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DEPARTMENT: MBBS

COURSE CODE: CHM 102

ASSIGNMENT ON ETHER.

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

- CH_3OCH_3 - Methoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane
- $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - Butoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_3$ - Methoxyethane
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxypropane

2. Discuss the following properties of ethers.

Properties of ethers.

i. Physical states

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

ii. Solubility

Ethers are less soluble in water than are the corresponding alcohols. They are miscible with most organic solvents.

iii. Density

Most of the simple ethers are less dense than water, although the density increases with increasing relative molecular mass and some of the aromatic ethers are denser than water.

iv. Boiling point

Lower molecular mass ethers have a boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms the reverse is true.

v. Reactivity

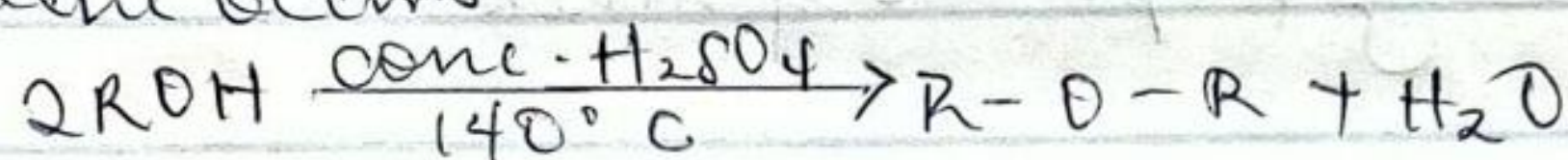
Ethers are inert at moderate temperatures. Their inertness at moderate temperatures leads to their

with use as reaction media.

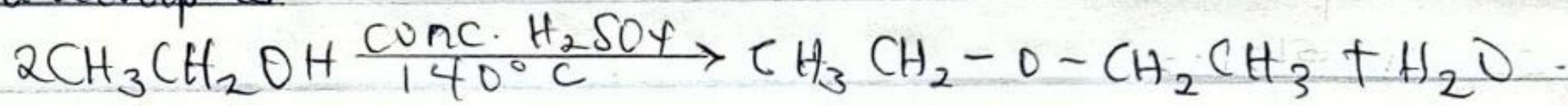
3. Discuss explicitly two methods of preparing ethers and show equations of reaction.

9. Partial dehydration of alcohols:

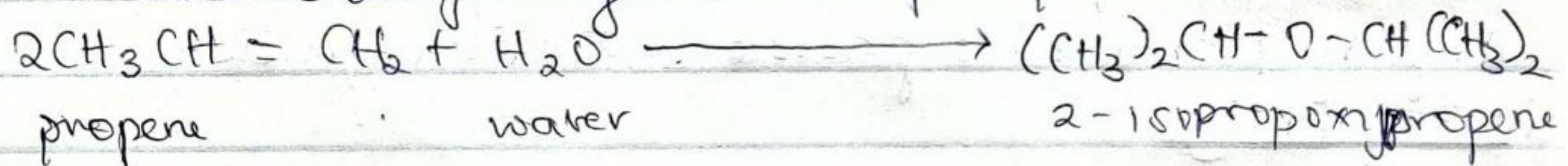
Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxo-sulphate (vi) acid is heated at a carefully maintained temperature of 140°C , this process is known as continuous etherification. If excess alcohol is not used, the temperature is as high as $170-180^{\circ}\text{C}$, further dehydration to yield alkene occurs.



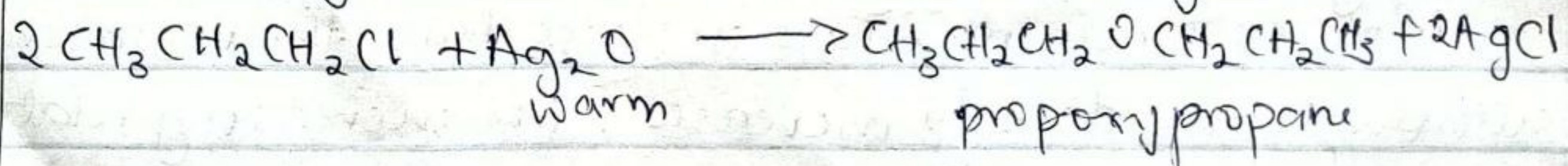
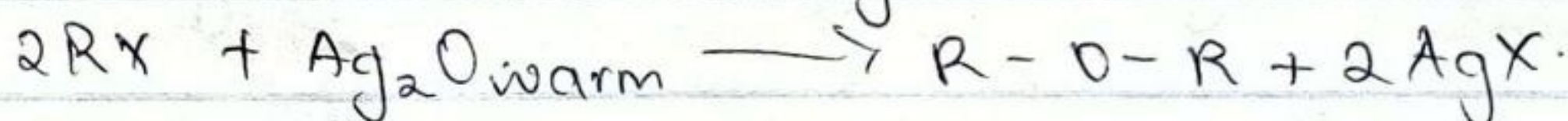
Examples



b. Controlled catalytic hydration of olefins:



From haloalkanes and dry silver(I) oxide



3. State three uses of ethylene oxide.

Uses of ethylene oxide:

- It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- It is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.
- It is used as a gaseous sterilizing agent.