NAME: OBUKOFE OKEOGHENE FAVOUR.
DEPT: MBBS.
MATRIC NUM: 19/MHS01/075.

CHM 102 ASSIGNMENT:

1) => CH_3OCH_3 - Methoxy methane
=> $CH_3CH_2OCH_2CH_3$ - Ethoxy ethane
=> $(CH_3CH_2CH_2CH_2)_2O$ - Buthoxy butane.
=> $CH_3CH_2OCH_3$ - Methoxy ethane.
=> $CH_3CH_2CH_2OCH_2CH_3$ - Ethoxy propane.

2) Properties of ~~ether~~ ethers
=> Physical states: At room tempeature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly ~~flamable~~ flammable gases.
=> Solubility: Ethers are less soluble in water than are the corresponding alcohols. Lower molecular weight ethers such as methoxy methane and methoxyethane are fairly soluble in water but as the hydrocarbon content of molecule increase, there is a rapid decline in solubility. They are mscible in most organic solvent.
=> 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 dense than water.
=> 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.
=> Reactivity: Ethers are ~~to~~ inert at moderate temperature. Their inertness at moderate temperatures lead to their wide use as reaction media.

3) Manufacturing of ethers.
=> 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 140°C. The process is known as continuous etherification. If excess alcohol is not used, the temperature is as high as 170° – 150°C, further dehydration to yield alkene occurs.

$$\underset{\text{ethanol}}{2CH_3CH_2OH} \xrightleftharpoons[140^\circ C]{\text{Conc. } H_2SO_4} \underset{\text{ethoxy ethane}}{CH_3CH_2-O-CH_2CH_3} + H_2O$$

⇒ Ethers can be manufactured by controlled catalytic hydration of olefins / alkenes.

$$\underset{\text{propene}}{2CH_3CH=CH_2} + H_2O \longrightarrow \underset{\text{2-isopropoxy propane}}{(CH_3)_2CH-O-CH(}$$