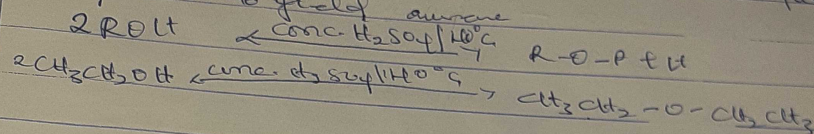


NWABKE PEACE ucma 19/MH501/262

3) Discuss explicitly two methods of preparing ethers and show equations of reaction

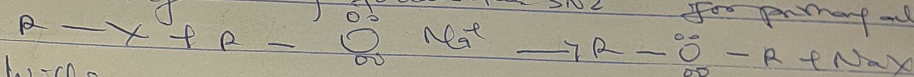
Solution  
④ PARTIAL DEHYDRATION OF ALCOHOLS:

Simple ethers are manufactured from alcohols by cyclic dehydration. The alcohol in excess and concentrated tetraoxosulphate (VI) acid is heated at a carefully main temperature of  $140^{\circ}\text{C}$ . This process is known as continuous esterification. If excess alcohol is not used, the temperature is as high as  $170 - 180^{\circ}\text{C}$ , further dehydration to yield <sup>an ether</sup>



⑤ PREPARATION OF ETHERS BY WILLIAMSON SYNTHESIS

In this method, an alkyl halide is reacted with sodium alkoxide which leads to the formation of ether. The reaction generally follows the  $\text{S}_{\text{N}}2$  for primary alkyl.



Williamson Synthesis exhibits higher productivity

in case of primary alkyl halides. In the case of secondary alkyl halides, elimination competes with substitution whereas we observe the formation of elimination product only in the case of tertiary alkyl halides.

1) State three uses of ethylene oxide.

1) Ethylene oxide is used to make antifreeze, adhesives etc

2) it is used as fumigant in certain agricultural products and as a sterilant for medical equipment and supply.

3) Ethylene oxide is used as an intermediate in the production of other chemical used to manufacture product such as

polyester, clothing, upholstery, carpet and pillows.

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DEPT: MEDICINE AND SURGERY (MBBS)

(1).

1. Give the IUPAC names of the following Organic compounds

Answer -

- (a)  $\text{CH}_3\text{OCH}_3$  - Methoxymethane.  
 (b)  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxyethane.  
 (c)  $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$  - Pentanamide.  
 (d)  $\text{CH}_3\text{CH}_2\text{OCH}_2$  - Methoxyethane.  
 (e)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxypropane.

(2)

Discuss briefly the properties of ethers.

Answer

- **Physical properties:** At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquids.
- **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 denser than water.
- **CHEMICAL PROPERTIES:**
  - It doesn't react with bases, active metals, oxidizing agent and reducing agents.
  - Strong acids will cleave esters at elevated temperature.
  - When stored in presence of oxygen, esters will form explosive peroxides such as diethyl ether peroxide.