

Chemistry 172Q
March 2, 2006

Exam 2

1 _____/25

2 _____/25

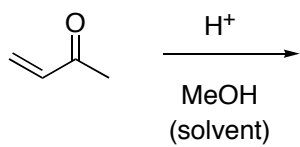
3 _____/35

4 _____/40

Total _____/125

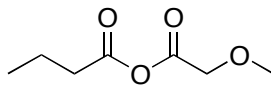
NAME _____

1. Give the structures of the (uncharged) compounds you would expect to observe under these conditions. Include all compounds, even if they will be a very minor component of the reaction mixture.



25 POINTS

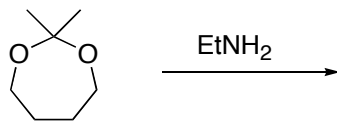
2. Consider the following anhydride:



- Predict which carbonyl carbon is more electrophilic (i.e. more likely to undergo nucleophilic attack), and explain your reasoning.
- Based on your prediction, draw a mechanism for the acid hydrolysis of this anhydride.
- What will you get if you dissolve the anhydride in H₃O¹⁸?
- Propose an experiment that will prove that your prediction in *part a* was correct.

25 POINTS

3.

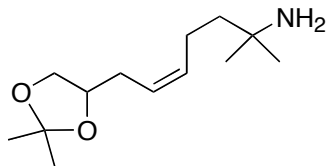


Note: no H₂O is present in the reaction.

- Draw a mechanism and predict the product(s) of this reaction if it is run at pH 4.
- Draw a mechanism and predict the product(s) of this reaction if it is run at pH 1.

35 POINTS

4. Propose a synthesis of this molecule using building blocks 4C or fewer.
exception: you may use triphenylphosphine (Ph_3P) as a reagent (15 carbons!)



40 POINTS