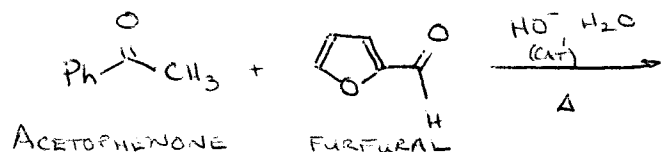
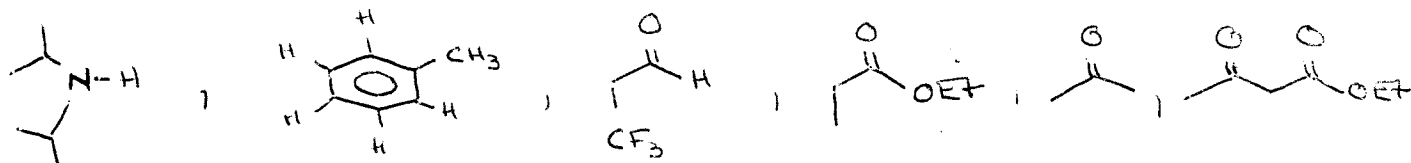


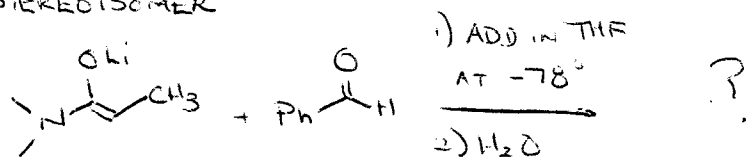
- 1) WRITE THE COMPLETE MECHANISM FOR THE BASE ( $\ominus\text{OH}$ ) CATALYZED ALDOL CONDENSATION BETWEEN ACETOPHENONE AND FURFURAL, INCLUDING THE ELIMINATION STEPS. BE SURE TO SHOW ANY SMALL MOLECULES USED OR GIVEN OFF IN ANY OF THE STEPS, AND INDICATE WHICH STEPS ARE REVERSIBLE / IRREVERSIBLE.



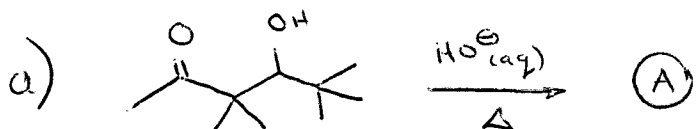
- 2) LIST THE FOLLOWING COMPOUNDS FROM THE MOST ACIDIC TO THE LEAST ACIDIC. WHERE IT IS NOT OBVIOUS, INDICATE THE SITE OF THE ACIDIC H.

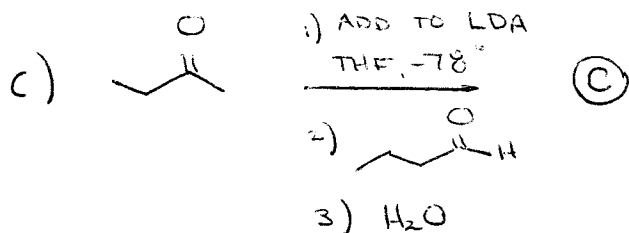
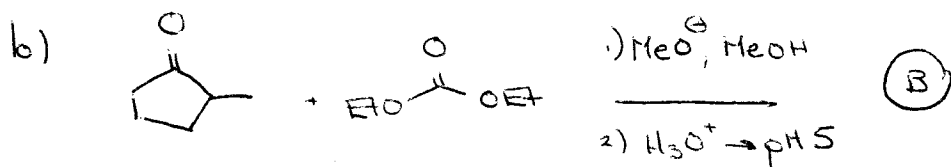


- 3) DRAW THE APPROPRIATE TRANSITION STATE AND FINAL PRODUCT OF THE REACTION BETWEEN THE LITHIUM ENOLATE OF N,N-DIMETHYLPROPANAMIDE AND BENZALDEHYDE. SHOW THE STEREOCHEMISTRY IN THE T.S. AND PRODUCT, AND NAME THE PRODUCT STEREISOMER

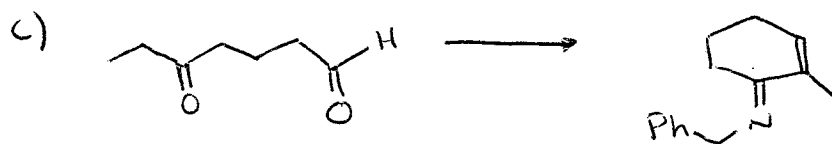
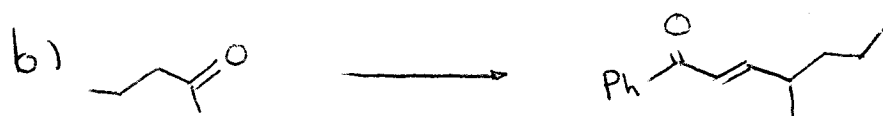


SHOW THE MAJOR PRODUCT (S?) OF THE FOLLOWING TRANSFORMATIONS. INCLUDE PRODUCT STEREOCHEMISTRY WHERE IT APPLIES. MECHANISMS ARE NOT NECESSARY, BUT SHOWING YOUR WORK MAY BE A HELP.





5) How would you accomplish the following transformations? THE SOLUTIONS ARE LIKELY >1 STEP; YOU MAY EMPLOY ANY ADDITIONAL REAGENTS YOU DEEM FIT (AS LONG AS THEY MAKE CHEMICAL SENSE, AND ARE CAPABLE OF EXISTENCE). SHOW ALL REAGENTS, CONDITIONS, AND ANY INTERMEDIATES WHICH COULD BE ISOLATED.



NOTE: THIS MAY REQUIRE A LOOK AT YOUR 235 NOTES.