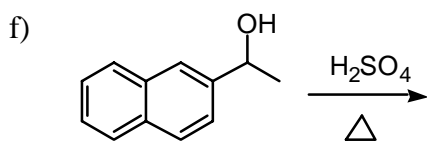
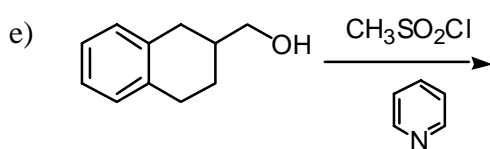
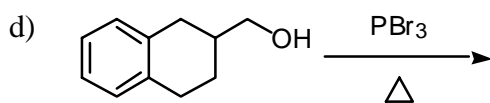
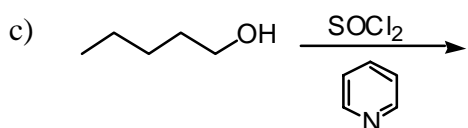
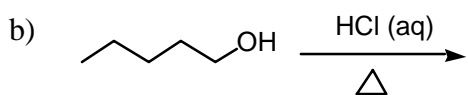
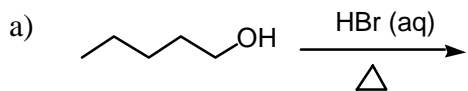


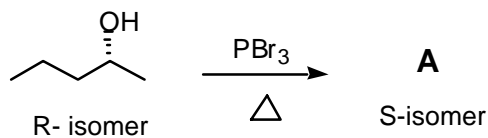
Intensive Organic Chemistry for Freshmen  
Problem Set III

Due: Feb.16.2001

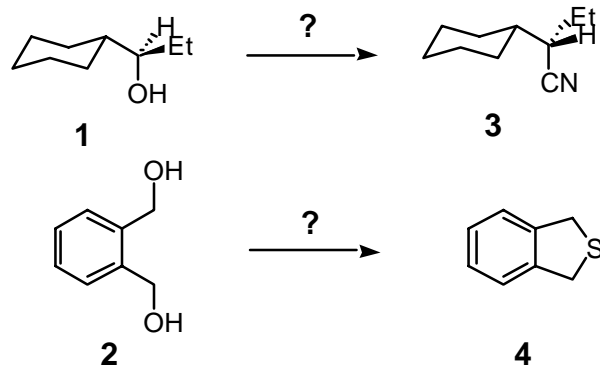
1. What is the expected major product for each of the following reactions?



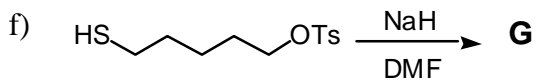
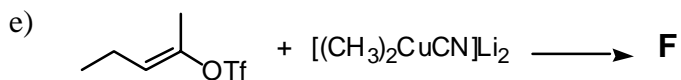
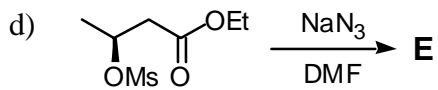
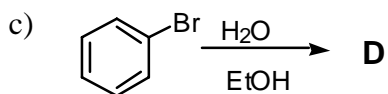
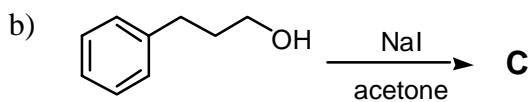
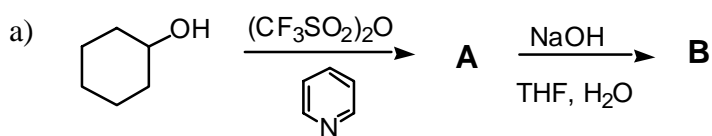
2. Draw the major product of the following transformation and also show the mechanism in detail (specify stereochemistry)



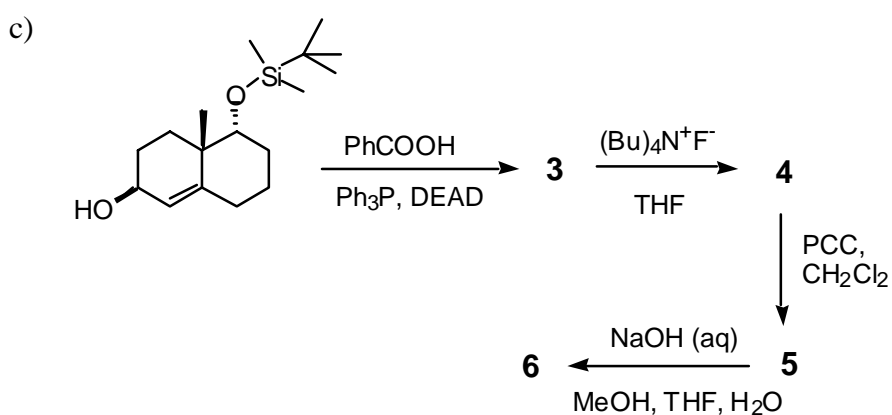
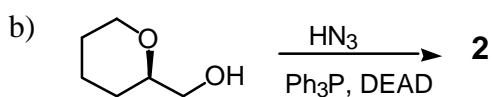
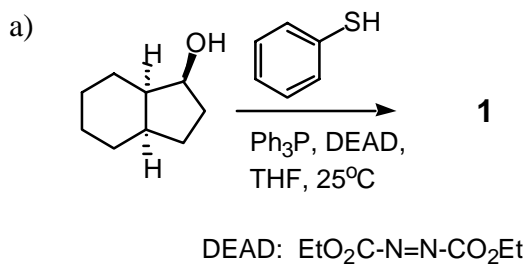
3. How could you convert starting materials 1 and 2 to products 3 and 4, respectively?



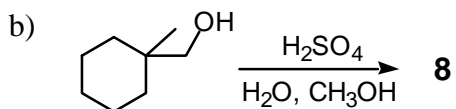
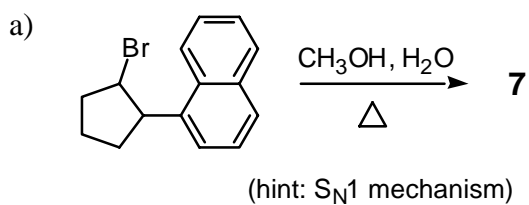
4. What is the major product of the following transformations?



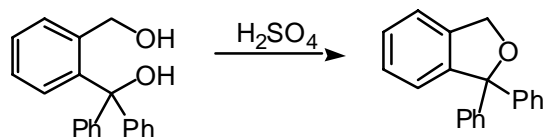
5. Predict what products will be formed in the following reactions.



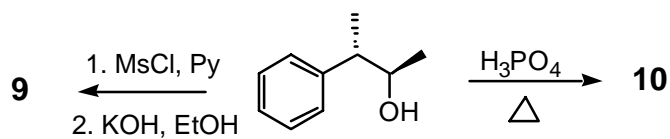
6. Draw structures of all products of the following reactions. Provide an explanation for each case.



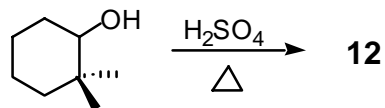
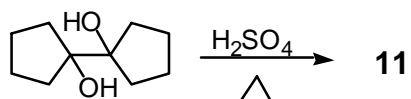
7. Propose a mechanism for the following reaction (Hint:  $\text{S}_{\text{N}}1$  mechanism)



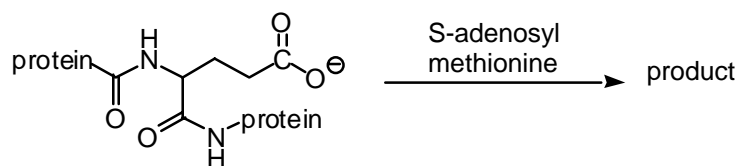
8. What is the major product of each reaction? Specify stereochemistry!



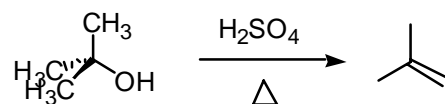
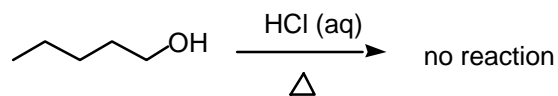
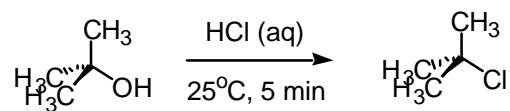
9.



10. The carboxylate ion in the side chains of certain glutamic acid residues of proteins can be sometimes methylated by S-adenosyl methionine to generate an ester. Propose a mechanism for this reaction, showing the expected structure of the product.



11. Explain the following observation.



12. For each pair of reactants, which one do you expect to react faster, why?

