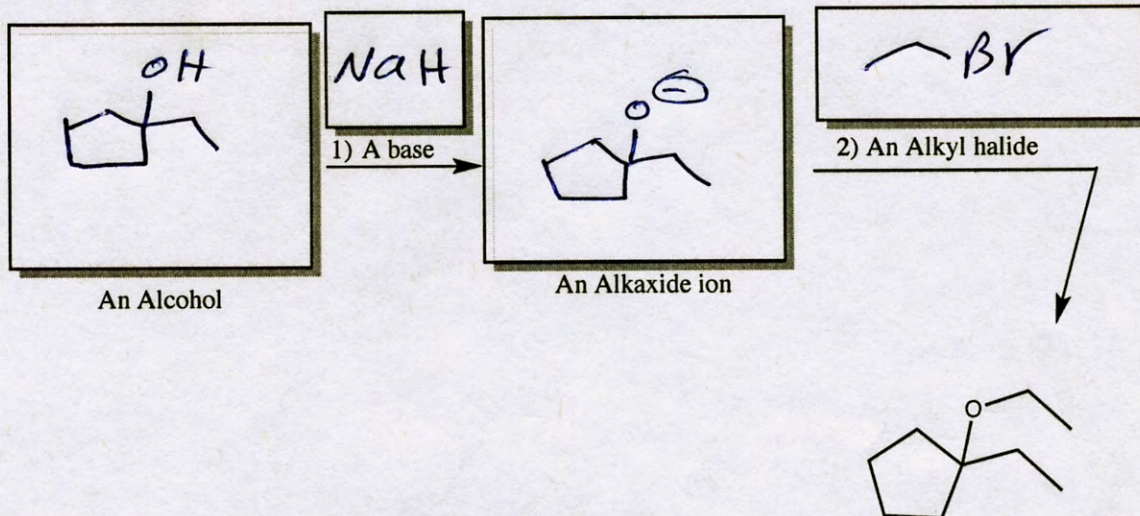
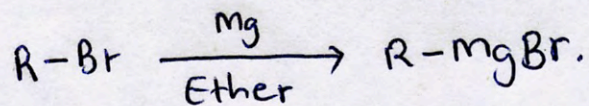


1) (8 Points, 2 each box) Complete the following Williamson Ether synthesis reactions.

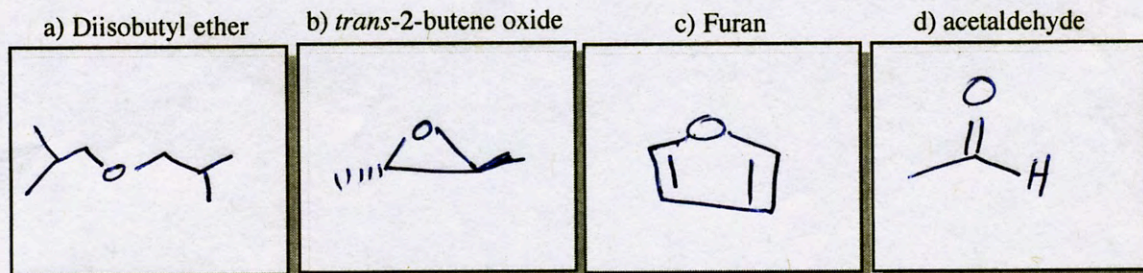


2. (3 Points) Draw an example of a Grignard reagent or an organolithium compound and show how it is made starting with an alkyl halide.

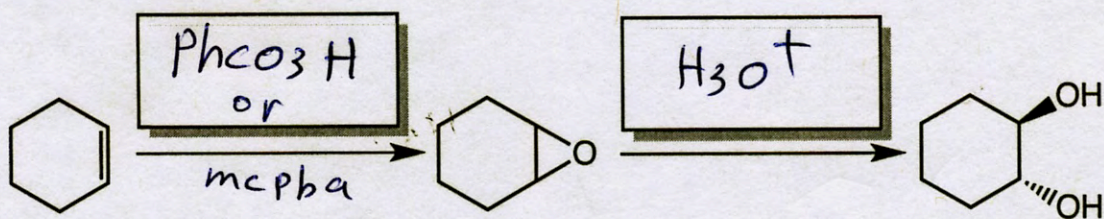


R = Alkyl group

3. (8 Points, 2 pts. Each) Draw the structure for the following compounds:



4) (4 Points, 2 pts. Each) Provide the reagents needed for the following chemical transformations.



5) (2 Points, 1 pt. Each) Provide the structures for the "Hemiacetal" and "Acetal" in the reaction of cyclohexanone with a diol (alcohol) in presence of sulfuric acid (source of proton).

