

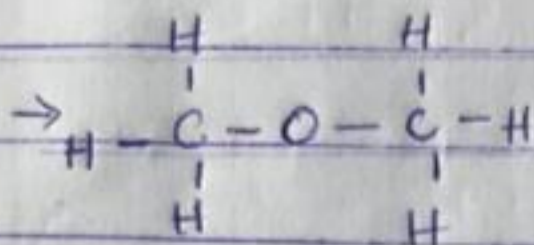
EBIOWE GRACIOUS KURO-ERE

CHEM 102.

MBBS

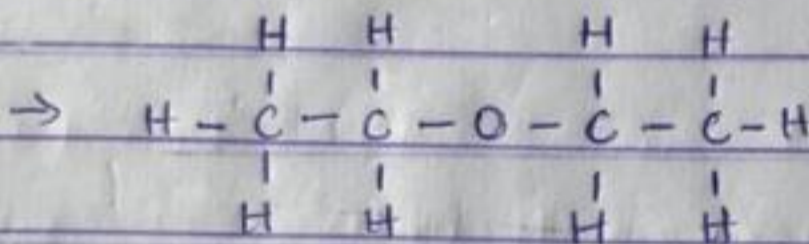
19/MHSDI/140.

1a.  $\text{CH}_3\text{OCH}_3$



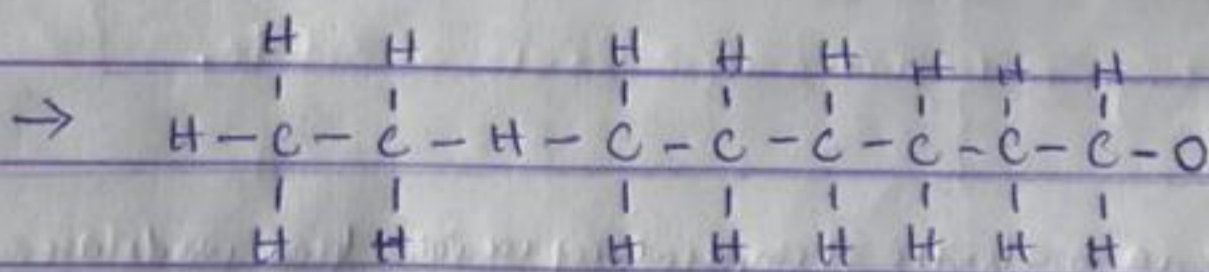
= methoxymethane.

b.  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$



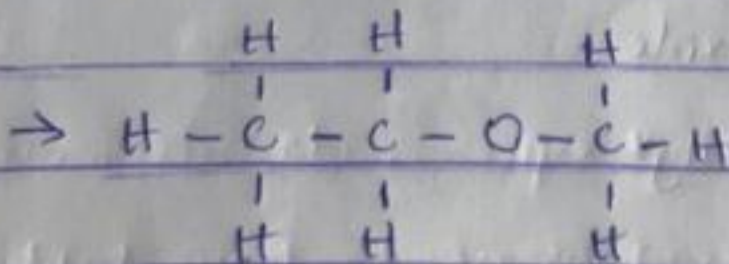
= ethoxyethane

c.  $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O} = \text{C}_2\text{H}_5\text{C}_2\text{H}_4\text{C}_2\text{H}_4\text{C}_2\text{H}_5$



= Butoxybutane

d.  $\text{CH}_3\text{CH}_2\text{OCH}_3$



= ethoxymethane.

## 2. Properties of ethers.

### 1) Physical states

- Colourless
- Neutral liquids with pleasant odours
- Volatile liquids.

### 2) Solubility

- Less soluble in water
- They are miscible with organic solvent.

### 3) Density

- Less dense than water.

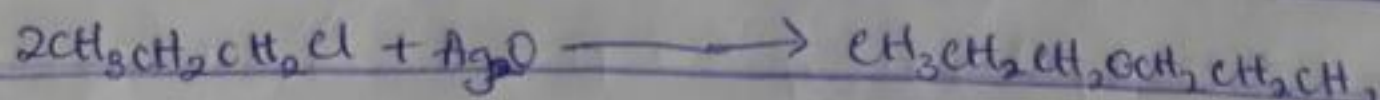
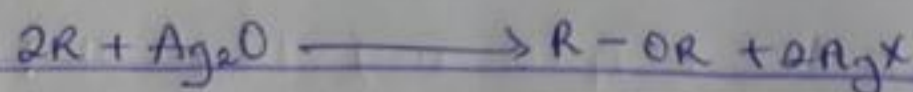
### 4) Boiling point.

- Low boiling point
- The boiling points of ethers tend to approximate that of hydrogen carbons of same relative molecular mass.

### 5) Reactivity

Ethers are inert at moderate temperature which has wide use as reaction media.

## 3. From haloalkanes and dry silver(I) oxide

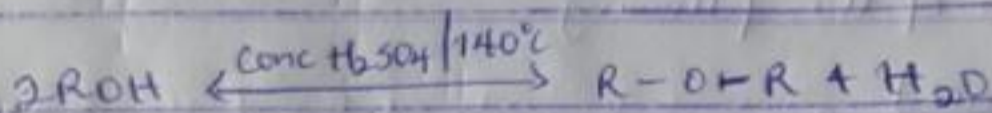


Propoxypropane.

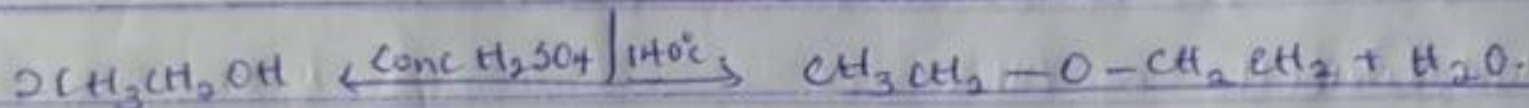
## ii) Partial dehydration of alcohols.

Simple ethers are manufactured from alcohols by catalytic dehydration.

The alcohol in excess and concentrated tetraoxosulphate (vi) acid is heated in the maintained temperature of  $140^{\circ}\text{C}$ . This process is known as Continuous esterification.



e.g



## 4. uses of ethylene oxide

- used to make detergent
- used to make polyester
- used as sterilizing agent.