1. Circle the letter which correctly ranks the following compounds from fastest to slowest as they react in an EAS reaction with HNO₃ and H₂SO₄. (if a>b, a is faster than b)

I. 

II. 

III. 

IV. 

a) I > II > III > IV 
b) IV > III > II > I 
(c) III > IV > II > I 
(d) III > II > I > IV

2. Draw the structures of all of the major organic products of each of the following reactions. If no reaction occurs, write “NR”.

a) 

b) 

c) 

1) NaOCH₂CH₃, heat 
2) H₃O⁺
3. Propose a synthesis of each of the following compounds from the indicated starting materials and any other needed reagents.

a)

b)

4. Provide a complete mechanism showing proper curved arrows and all intermediates for the reaction shown.