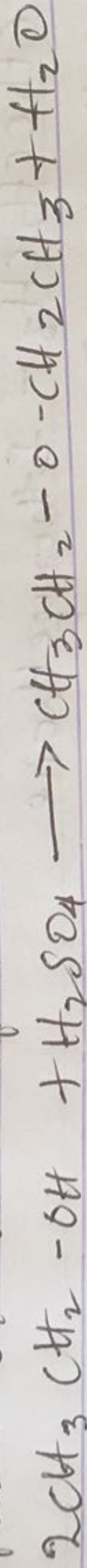


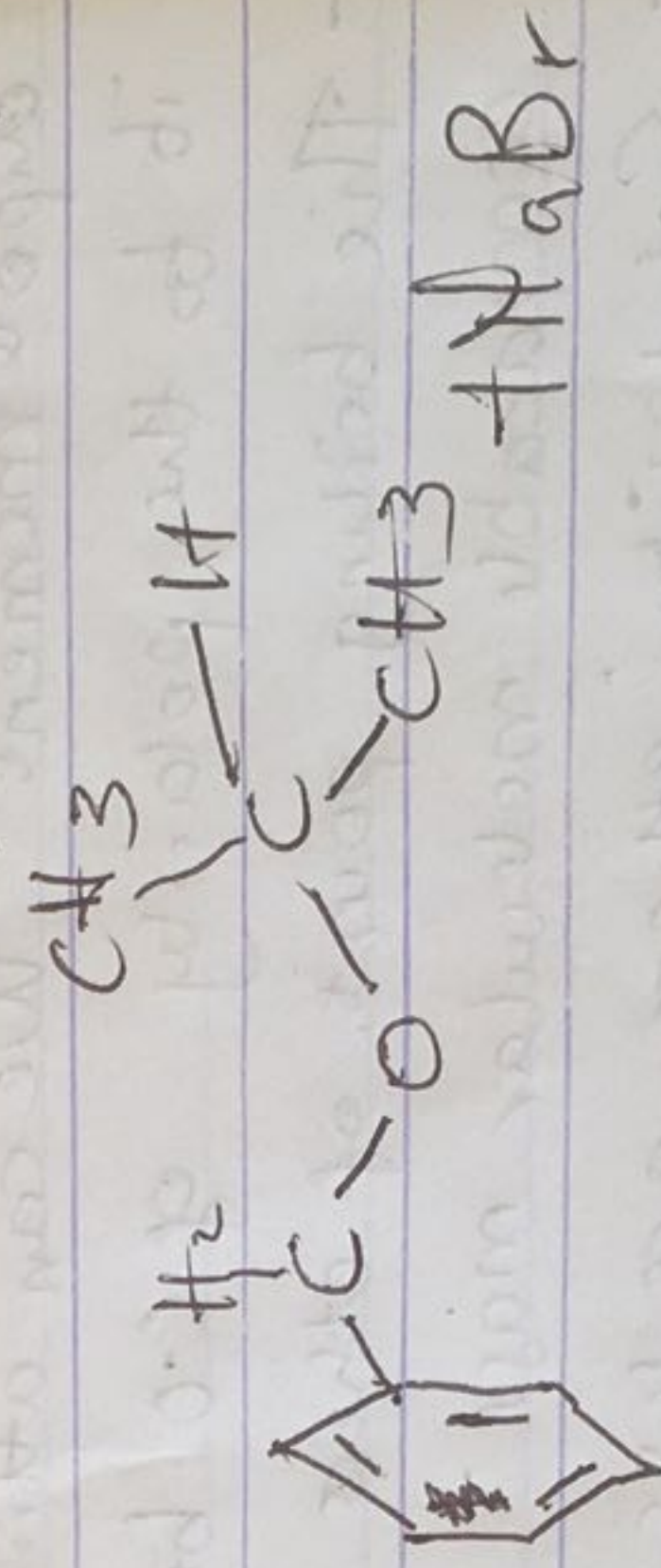
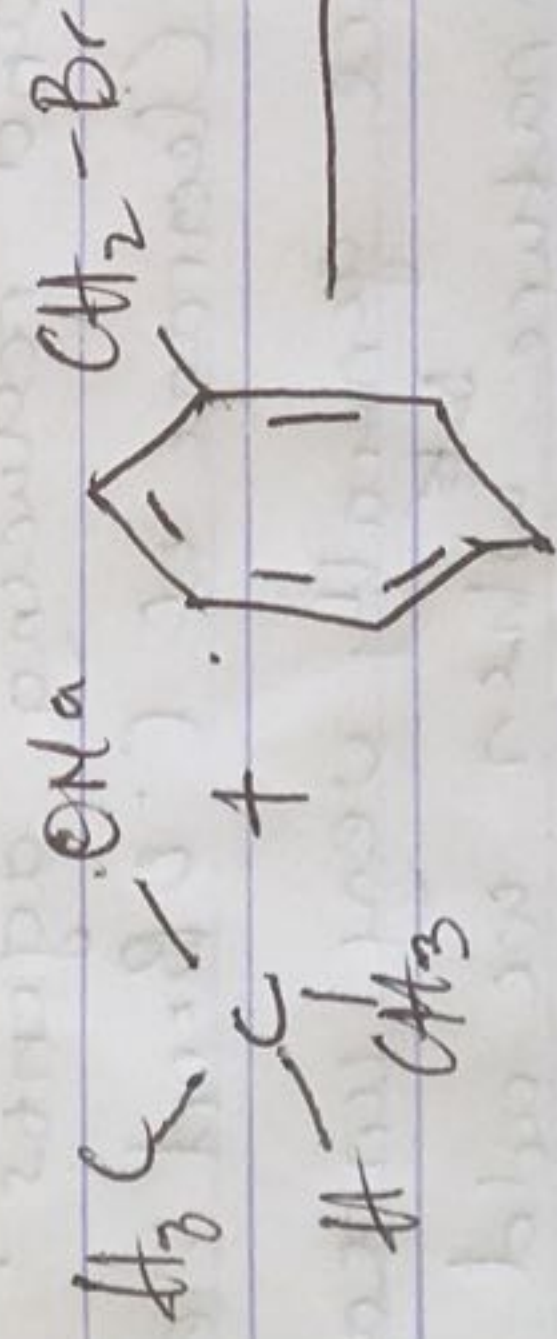
③ Preparation of ethers by Dehydration of Alcohols-

In the presence of protic acids (sulphuric acid), alcohols undergo dehydration to produce ethers under different conditions. This is a nucleophilic substitution reaction. This depends on the temperature.



Preparation of ethers by Williamson Synthesis.

An alkyl halide is reacted with alkyl sodium alkoxide which leads to the formation of ether. During this process, the factors that favour substitution over elimination, - a 1° -alkyl halide should be selected as a preferred reactant.



④ Three Uses of Ethylene Oxide.

- Ethylene oxide is used as a fumigant for foods and textiles.
- It is used as a sterilant for medical equipments.
- It is used for agricultural fungicide and insecticide.

Oladapo Timisola Emmanuel

Medicine and Surgery

Assignment on Ether (General chemistry II)

19/11/2021

① IUPAC names of the following organic compounds:

CH_3OCH_3 - Methoxymethane

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

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

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

$\text{CH}_3\text{CH}_2\text{OCH}_3$ - methoxyethane

② Properties of ethers

Physical Properties

- An ether molecule has a net dipole moment. We can attribute it to the polarity of C-O bonds.
- The boiling point of ethers is of comparable molecular mass.
- Solubility: ethers are less soluble in water than air.
- Density: most of the simple ethers are less dense than water.
- Boiling point: Low molecular mass ethers have a lower boiling point than the corresponding alcohols. ~~but those ethers containing alkyl radicals.~~
- Reactivity: ethers are ~~meant~~ inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

Chemical properties

- It doesn't react with bases, active metals, oxidizing agents and reducing agents.
- Cleavage of C-O Bond: ethers are generally very unreactive in nature. ^{sub} when we add an excess of hydrogen halide to the ether, cleavage of C-O bond takes place. It leads to formation of alkyl halides.
 $\text{HI} > \text{HBr} > \text{HCl}$
 $\text{R-O-R} + \text{HX} \rightarrow \text{RX} + \text{R-OH}$
- Electrophilic substitution: The alkoxy group in ether activates the aromatic ring at ortho and para positions for electrophilic substitutions.