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COLLEGE: MEDICINE AND HEALTH SCIENCES

DEPARTMENT: PHARMACY

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COURSE CODE:CHM 102

1. IUPAC names of the following;

- i. CH_3OCH_3 = methoxymethane.
- ii. $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ = Ethoxyethane.
- iii. $\text{CH}_3\text{CH}_2\text{OCH}_3$ = Methoxyethane.
- iv. $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ = butoxybutane
- v. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ = Propoxyethane.

2. Ether molecules have a net dipole moment due to polarity of c-o bonds. The boiling points of ethers are comparable to that of alkanes but much lower than that of alcohols of comparable molecular mass despite the polarity of c-o bonds. The miscibility of ethers with water resembles those of alcohols.

Ethers are generally very unreactive in nature. The alkoxy group in ethers activates the aromatic ring at ortho and the parapositions for electrophilic substitution. Aromatic ethers undergo **HALOGENATION**.

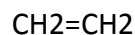
3. a. **Preparation of ethers by dehydration of alcohols.**

In the presence of sulphuric acid, alcohol undergoes dehydration to produce alkenes and ethers under different conditions. This method of preparation is possible with the use of

PRIMARY ALCOHOLS.



443K



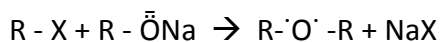
413K



It is a **nucleophilic substitution reaction**

B. Preparation of ethers by Williamson synthesis:

Williamson synthesis is an important method for preparing symmetrical and asymmetrical ethers in the laboratory. This method, an alkyl halide is reacted with sodium alkoxide which leads to the formation of ethers. The reaction generally follows the $\text{S}_\text{N}2$ mechanism of primary alcohols.



4.i. used as a fumigant in certain agricultural products.

ii. used as a sterilant for medical equipment's and supplies.

iii. used as an intermediate in the production of several industrial chemicals.