

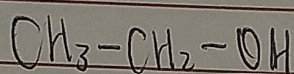
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Matric No: 19/MHS04/054

CHM 102 ASSIGNMENT

1. a) Primary Alcohols

These are those alcohols where the carbon atom of the hydroxyl group (OH) is attached to only one single alkyl group

Example

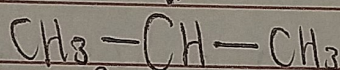
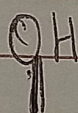


Ethanol

b) Secondary Alcohols

These are those alcohols where the carbon atom of the hydroxyl group (OH) is attached to two alkyl groups on either side

Example

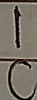
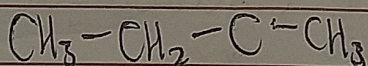
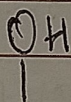


Propan-2-ol

c) Tertiary Alcohols

These are alcohols which features hydroxyl group attached to the carbon atom which is connected to 3 alkyl groups

Example



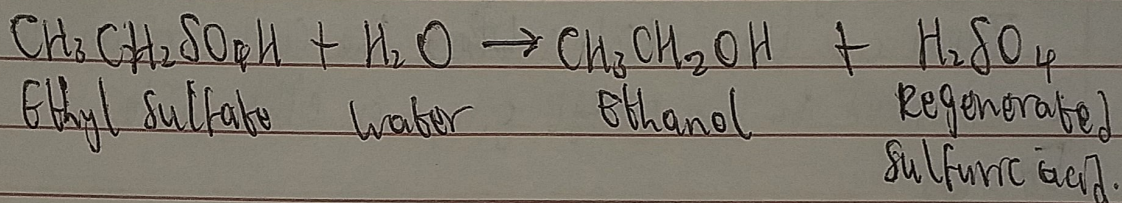
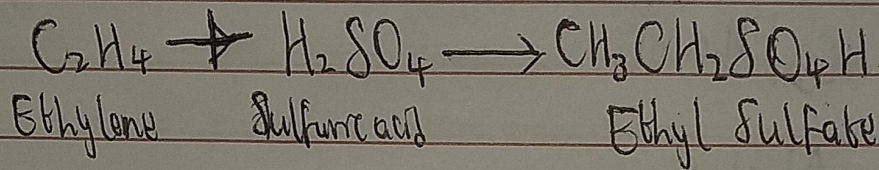
2. Solubility of Alcohols in water, organic solvents

- Alcohols with up to three carbon atoms are soluble in water as a result of their ability to form hydrogen bond with water

- All monohydric alcohols are soluble in organic solvents

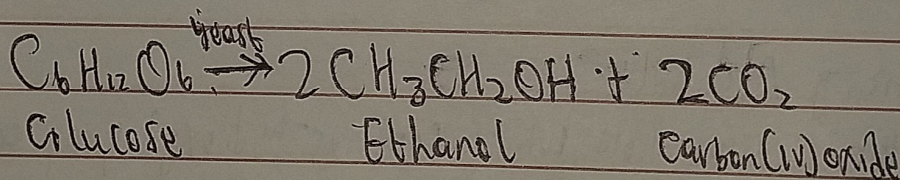
3. i) Ethylene Hydration

Ethylene is hydrated indirectly by reacting it with concentrated H_2SO_4 to produce ethyl sulfate, which was hydrolyzed to yield ethanol and regenerate the acid

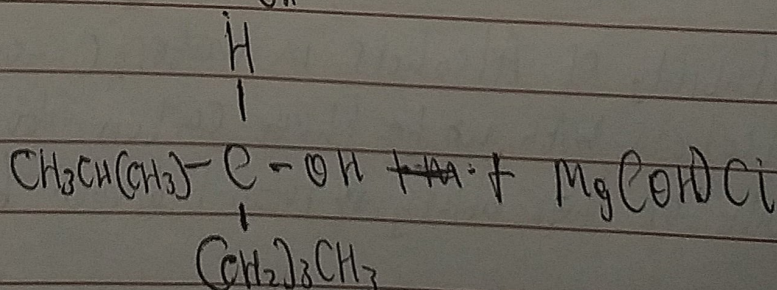
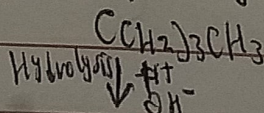
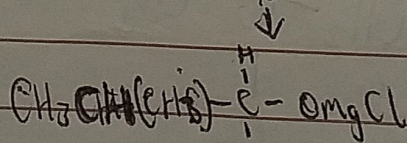
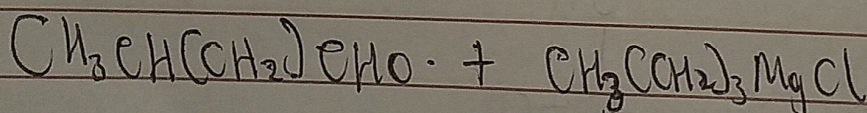


ii) Fermentation

Certain species of yeast metabolizes sugar to produce ethanol and carbon(IV) oxide



4 Reaction between 2-methylpropanal and butylmagnesium chloride

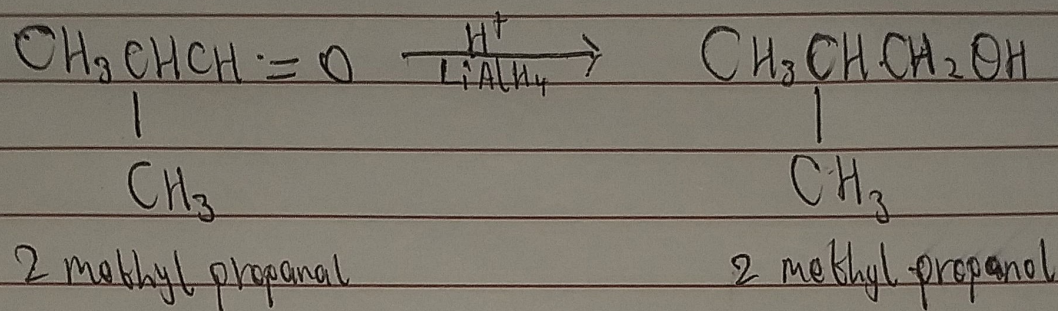


(2-methylheptan-3-ol)

5. Question was asked to be skipped

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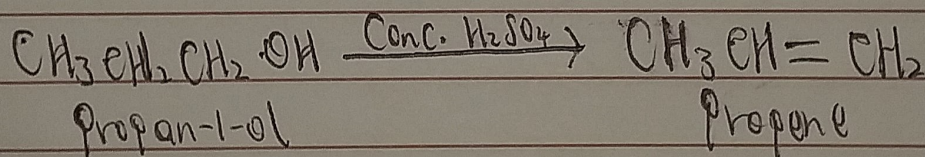
7. Reduction of 2-methyl propanal



8. Scheme for the Conversion of Propan-1-ol to Propan-2-ol

i) Dehydration of propan-1-ol ~~to~~ to Propene

Propan-1-ol is treated with Concentrated Sulfuric acid (H_2SO_4) to be converted to propene



ii) Hydrolysis of Propene to Propan-2-ol

Propene is hydrolyzed to propan-2-ol in accordance to the Markovnikov's addition, which states that when ^{an} unsymmetrical reagent, the negative part of the reagent gets attached to the carbon atom of the alkene which has less number of hydrogen atoms. Therefore, the negative part attaches itself to propene and thus convert it to Propan-2-ol.

