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DEPARTMENT PHARMACY  
COURSE CODE CHM 102  
MATIC NO 191111105

#### ASSIGNMENT

1. GIVE THE IUPAC NAMES OF THE FOLLOWING ORGANIC COMPOUNDS

- i)  $\text{CH}_3\text{OCH}_3$  - Methoxymethane
- ii)  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxyethane
- iii)  $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$  - Butoxy methane
- iv)  $\text{CH}_3\text{CH}_2\text{OCH}_3$  - Methoxyethane
- v)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxy propane

2. Properties of ether

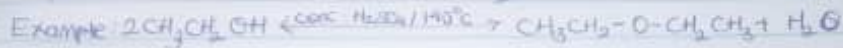
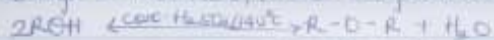
- i) Physical states - Ethers are colorless, neutral liquids with pleasant odors at room temperature. The lower aliphatic ethers are highly flammable gases or volatile liquids.
- ii) Solubility - Ethers are less soluble in water than are the corresponding alcohols. Lower molecular weight ethers such as methoxymethane and methoxyethane are fairly soluble in water. 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 in fact denser than water.

1) Boiling Point: Low molecular mass ether have a lower boiling point than the corresponding alcohols but those ether containing alkyl radicals less than four carbon atoms, the reverse is true.

2) Reactivity: Ether are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

### 3. Methods of Preparing ether:

i) Partial dehydration of alcohols: Simple ether are manufactured from alcohol by catalytic dehydration. The alcohol in excess and concentrated tetrahydroborate (VI) acid is heated at a carefully maintained temperature of  $140^{\circ}\text{C}$ . 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.



ii) Controlled catalytic hydration of olefins



### 4 Uses of ethylene oxide

- i) Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- ii) Ethylene oxide is used as a gaseous sterilizing agent.
- iii) It is used in the preparation of nonionic emulsifying agents, plastics, plasticizer and several synthetic textiles.