

Answer:- Chain Lengthening of Aldose-

(II) Conversion of an aldose to next higher aldose:-

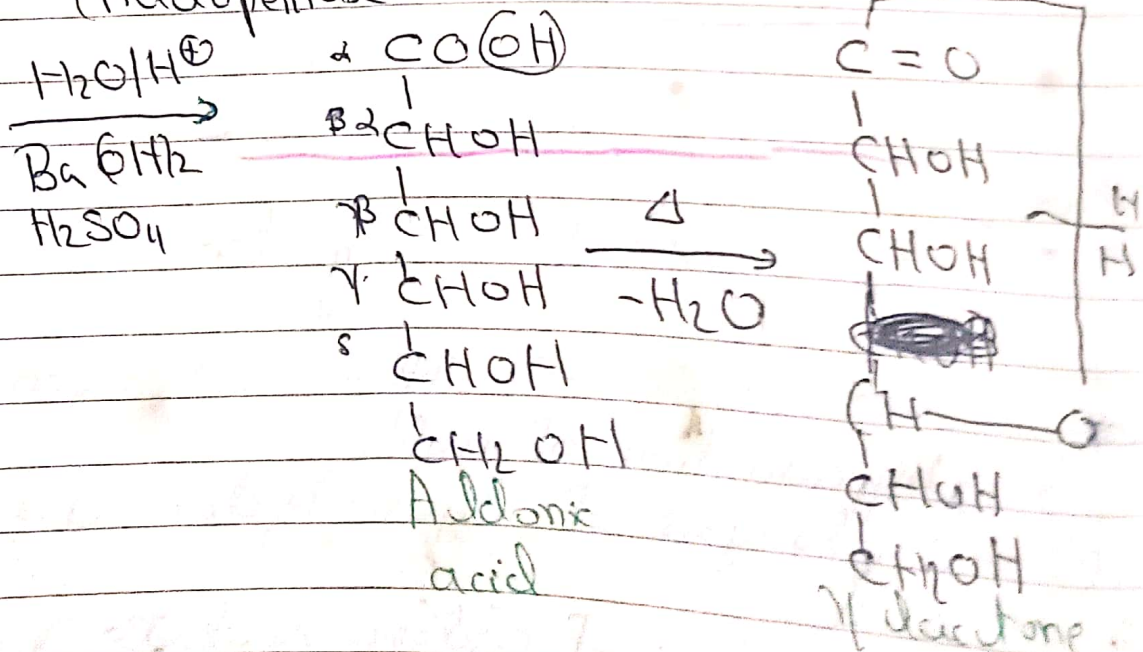
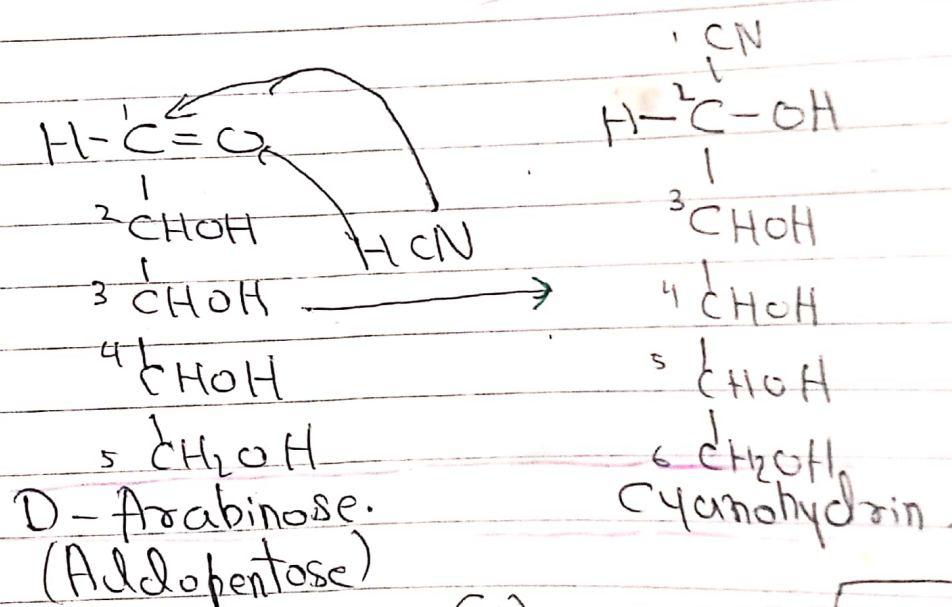
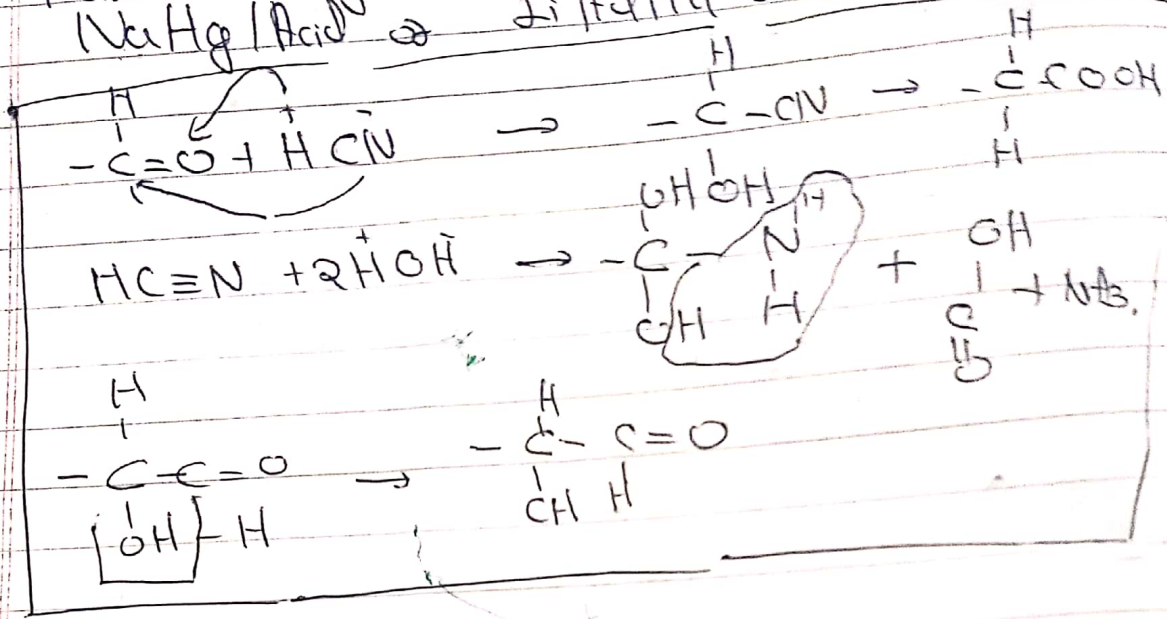
Kiliani Fischer synthesis

Imp

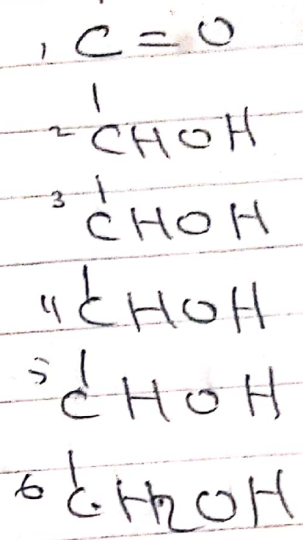
It involves following steps:-

- (i) Conversion of aldose to cyanohydrin by addition of HCN.
- (ii) Hydrolysis of cyanohydrin to aldonic acid.
- (iii) Conversion of aldonic acid to γ lactone by heating.

Reduction of γ lactone to higher aldehyde by
 Fenton's reagent. (H_2O_2 and Ferric sulphate)
 (iv) $NaHg/acid \rightarrow LiAlH_4 \text{ or } NaBH_4$.



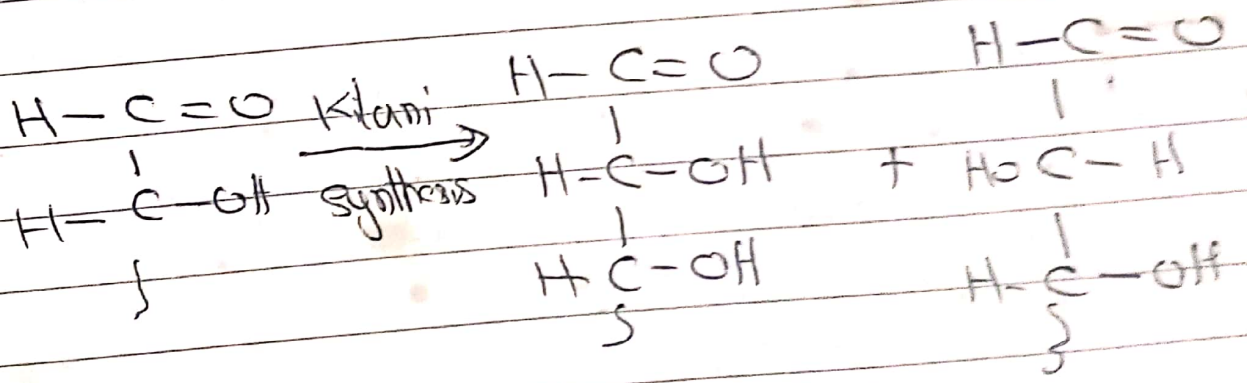
NaBH₄ →



D Glucose.
(Aldohexose.)

Theoretically two isomers are formed due to creation of a new asymmetric centre. These are epimers.

These D Aldohexose gives D Glucose and D Mannose.



Epimers.

Epimers :- The pair of diastereoisomers differing in configuration at only one carbon are called epimers.
D + Glucose and D + Mannose are epimers because they differ in configuration only at C₂ carbon.