

WAGOR COURAGE NKESICHI

19/MHS01/435

① Give the IUPAC names of the following organic compounds

$\text{CH}_3\text{OCH}_3$  - methoxymethane

$(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$  - dibutylmethane

$\text{CH}_3\text{CH}_2\text{OCH}_3$  - methoxyethane

$\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$  - ethoxypropane

2. Discuss the properties of ethers

Ⓐ Physical states: At room temperature, ethers are colourless, neutral liquids with pleasant odours

Ⓑ Solubility: Ethers are less soluble in water than the corresponding alcohols. Lower molecular weight ethers such as methoxyethane are fairly soluble in water since the molecules are able to form hydrogen bonds with the water molecules but as the <sup>constant of the molecule increases</sup> hydrogen bonds with the water molecules ~~to~~, there is rapid decline in solubility.

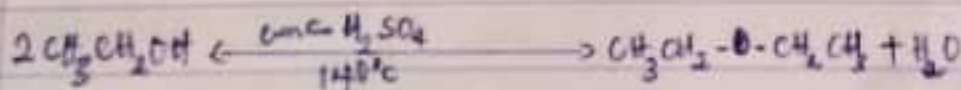
Ⓒ Density: Most of the simple ethers are less dense than water, although the density increases with increasing relative molecular mass.

Ⓓ Boiling point: Low 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.

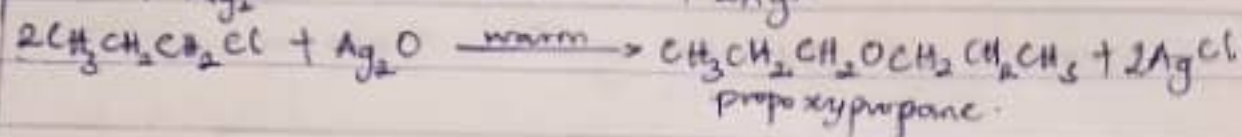
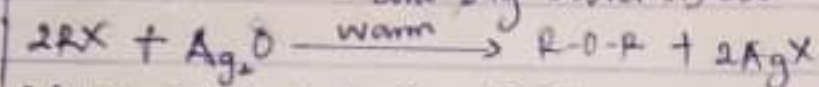
Ⓔ Reactivity: Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

3. Discuss the <sup>explicitly</sup> ~~prefer~~ two methods of preparing ethers and show equations of reaction

Ⓐ 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  $140^\circ\text{C}$ . This process is known as continuous etherification.



From Haloalkanes and dry silver (I) oxide



State three uses of ethylene oxide

Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol

Ethylene oxide is used in the preparation of nonionic emulsifying agents, plasticisers and several synthetic textiles.

Ethylene oxide is used as a gaseous sterilising agent.