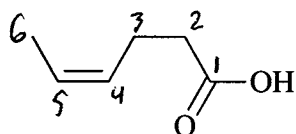
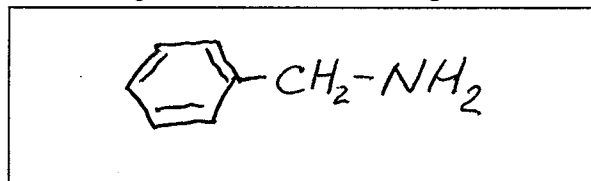
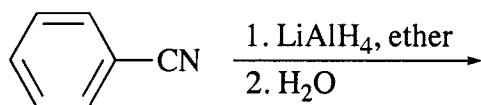


1. (3) Circle the correct **IUPAC name** of the following compound:

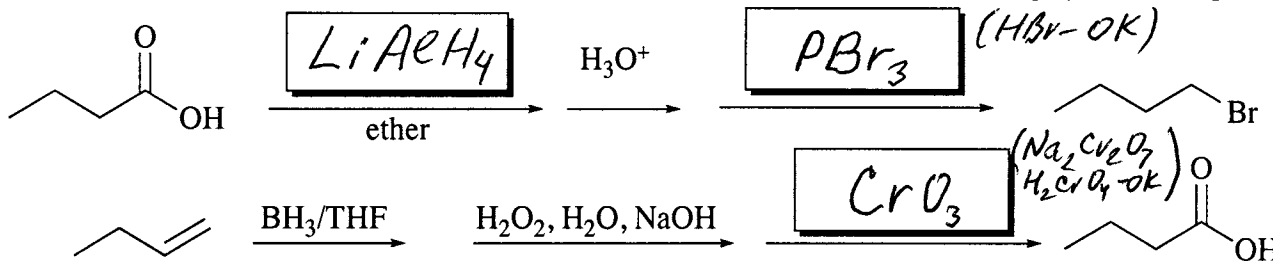


(E)-3-pentenoic acid (E)-4-hexenoic acid (Z)-3-pentenoic acid  
 (Z)-4-hexenoic acid (E)-3-pentenecarboxylic acid (Z)-4-hexenecarboxylic acid

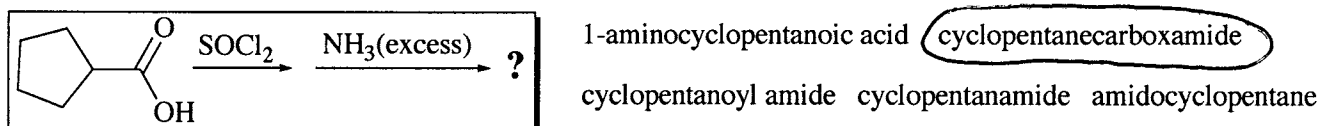
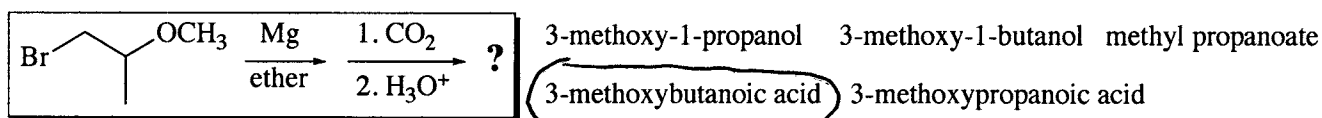
2. (4) In provided box, draw the structure of the main product in the following reaction:



3. (6) Place the **reagents on the arrow** that are required to perform the following synthesis (2 pts each):



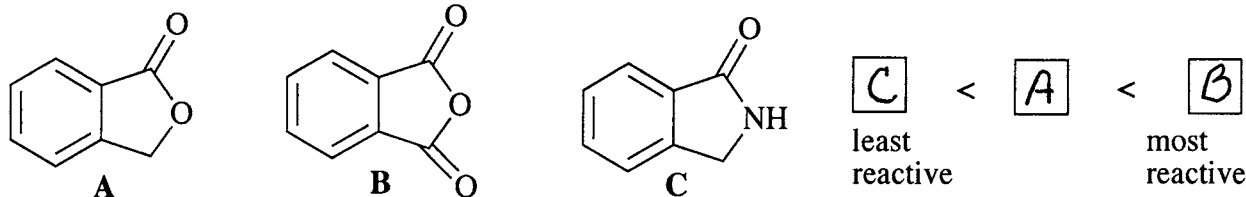
4. (6) Circle the **major product** in each of the following reactions (3 pts each):



5. (3) Arrange the following compounds in order of increasing **acidity** (put letters in the box; 1 pt each box):

A acetic acid C < A < B  
 B formic acid weakest strongest  
 C 2-methylpropanoic acid

6. (3) Arrange the following compounds in order of reactivity for **nucleophilic acyl substitution reaction** (put letters in the box; 1 pt each box):



Overall Score: 25