**NAME – OMOTAYO MIRACLE**

**DEPT – MBBS**

**COURSE – CHEM 102**

**MATRIC NO – 19/MHS01/345**

**(1) IUPAC name for the following organic compounds**

1. CH3OCH3 – Methoxymethane
2. CH3CH2OCH2CH3 – Ethoxyethane
3. (CH3CH2CH2CH2)2O – Butoxymethane
4. CH3CH2 OCH3 – Methoxyethane
5. CH3CH2CH2OCH2CH3 – Ethoxypropane

**(2) Discuss the properties of ethers**

1. Physical states – at room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquids.
2. Density – most of the simple ethers are less dense than water, although the density increase with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.
3. Reactivity – ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media simple ethers are not found commonly in nature.
4. Boiling point – low molecules mass ethers have lower boiling point than the corresponding alcohols but those ethers containing alkyl radical larger than four carbon atoms, the reverse is true.

**(3) Discuss explicitly two methods of preparing ethers and show equations of the reaction**

1. Partial dehydration of alcohols – simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxosulphate (vi) acid is heated at a carefully maintained temperature of 140C. tis process is known as continuous etherification.

If excess alcohol is not used, the temperature is as high as 170-180C, further dehydration to yield alkene occurs

2ROH - R-O-R + H2O

Examples

 2CH3CH2OH - CH3CH2-O-CH2CH3 + H2O

1. Controlled catalytic hydration of olefins

2CH3CH=CH2 + H2O - (CH3)2CH-O-CH(CH3)2

 2-isopropoxypropane

**(4) Uses of Ethylene oxide**

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