

Name Olygde Bolantje Comaruel

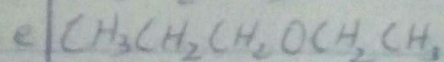
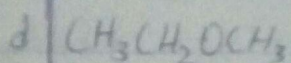
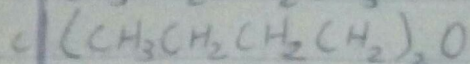
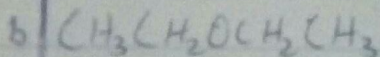
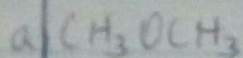
Course CHM 102

Dept Medicine and Surgery

Matric No 19/MHSC01/343

Assignment

1) Give the IUPAC names of the following compounds;

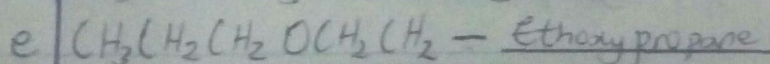
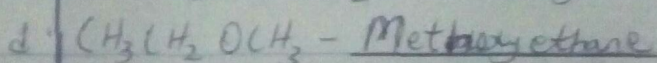
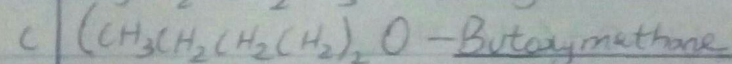
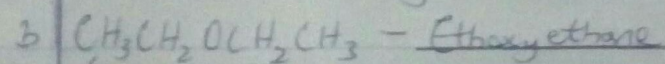
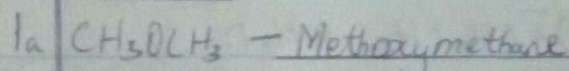


2) Discuss the properties of ethers.

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

4) State three uses of ethylene oxide.

Answers



2) Physical States: - At room temp. ethers are colorless, neutral liquids with pleasant odors. The lower aliphatic ethers are highly flammable gases or volatile liquids.

(i) Solubility: - Ethers are less soluble in water than are the corresponding alcohols. Lower molecular weight ethers such as methoxymethane and methoxyethane are fairly soluble in water since the molecules are able to form hydrogen bonds with the water molecule but as the hydrocarbon content of the molecules increase, there is a rapid decline in solubility. They are miscible with organic solvents.

(ii) 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 in fact denser than water.

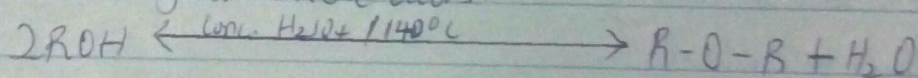
(iii) Boiling point: Lower molecular mass ethers have a lower boiling point than the corresponding alcohols.

but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true. The boiling points of ethers tend to approximate those of hydrocarbons of same relative molecular mass from which it can be concluded that the molecules are not associated in liquid phase as there are no suitably available hydrogens for association through hydrogen bonds.

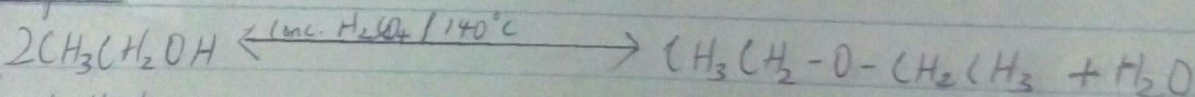
⑨ Reactivity: Esters are inert at moderate temperature. Their inertness at moderate temperature leads to their wide use as reaction media.

3) Partial dehydration of alcohol

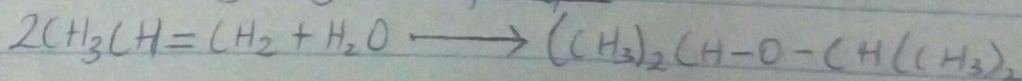
Simple ethers are manufactured from ~~catalytic~~ alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxosulphate(VI) acid is heated at a carefully maintained temperature of 140°C . This process is known as continuous etherification. If excess alcohol is not used, the temperature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



Examples



⑩ Controlled catalytic hydration of alkenes



2-isopropoxypropane

⑪ Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol.

⑫ Ethylene oxide is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.

⑬ Ethylene oxide is used as a gaseous sterilizing agent.