**Chem 436 – Practice Midterm Exam #2**

1. Fill in the reagents or predict the product. (4 pts each)

a.



b.



c.



d.



e.



f.



g.



2. 4-(Dimethylamino)pyridine (DMAP) is a powerful catalyst for the reaction of acyl halides with alcohols to provide the corresponding esters. Propose a mechanism for the transformation below and explain why DMAP is a better catalyst than pyridine. (8 pts)



3. Order the following carboxylic acids by their increasing pKa values. (8 pts)



4. Fill the empty boxes with reagents/products (4 pts each).



5. Propose a synthesis of the target molecule using the starting materials provided on the right (12 pts each).

a.



b.

Propose a synthesis for the molecule shown below from any starting materials containing 6 or fewer carbons. You may use any reagents.



c.

