

Name: - Ajodi Nimo Esse

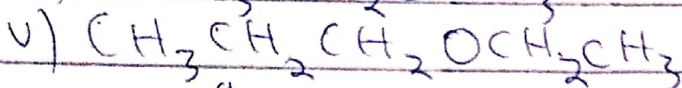
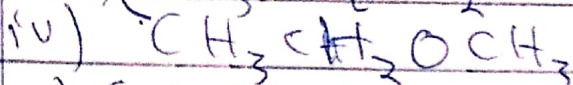
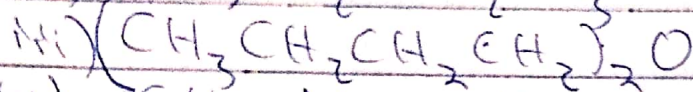
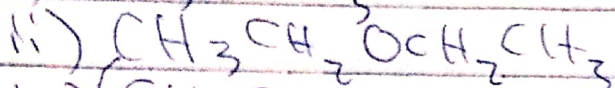
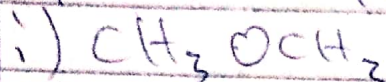
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Department: - Nursing

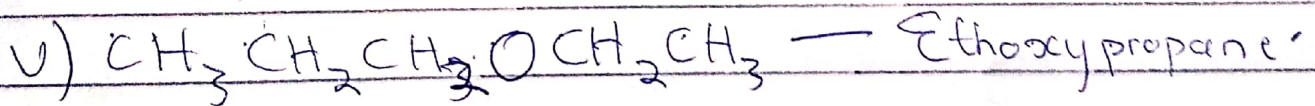
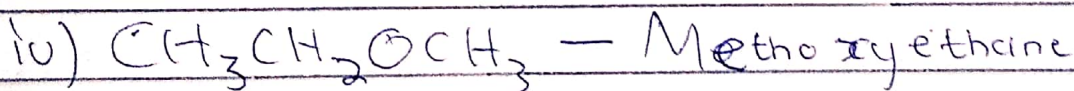
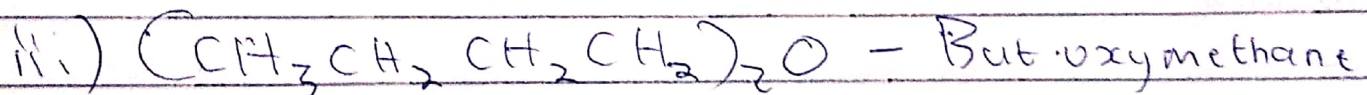
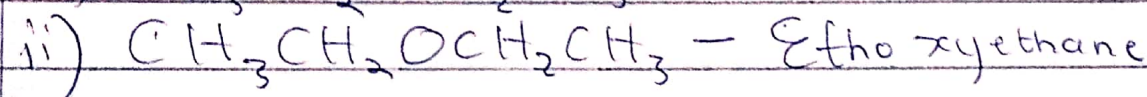
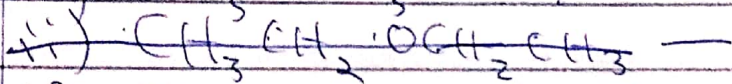
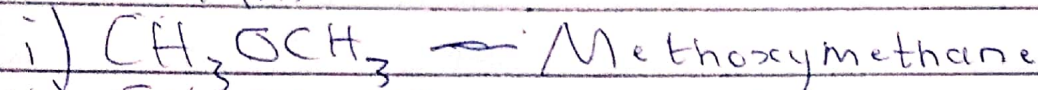
course code: - Chm 102

Assignment

1. Give the IUPAC names of the following organic compounds:



Answers:



2. Discuss the properties of ethers

Answers

i) Physical state

At room temperature, ethers are colourless, neutral liquids with pleasant odour. The lower aliphatic ethers are highly flammable gases or volatile liquids.

2. ii) Solubility

They are fairly soluble in water. Esters with lower molecular mass are fairly soluble in water since they are able to form hydrogen bonds with the water molecules. They are soluble in most organic solvents.

iii) Density

Most of the simple ethers are less dense in water, although the density increases with increase in molecular mass.

iv) Boiling point

The lower the molecular mass, the lower the boiling point, but other esters containing alkyl group larger than four (4) carbon atoms, the reverse is true i.e. the higher the molecular mass, the higher the boiling point.

v) Reactivity

Ethers are inert at moderate temperature, so as a result, leads to their wide use as reaction media.

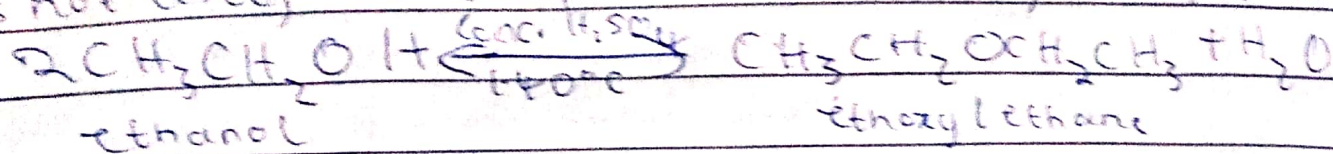
3. **Q** Discuss explicitly two methods of preparing ethers and show equations of reaction.

Answers

i) Partial dehydration of alcohols-

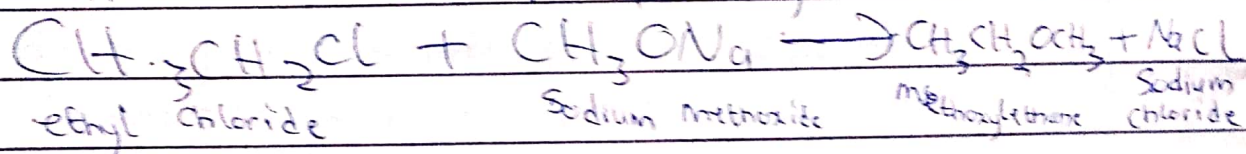
In this method, the alcohol in excess and concentrated H_2SO_4 is heated at a constant temperature of $140^\circ C$. This process is also known as continuous etherification. If excess alcohol

is not used, the temperature is as high as 170-180°C



Preparations of ethers by Williamson synthesis

In this method, an alkyl halide is reacted with sodium alkoxide which results to the formation of ether. The reaction generally follows the $\text{S}_{\text{N}}2$ mechanism for primary alcohol.



Q. State three uses of ethylene oxide

Answers.

- i) It is used as a gaseous sterilizing agent.
- ii) It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- iii) It is used for preparing non-ionic emulsifying agents, plastics; plasticizers, and several synthetic textiles.

iv