

# FIJEBANJO BOLUWATIFE ESTHER

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MBS

CHEM 102

1 Give the IUPAC names of the following organic compound

a  $\text{CH}_3\text{OCH}_3$  - Methoxymethane

b  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxyethane

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

d  $\text{CH}_3\text{CH}_2\text{OCH}_3$  - Methoxyethane

e  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxypropane

2 Discuss the properties of ethers

(i) physical states

Ethers are colourless neutral liquids with pleasant odour at room temperature. The lower aliphatic ethers are highly flammable gases or volatile liquids.

(ii) solubility

Ethers are less soluble in water than are the corresponding alcohols. They are miscible with most organic solvent

### (iv) 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 far denser than water.

### (v) Boiling point

Lower molecular mass ethers have a boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms the reverse is true.

### (vi) Reactivity

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

3. Discuss explicitly two methods of preparing ethers, and show equation of reaction.

#### a. Partial dehydration of alcohols

Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and conc tetraoxosulphate(VI) acid is heated at a carefully maintained temperature of  $170^{\circ}\text{C}$ .

