Preparation of ethers:

Williamson Ether Synthesis

General reaction:

$$RONa + R'Br \xrightarrow{S_N 2} ROR' + NaBr$$

prepare alkoxide

This is an S_N2 reaction, thus the alkyl halide should be primary or methyl.

Dehydration of Alcohols to make symmetrical ethers

2
$$H_2SO_4(aq)$$
 140°C H_2O H_2O

Alkoxymercuration/demercuration

Mechanism is Markovnikov oxymercuration

Reactions of ethers:

Cleavage with HI or HBr

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examples (provide the mechanism):