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COLLAGE: M.H.S

DEPARTMENT: PHARMACY

MATRIC NO: 19/ M.H.S 11/026

1) GIVE THE IUPAC NAME OF THE FOLLOWING ORGANIC COMPOUND

$\text{CH}_3 \text{O CH}_3 =$  METHOXYMETHANE

$\text{CH}_3 \text{CH}_2 \text{O CH}_2 \text{CH}_3 =$  ETHOXYETHANE

$\text{CH}_3 \text{CH}_2 \text{O CH}_3 =$  METHOXYETHANE

$\text{CH}_3 \text{CH}_2 \text{CH}_2 \text{O CH}_2 \text{CH}_3 =$  ETHOXYPROPANE

$(\text{CH}_3 \text{CH}_2 \text{CH}_2 \text{CH}_2)_2\text{O} =$  BUTOXYMETHANE

2) DISCUSS THE PROPERTIES OF ETHERS

**Physical state:** Ethers are colourless, neutral liquid with pleasant odours at a room temperature. The lower aliphatic ethers are highly flammable gases or volatile liquids.

**Density:** Most simple ethers are less dense than water although density increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser 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.

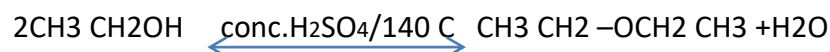
**Solubility:** Ethers are less soluble in water than the corresponding alcohols. Lower molecular weight ethers such as methoxy methane and methoxy ethane are fairly soluble in water since the molecules are able to form hydrogen bonds with water molecules.

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

3) PREPARATION OF ETHERS

I. **FROM ALKYL HALIDES:** Alkyl halides are heated with dry silver oxide to form ethers.  $2\text{CH}_3\text{CH}_2\text{Br} + \text{Ag}_2\text{O} \xrightarrow{\Delta} \text{CH}_3 \text{CH}_2 \text{O CH}_2 \text{CH}_3 + 2 \text{AgBr}$

II. **PARTIAL DEHYDRATION OF ALCOHOLS:** Alcohol in excess and concentrated tetraoxosulphate (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  $170-180^\circ\text{C}$ . Dehydration to yield alkene occurs.  $2\text{ROH} \xrightarrow{\text{conc. H}_2\text{SO}_4/140^\circ\text{C}} \text{R-O-R} + \text{H}_2\text{O}$



**4) uses of ethylene oxide**

- I. It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- II. Is used in the preparation of non-ionic emulsifying agents plastics, plasticizers and several synthetic textiles.
- III. Used as a gaseous sterilizing agent.