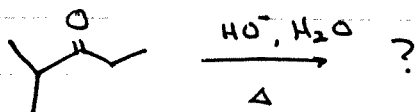
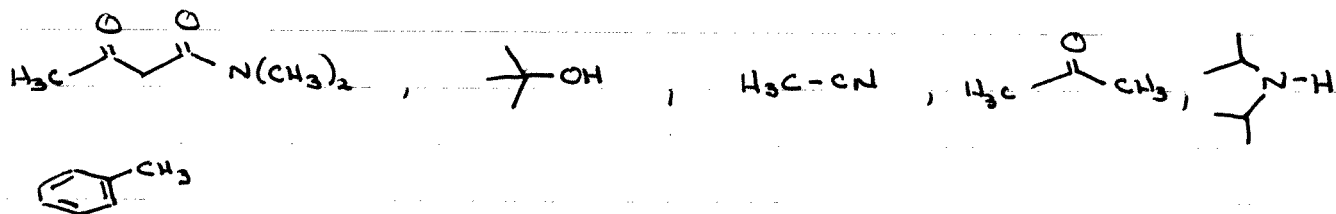


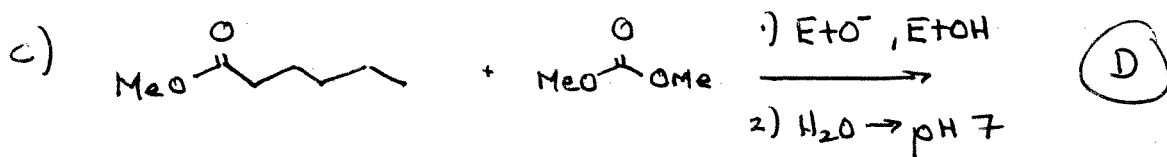
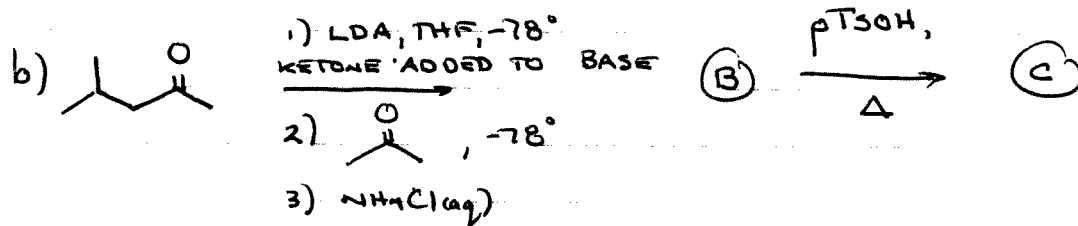
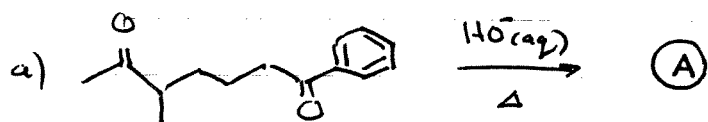
- 1) GIVE THE COMPLETE MECHANISM FOR THE BASE CATALYZED ALDOL CONDENSATION BETWEEN TWO MOLECULES OF 4-METHYL-2-PENTANONE. INDICATE WHICH STEPS ARE PRACTICALLY REVERSIBLE AND WHICH ARE FUNCTIONALLY IRREVERSIBLE. INCLUDE THE ELIMINATION STEP, AND SHOW ALL SMALL MOLECULES USED OR GIVEN OFF IN EACH STEP.



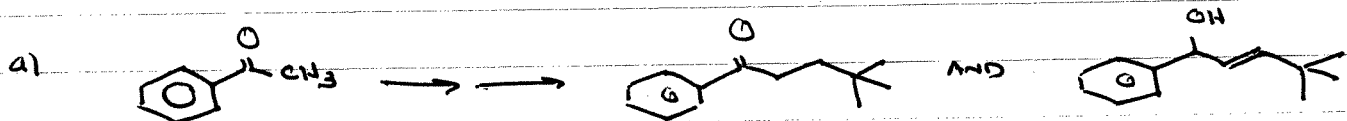
- 2 LIST THE FOLLOWING COMPOUNDS IN ORDER OF ACIDITY, FROM MOST TO LEAST. IN NON-OBVIOUS CASES, SHOW THE ACIDIC SITE



- 3 GIVE THE MAJOR PRODUCT(S) OF THE FOLLOWING TRANSFORMATIONS. INDICATE STEREOCHEMISTRY WHERE IT IS RELEVANT.



4. SHOW HOW YOU WOULD ACCOMPLISH THE FOLLOWING TRANSFORMATION OVER 1 OR >1 STEPS (HINT: AS I'VE ENVISIONED IT, EACH CASE IS >1 STEP). YOU MAY USE ANY ADDITIONAL REAGENTS THAT YOU DEEM FIT. SHOW ALL REAGENT, INCLUDE PLAUSIBLE CONDITIONS, AND SHOW ANY INTERMEDIATES THAT COULD BE ISOLATED.



TWO RELATED, SLIGHTLY DIFFERENT SYNTHESSES



5. PREDICT THE MAJOR PRODUCT OF THE FOLLOWING REACTION. SHOW THE ENOLATE GENERATED AND THE TRANSITION STATE LEADING TO THE OBSERVED PRODUCT. NAME THE DIASTEREOMER (I DO NOT NEED THE COMPLETE IUPAC NAME)

