

NAME ODEKWO FAITH OGHEHEKOME

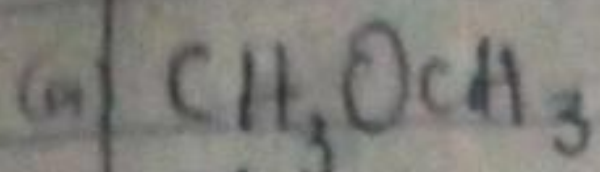
DEPT PHARMACY

REG. NO. 19/M/1511/094

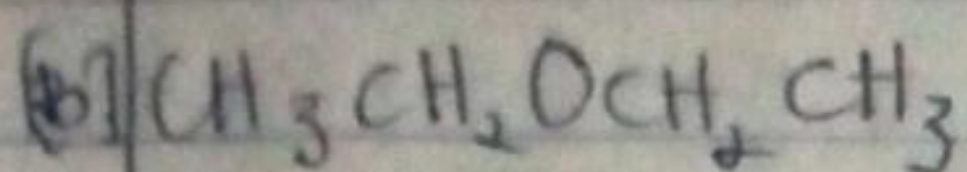
COURSE CODE CHM 102

Assignment

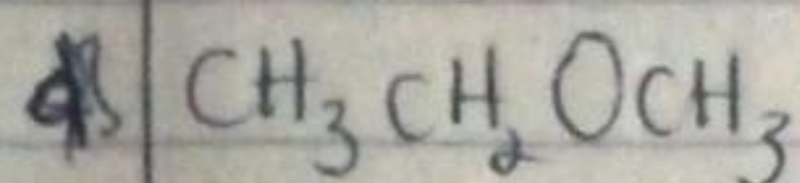
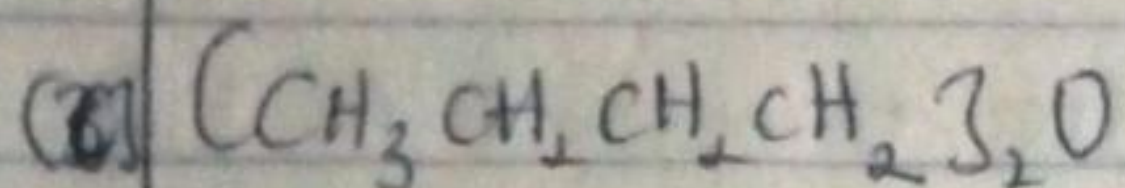
1. Give the IUPAC names



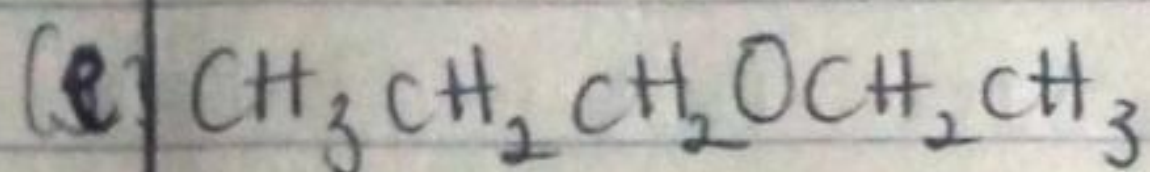
Methoxymethane or Dimethyl ether



Ethoxyethane or Diethyl ether



Ethyl methyl ether or methoxyethane



Ethyl propyl ether or 2-ethoxypropane.

2. Properties of ethers

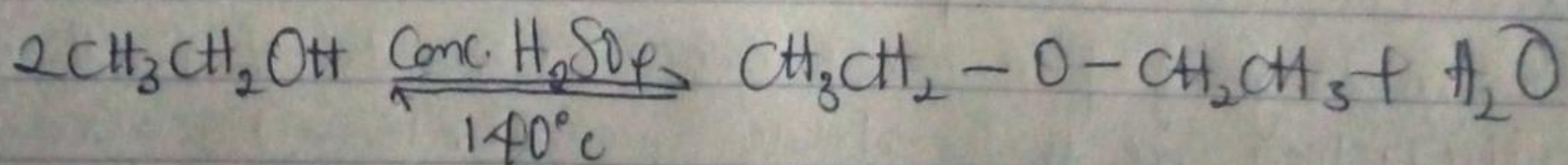
(a) Physical state: At room temperature, ethers are colourless, neutral liquids with pleasant odors. The lower aliphatic ethers are highly flammable gases or volatile liquids.

(b) Solubility: They are less soluble in water than the corresponding alcohol. 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 molecules, but as the hydrocarbon content of the molecules increases, there is a rapid decline in solubility. They are miscible with most organic solvents.

- (c) Density: Most of the simple ethers are less ~~stable~~ dense in water although the density increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.
- (d) Boiling Point: The boiling point of ethers tends to approximate those of hydrocarbons of the same relative molecular mass, for which it can be concluded that the molecules are not associated in the liquid phase as there are no suitably available hydrogen for association through hydrogen bonds.
- (e) Reactivity: Ethers are inert at moderate temperature. Their inertness at moderate temperatures lead to their wide use as reaction media.

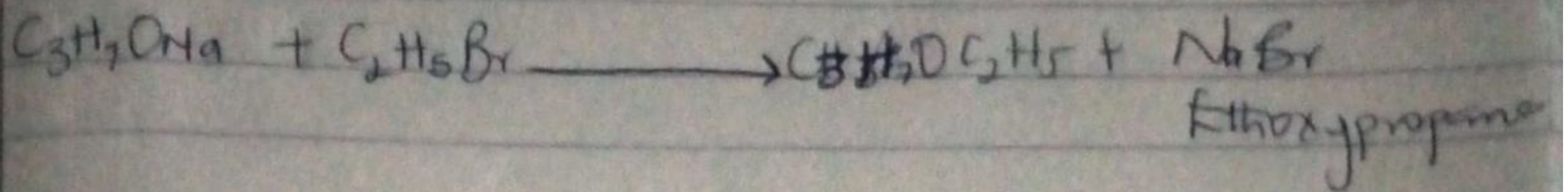
3. Partial dehydration of alcohols

Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxo-sulphate(VI) acid (H_2SO_4) is heated at a carefully maintained temperature of $140^\circ C$. This process is known as continuous etherification. If excess alcohol is not used, and the temperature is as high as $170 - 180^\circ C$, further dehydration to yield an alkene occurs.



(ii) Williamson's Synthesis.

Mixed or simple ethers of definite structure may be synthesized by Williamson's synthesis. The process involves the displacement of a halogen from an haloalkane by an alkoxide (alkoxide or phenoxide) ion.



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