CHEMISTRY 302 11:15 AM EXAM 3 4 MAY 2012

Name:

Note: Your exam should consist of 5 pages including the cover page and grade tabulation sheet. Skim the entire exam, and solve the easiest problems first. Exams not returned when time is called will not be graded.



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When drawing curved arrow mechanisms, if a structure is resonance stabilized, it is not necessary to draw all resonance structures.

PLEASE DO NOT OPEN THIS EXAM UNTIL YOU ARE INSTRUCTED TO DO SO.

1. (14 pts) (a) Identify the most basic nitrogen in LSD. (b) Clearly explain why that nitrogen is the most basic and why the other two nitrogens are less basic. You must draw representative (not all!) resonance structures that are central to your argument.



2. (12 pts) Outline a synthesis of the following compound. The only aromatic compound you are allowed to use as a reactant is benzene. You can assume that any other nonaromatic reagents are available. Mechanisms are not required.



3. (12 pts) (a) Which of the following molecules will readily decarboxylate when heated? (b) Draw a mechanism to illustrate the successful decarboxylation and formation of the product obtained from the decarboxylation. Use H_2O , H_3O^+ as needed.



(12 pts) 2-chloropyridine reacts with sodium methoxide via an addition-elimination mechanism. (a) Draw a mechanism to show why 2-chloropyridine successfully reacts. (b) Explain why 3-chloropyridine does not react. (b) Predict whether 4-chloropyridine will successfully react with sodium methoxide. Explain.



5. (16 pts) Provide the major organic product from each of the following reactions. No mechanisms required.



6. (34 pts) Write a full curved arrow mechanism for each of the following reactions:







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Page	Points	Score
2	38	
3	28	
4	34	
Total	100	