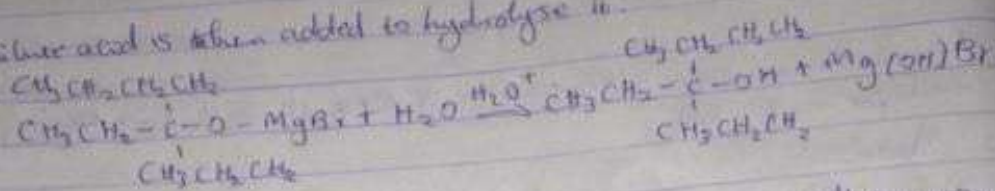


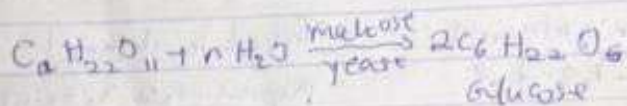
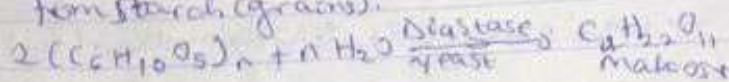
Alkyl acid is then added to hydrolyse it.



3) Discuss the industrial manufacture of ethanol showing all reaction equations and necessary enzymes and temperature of reaction. Fermentation is the chemical process that involves the breaking down of molecules such as glucose anaerobically with the release of carbon dioxide gas and alcohol.

The production of ethanol by fermentation occurs in three basic steps:- the temperature of the reactions occur at a minimum temperature of  $(25-35)^\circ\text{C}$

from starch (grains).



4) Determine the products obtained in the reduction of Alkanone and Alkanal. Use a specific example for each and show the equation of reaction.

Answer:

Reduction of Alkanone: - Alkanones are reduced to the corresponding secondary alkanol.





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M055/1/111

Matric No: 19/MHS01/056

1) Discuss the two major classifications of Alkanols. Give two examples each for each class.

Answer:

i) Mono hydrolic Alkanols: - These are alkanols with only one hydroxyl group (-OH) in their molecule. The first three members of the family are:

- Methanol:  $\text{CH}_3\text{OH}$  (commonly known as wood spirit).

- Ethanol:  $\text{CH}_3\text{CH}_2\text{OH}$  or  $\text{C}_2\text{H}_5\text{OH}$

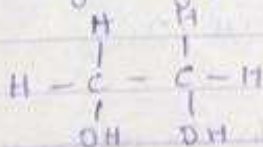
- Propanol:  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$  or  $\text{C}_3\text{H}_7\text{OH}$

ii) Polyhydrolic Alkanols: - This class of alkanols contain more than one hydroxyl groups per molecule.

It occurs in two sub class namely the dihydrolic alkanol and the trihydrolic alkanol.

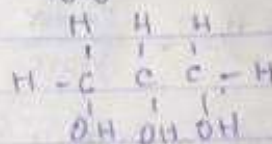
Examples: - Dihydrolic alkanol;

ethane-1,2-diol  
(ethylene glycol)



Trihydrolic alkanol

propan-1,2,3, triol  
(glycerol)



2) In the Grignard synthesis of Alkanols, react a named Grignard reagent with  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}=\text{OCH}_2\text{CH}_3$ . Show the reaction steps

First stage: The Grignard reagent adds across the carbon oxygen double bond.

