

- 1) IUPAC Names
- (i)  $\text{CH}_3\text{OCH}_3 \rightarrow$  Methoxymethane
- (ii)  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 \rightarrow$  Ethoxyethane
- (iii)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{O} \rightarrow$  Butoxyethane
- (iv)  $\text{CH}_3\text{CH}_2\text{OCH}_3 \rightarrow$  Methoxyethane
- (v)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3 \rightarrow$  Ethoxypropane.

5) Properties of ethers: An ether molecule has a net moment due to the polarity of C-O bonds. The percent of ether is comparable to the alcohols but lower than that of alcohols of comparable molecular weight despite the polarity of the C-O bond. Most of some less dense than water although the density increases increasing relative molecular mass and some are more dense than water. Ethers are less soluble in water than are the corresponding alcohols. At temperature, ethers are colourless, neutral liquids with

- 3) Two methods of preparing ethers with their equations:
  - (i) By partial dehydration of alcohols: Simple ethers are formed from alcohols by catalytic dehydration. The acid and concentrated <sup>H<sub>2</sub>SO<sub>4</sub></sup> acid is heated at a carefully maintained temperature of 140°C. This process is known as aopt ethenification. If excess alcohol is not used, the temperature as 170-180°C further dehydration will yield a mixture.  
 $2\text{CH}_3\text{CH}_2\text{OH} + \text{conc. H}_2\text{SO}_4 \xrightarrow{140^\circ\text{C}} \text{C}_2\text{H}_5\text{OC}_2\text{H}_5 + \text{H}_2\text{O}$

(ii) Ethers can be prepared by heating metal alcohates silver oxide. Alkyl halide on reaction with a gives ether.  
 $2\text{RX} + \text{Ag}_2\text{O} \rightarrow \text{ether R-O-R} + 2\text{AgX}$

- (14) There uses of ethylene oxide are
- (i) Used as an intermediate in the hydroxylation of ethylene glycol.
  - (ii) It is used in the preparation of non-oxidizing plastics.
  - (iii) It is used as a gaseous sterilizing agent.