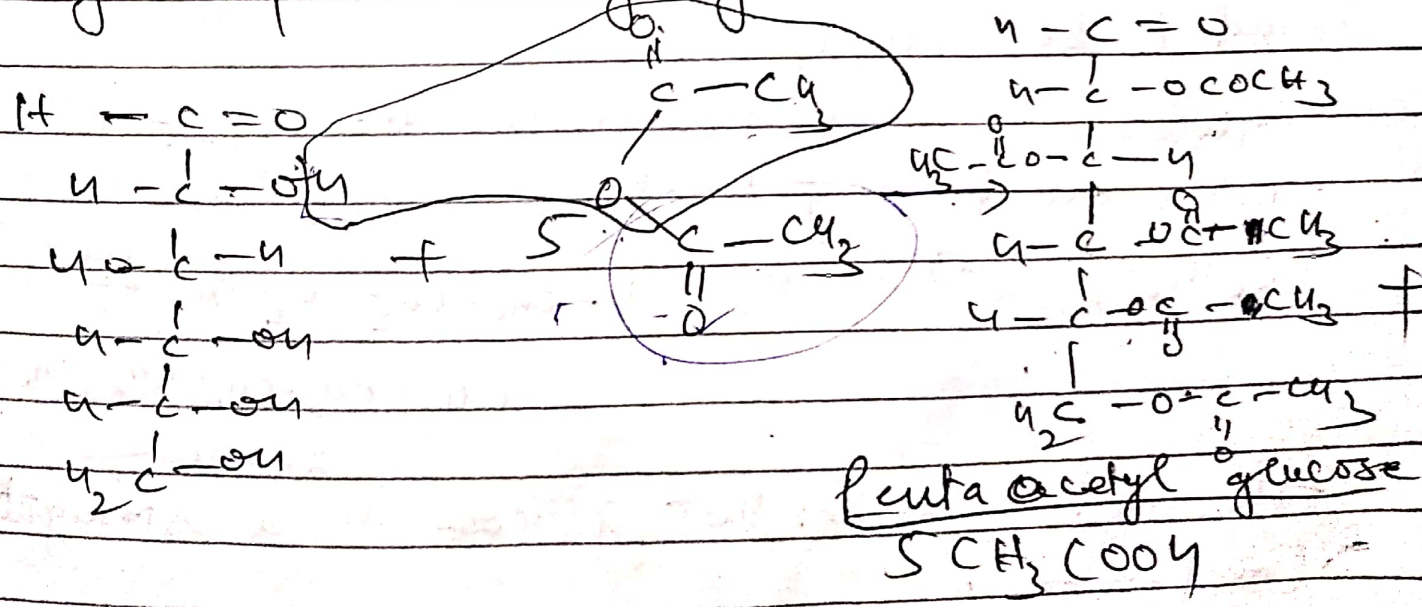
14) It reacts with methyl alcohol or ethyl alcohol in presence of HCl gas to form isomeric methyl or ethyl glucoside

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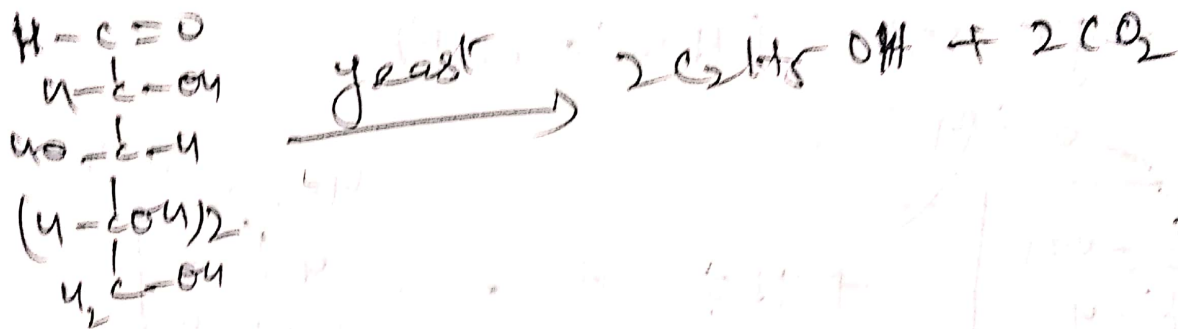
ethyl glucoside (hemiacetal)



It reacts with five moles of acetic anhydride to give penta acetyl glucose



(16) It is fermented to give ethanol



Test of glucose :-

- (1) on ignition with smell of sugar.
- (2) with H_2SO_4 gives puffy mass of black colour
- (3) with NaOH gives brown mass
- (4) with ammoniacal silver nitrate gives silver mirror
- (5) with Fehling solution gives red ppt. of Cu_2O
- (6) with Phenyl hydrazine give glucosazone
- (7) with molish reagent (1% α -naphthol in alcohol) gives brown ring.