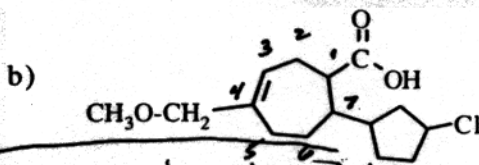
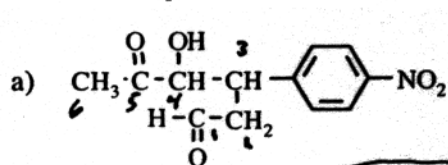


(please print)

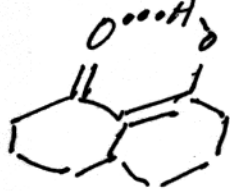
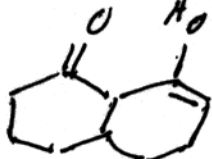
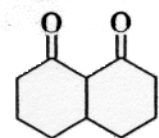
(12) Give an acceptable name for each of the following:



a) 4-hydroxy-5-oxo-3-(4-nitrophenyl)hexanal

b) 7-(3-chlorocyclopentyl)-4-methoxymethyl-3-cycloheptene carboxylic acid

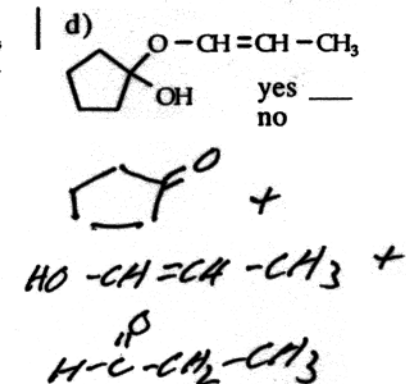
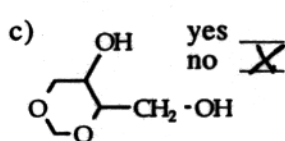
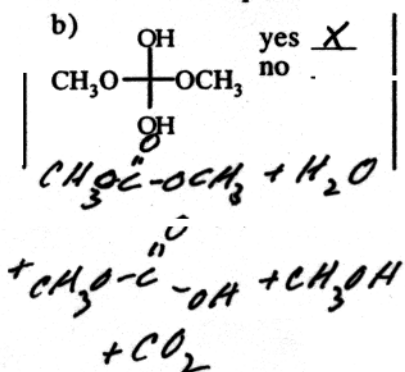
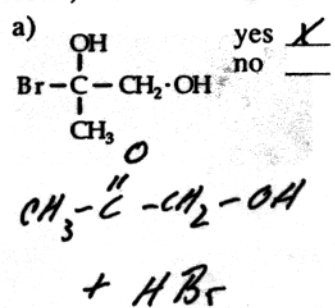
2. (6) The β -dicarbonyl compound below exists largely in an enol form. a) Give structures for all possible mono-enol forms of this substance. b) Indicate which of these mono enols is the most stable, and explain what factors promote stabilization of this enol.



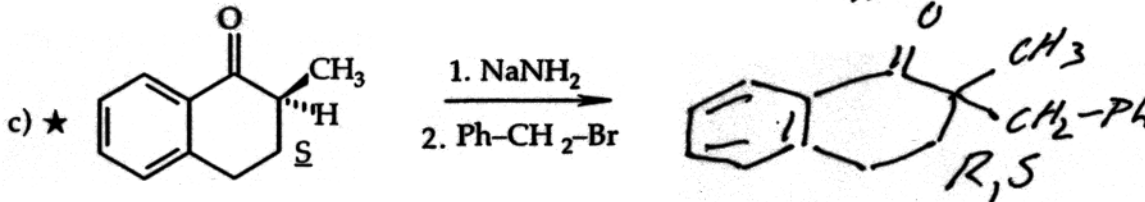
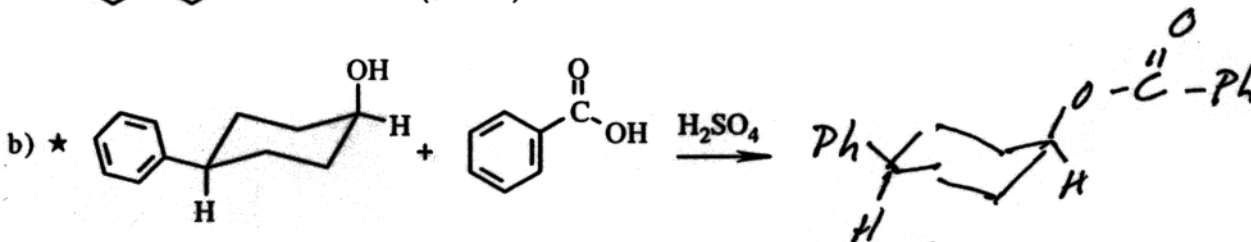
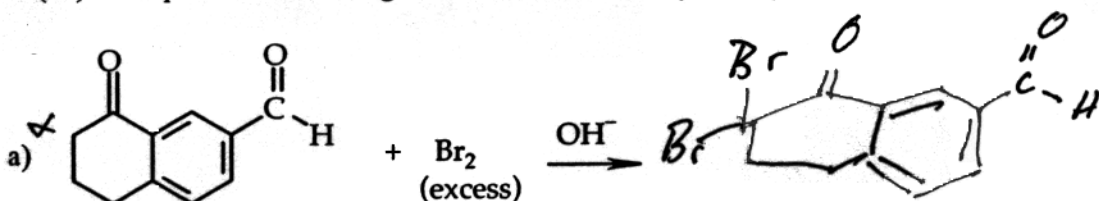
more stable

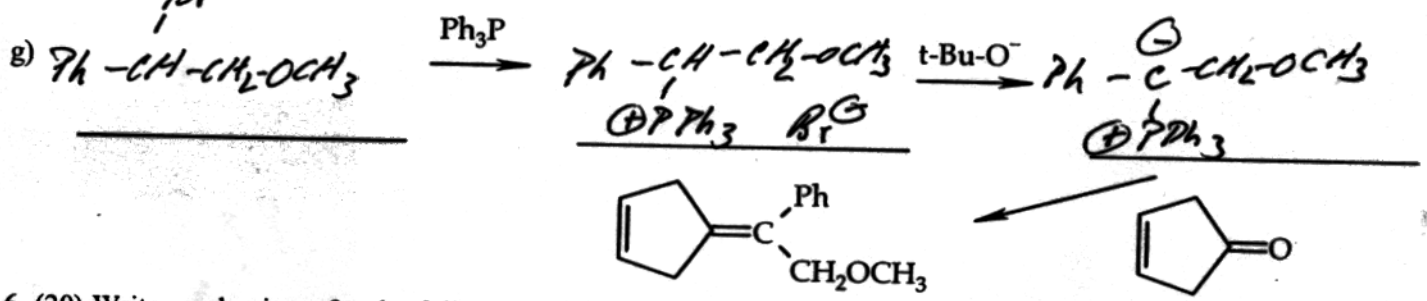
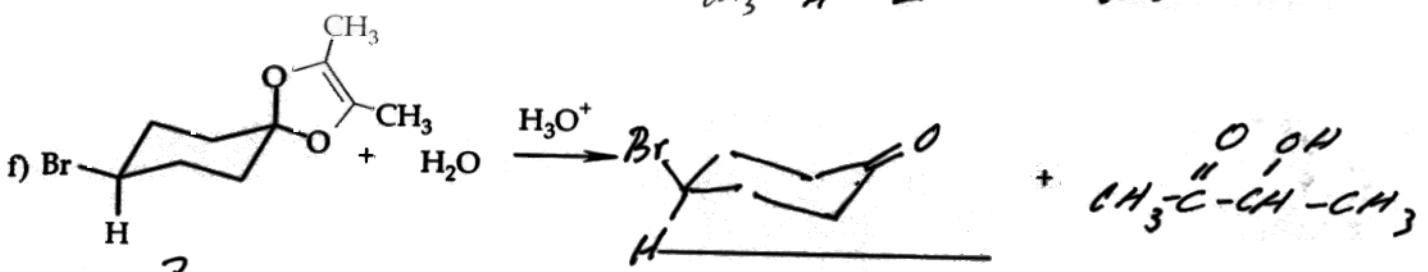
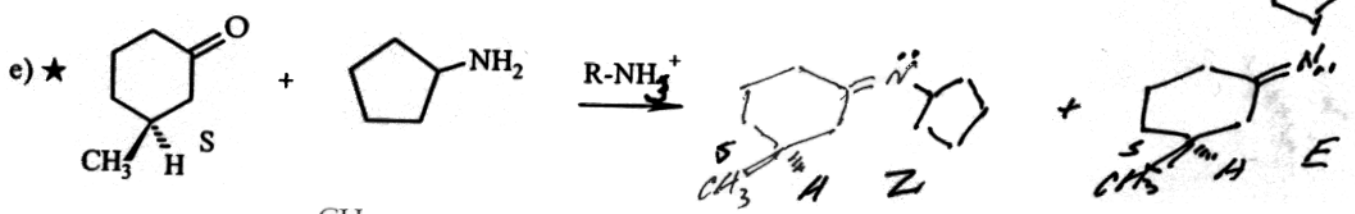
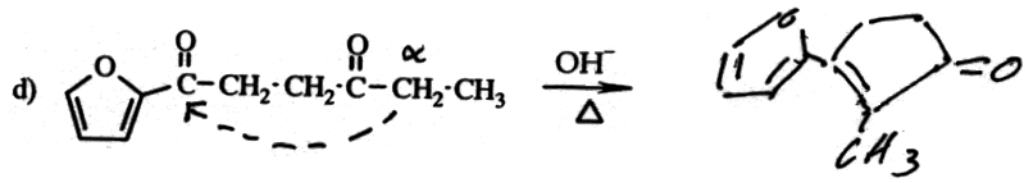
this has
 1. conjugated ~~to~~ double bonds
 2. intramolecular hydrogen bonding

3. (12) For each of the following structures indicate whether it is labile (yes) or not labile (no). For those that are labile, show the other forms that would be in equilibrium with it.

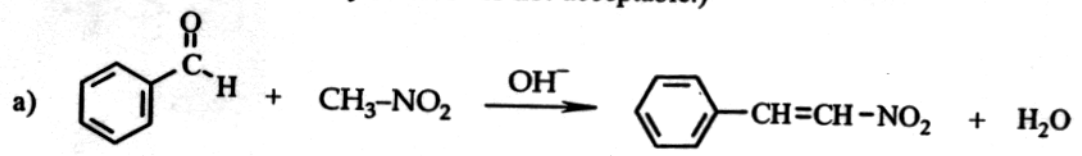


5. (42) Complete the following. Show stereochemistry clearly for those marked with a star.





6. (20) Write mechanisms for the following. Show individual steps clearly, include formal charges, and use correct electron pushing. (The use of the symbol H^+ is not acceptable.)



As part of your mechanism below, account for the fact that nitromethane can be used in this aldol-type reaction. The conjugate base of CH_3NO_2 is stabilized by delocalization as shown.

