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DEPARTMENT: MBBS

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Q. Give the IUPAC name of the following organic compound.

a CH_3OCH_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

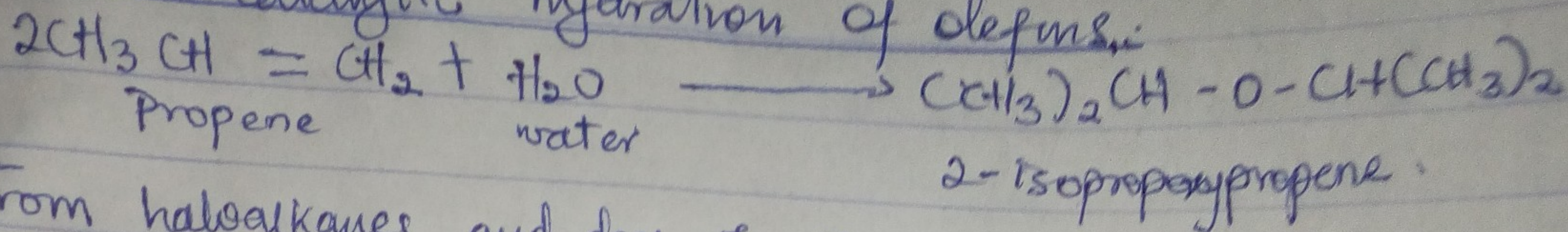
Q. Discuss the following properties of ethers.

Properties of ethers

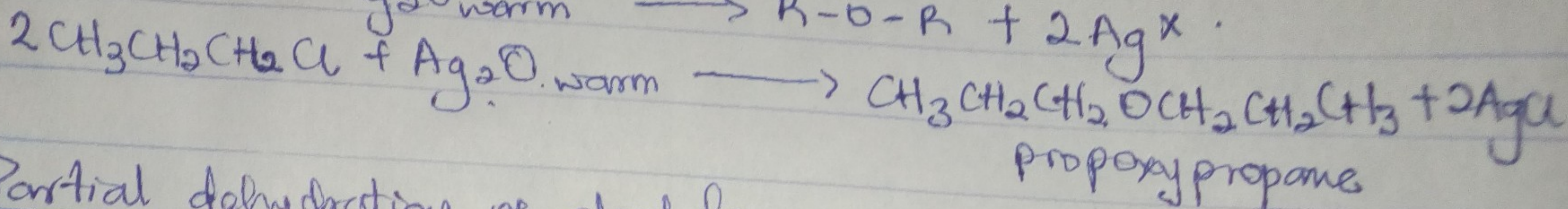
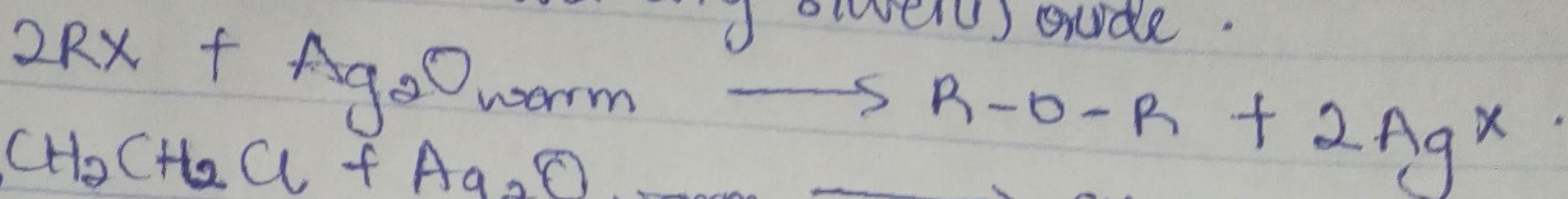
- i. Physical State: Ethers are colorless neutral liquids with pleasant odour at room temperature. The lower aliphatic ethers are highly flammable gases or volatile liquids.
- ii. Solubility: Ethers are less soluble in water than the corresponding alcohols. They are miscible with most organic solvent.
- iii. 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.
- iv. Boiling point: Lower molecular mass ethers have a boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atom the reverse is true.
- v. Reactivity: Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

2. Discuss explicitly two methods of preparing ethers and show equations of reaction.

a. Controlled catalytic hydration of olefins:

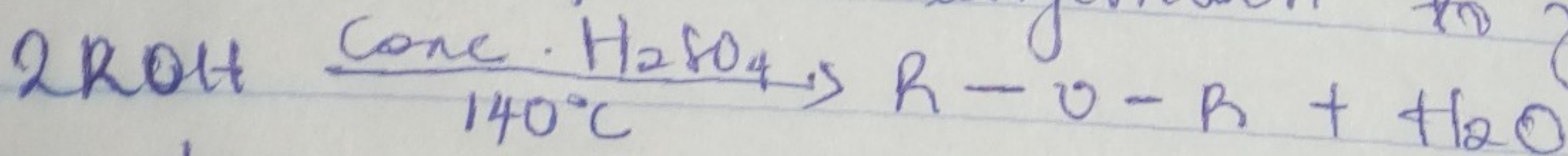


From haloalkanes and dry silver(I) oxide.

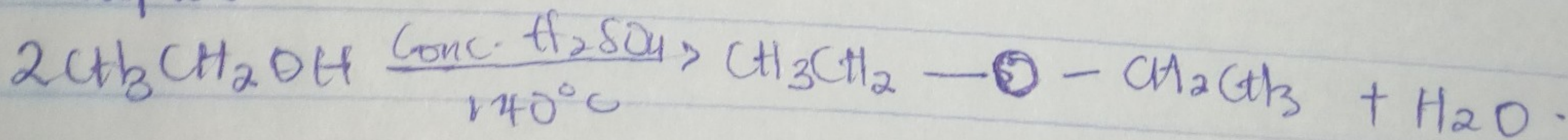


b. Partial dehydration of alcohols.

Simple ethers are manufactured from alcohols by catalyst dehydration. The alcohol in excess and concentrated tetraoxosulphate (VI) acid is heated at a carefully maintained temperature of 140°C , this process is known as continuous esterification. If excess alcohol is not used, the temperature is as high as $170-180^\circ$ on further dehydration to yield alkene occurs.



Examples



3. State three uses of ethylene oxide.

Uses of ethylene oxide.

- a) It is used as a gaseous sterilizing agent.
- b) It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- c) It is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.