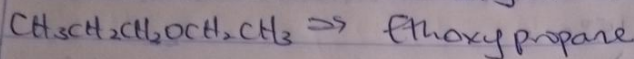
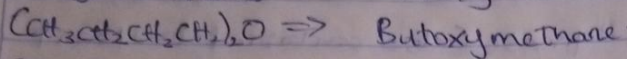
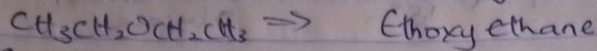
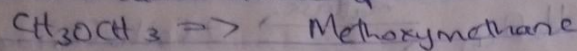


UKANNA NINGOMA QCM.

19/11/2011/415.

QCM 102 ASSIGNMENT.

1 Give the IUPAC names of the following organic compounds



2 Discuss the properties of ethers.

i Physical state: At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquids.

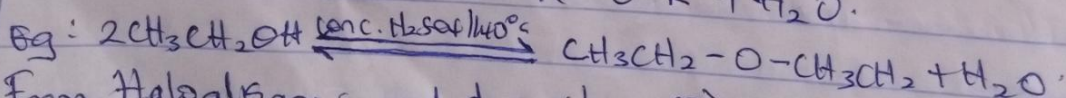
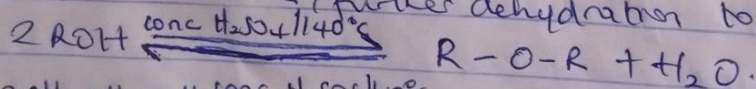
ii Density: Most simple ethers are less dense than water, although the density increases with increasing relative molecular mass and some aromatic ethers are denser than water.

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

3 Methods of preparing ethers and equations of reaction.

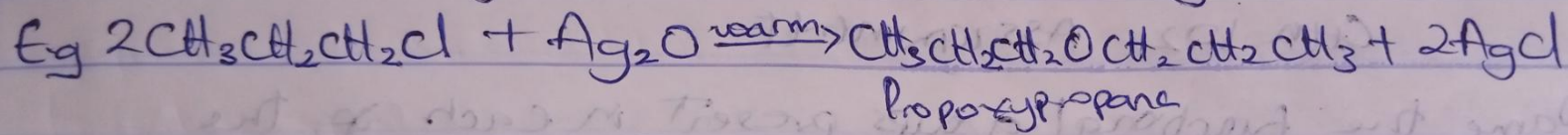
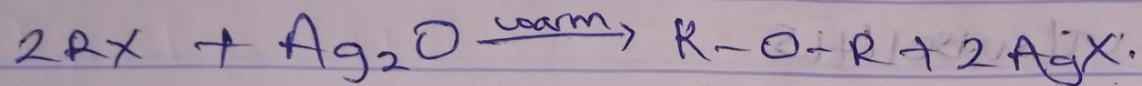
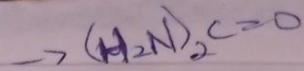
i Partial dehydration of alcohols: Simple ethers are manufactured from alcohols by catalytic dehydration. The excess alcohol and concentrated tetraoxosulphate (VI) acid is heated at a carefully maintained temperature of  $140^\circ\text{C}$ . This process is known as continuous etherification.

If excess alcohol is not used, the temperature is as high as  $170-180^\circ\text{C}$ , further dehydration to yield alkene occurs.



ii From Haloalkanes and dry silver (I) oxide: It involves the reaction of an alkoxide ion with a primary haloalkane through an  $\text{S}_{\text{N}}2$  reaction.





4 State 3 uses of ethylene oxide.

- i It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- ii It is used as a gaseous sterilizing agent.
- iii It is used in the preparation of non-ionic emulsifying agents, plastics and synthetic textiles.