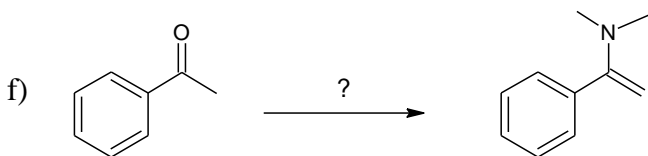
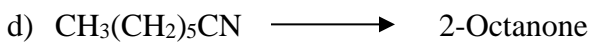
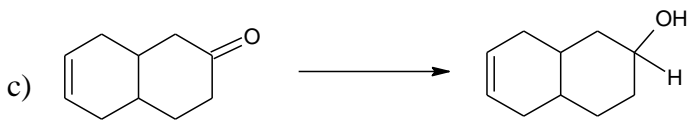
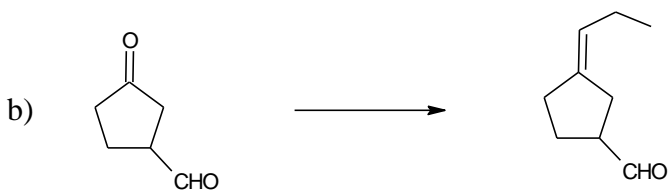
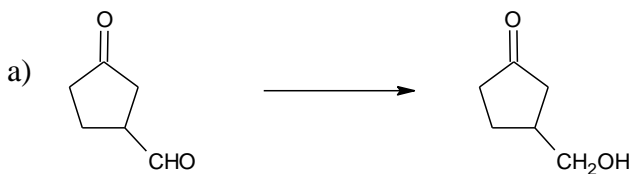
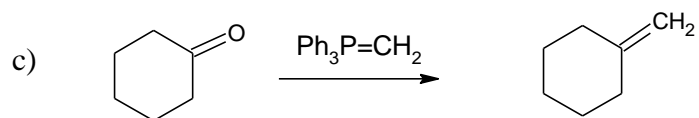
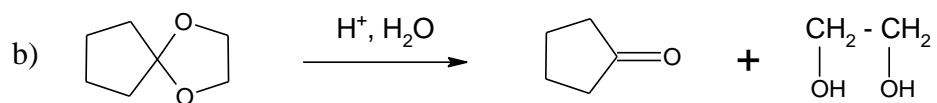
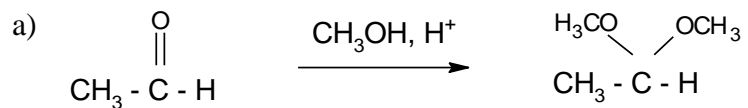


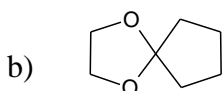
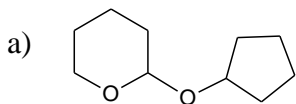
1. Show how you would accomplish the following synthesis efficiently and in good yield. You may use any necessary reagents.



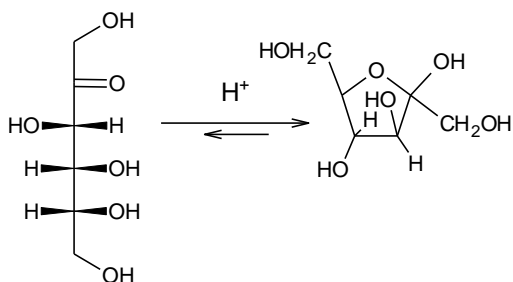
2. Propose a mechanism for the following reactions.



3. Show the complete mechanism of the compounds that result from complete acid hydrolysis of the two acetals below.



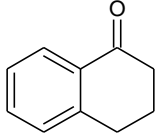
4. Two structures of fructose are shown below: the open chain and cyclized. Show the mechanism of the cyclization in presence of dilute acid. (Hint: number the carbons to help you with the mechanism)



5. Show how you would accomplish the following synthesis

a) Benzene \longrightarrow n-butylbenzene

b) Benzene \longrightarrow p-methoxybenzaldehyde

c) $\text{Ph}(\text{CH}_2)_4\text{OH} \longrightarrow$ 

6. The following roadmap centers on the structure and properties of A; give all the other structures related to it.

