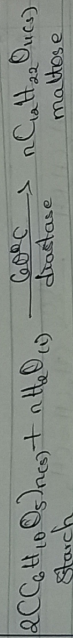


3 Show the three steps in the industrial manufacture of ethanol. Equations of reaction mandatory.
Answer:

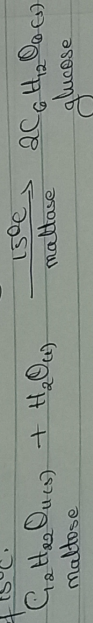
a) Step 1:

Starch containing materials, e.g. potatoes, etc. are ^{with} soaked in malt at a temperature of 60°C for a specific period of time to give maltose with diastase as the catalyst.



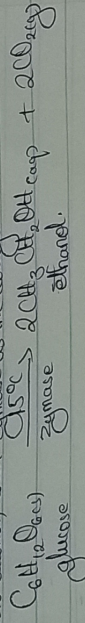
b) Step 2:

Maltose is broken down into glucose by the addition of yeast which contains maltase as catalyst and is heated at a temperature of 15°C.



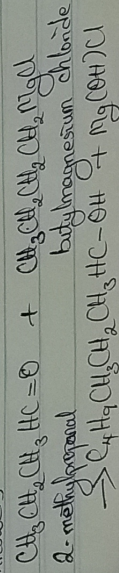
c) Step 3:

The glucose is heated at a temperature of 15°C to convert it into alcohol, with zymase as the catalyst.



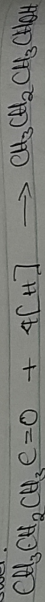
4 Show the reaction between 2-methylpropanal and ~~butyl~~ butylmagnesium chloride.

Answer:



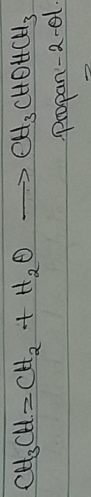
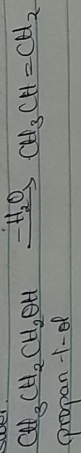
6 Show the reduction reaction of 2.
7 Show the reduction reaction of 2-methyl propanal

Answer:



8 Propose a scheme for the conversion of propan-1-ol to propan-2-ol.

Answer:



steps of

$\text{CH}_3\text{COCl} \rightarrow ? + ?$ (ii) $\text{CH}\equiv\text{CH} + \text{Cl}_2$ Metallic halide ?
with sodium metal in ether solution, give the general chemical equation for the reaction of Vitamin. (c) State the functional group for (i) Alkanolic acids (ii)