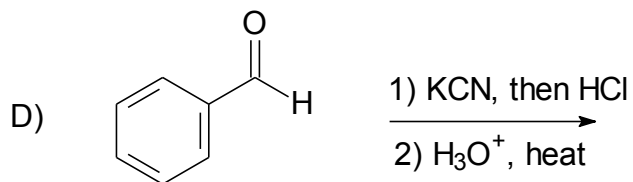
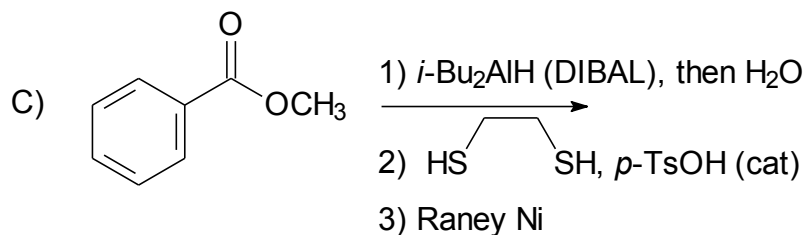
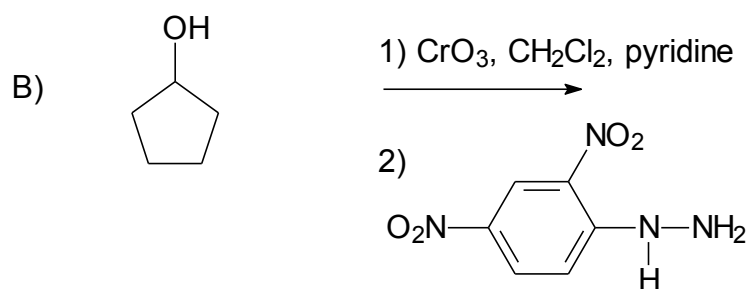
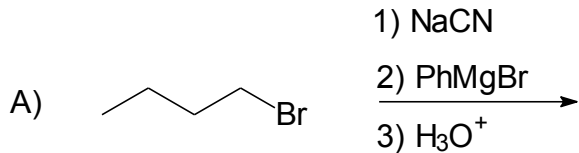
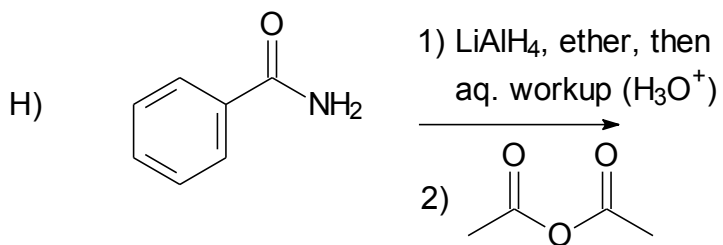
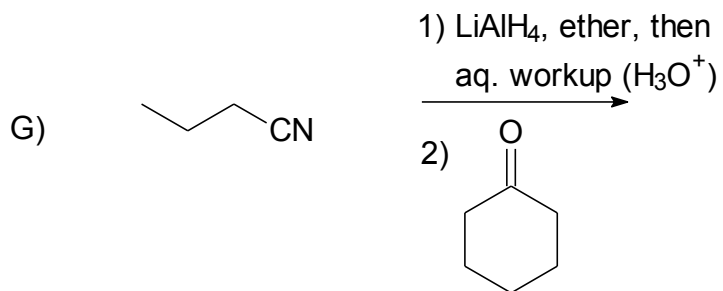
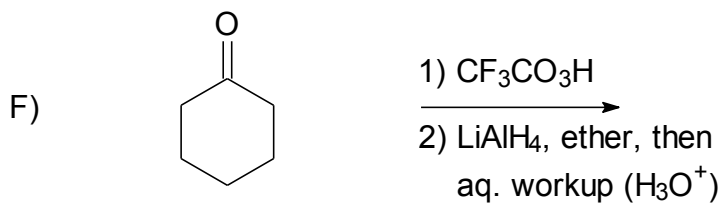
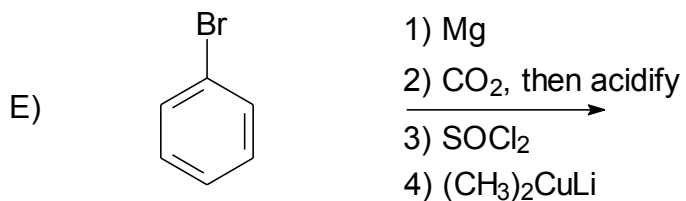
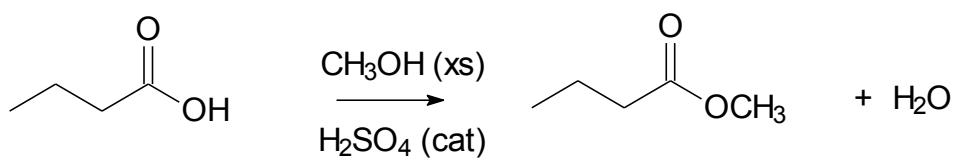


1.(40 pts) Draw the structure(s) of the major organic product(s) in the following reactions. For partial credit, draw the structure(s) of the major product(s) after each step in a multistep sequence. Draw the correct product stereochemistry where applicable.

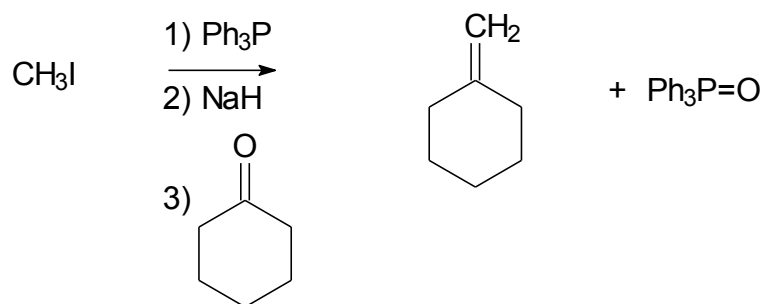




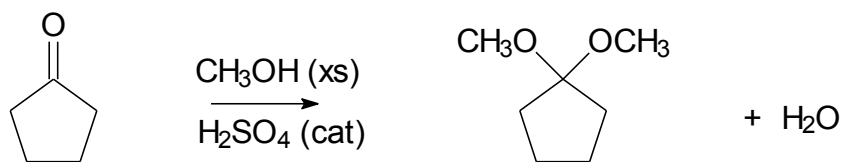
2. (15 pts) Provide a complete, step by step mechanism for the following transformation. Draw the structures of all intermediates formed in the mechanism. (*including resonance structures*).



3. (15 pts) Provide a complete, step by step mechanism for the following transformation. Draw the structures of all intermediates formed in the mechanism (*including resonance structures*).



4. (15 pts) Provide a complete, step by step mechanism for the following transformation. Draw the structures of all intermediates formed in the mechanism (*including resonance structures*).



6. Suggest a sequence of reagents which would accomplish the following transformations. More than one step will be required. Draw the structures of all stable products (you do not need to draw reactive intermediates) formed in the proposed reaction sequence. Do not show any mechanisms.

