From: koreeda@umich.edu
Subject: Message 7 - Quiz 1 and Exam 1
Date: May 20, 2011 8:42:59 AM GMT
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i. The answer key for Quiz 1 has been posted. This answer key is based upon the original version of the quiz. The one you received yesterday somehow was missing #2 in question II. So, the total score for the quiz will be 30 points instead of 33. I will make the next quiz to be worth 36 points.

ii. Please note lab reports are due one week after the scheduled completion of each experiment. The deadline for each report is given in the daily schedule (posted).

iii. I will have office hours tomorrow (sat) from 2 - 6 PM in my office. My office hour schedule for the next week will have to be modified due to a grad student prelim on Monday, 5/23. See below.

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The first 216 exam (80 points) will be given on Thursday, May 26, from 2:15 PM through 3:35 PM in Room 1800 Chem. You will go back to the lab by 3:40 PM to finish up Expt 5.

If you have any special requirement for the exam such as extra time, please let me know by e-mail by Tuesday, 5/24.

During the lab on Thu, 5/26, your reaction mixture will have to be heated up for 1.5-2 hrs. So, during this reaction time, you will move to Room 1800 at 2:10 PM to take the exam. Several GSIs will remain in the labs to watch your reactions.

1. Please bring a calculator to the exam next Thursday. Programmable calculators are fine, but not i-Pod/i-Pad types, laptop computers, or cell phones. We ask you not to use a cell phone during the exam.

2. There will be a review session on Tue, May 24, from 6:00 to 7:30 PM (in Room 1400 Chem). Please note the change on the day for the review session.

I will have the following office hours next week in my office:

Monday, May 23: 1 - 2:30 PM and 4:30 - 6:30 PM
Wednesday, May 25, 4:00 - 7:00 PM

If you can't make any of these office hours, just send me e-mail to arrange for an appointment. I will post my weekly schedule for the next week later today.

3. Four sets of previous 216 exams for the first half as well as their answer keys have been posted on the 216 course web site. The answer keys to the stoichiometry problems at the back of the lab manual (pages A1-A5) have also been posted on the web site.

4. This first exam will cover Experiments 1 - 4 (know the reactions and their mechanisms). In addition, experimental techniques and procedures (e.g., recrystallization, TLC, steam distillation, extraction, and reflux), experimental setups such as filtration (gravity vs suction) and refluxing, concepts on stoichiometry, pKa, etc., and IR spectroscopy will also be included.
5. It might be a good idea for you to carefully go through all of my notes for the lectures (all of them are posted on the 216 website). I recommend that you read Chapter 12 of the Ege's book. In addition, it would be quite useful for you to read sections of the textbook describing recrystallization, steam distillation, extraction, and TLC.

6. Concerning IR: There will be a couple of IR tables provided in the exam. So, you don't need to memorize those wavenumbers for certain functional groups. Please make sure that you go through a few times my notes entitled "Major IR peaks".

7. Silica gel TLC Rf's:

The only thing you need to know is the ranking listed in my TLC handout. Namely, the following categories in the decreasing order of Rf's:

- alkanes/alkyl halides
- alkenes, aromatic hydrocarbons, aromatic halides
- ethers
- ketones, aldehydes, esters, anilines
- alcohols
- phenols
- carboxylic acids (Rf's are usually close to 0).

Amides with at least one NH have lower Rf's than their corresponding amines/anilines (e.g., acetanilide vs aniline)

8. When you increase the "polarity" of a solvent for developing silica gel TLC, any compound increases its Rf value. Although I don't know if there is a scientifically credible explanation to this, I venture to offer a 3-cent worth of my not-so-scientific rationale to this. When the solvent system is made more "polar", the polar solvent is likely to interact more effectively with silica gel, which is quite polar, and occupy the surface of the silica gel, thus displacing an organic compound. Therefore, the compound is likely to travel higher on the TLC plate.

9. There will be no questions on naming any compounds. In the past in the exam I used the term "2,4-dinitrophenylhydrazine" since all of you used the reagent in the lab. But this time I will give you its structure if I ask questions involving this reagent. I feel you should know the structure of aniline as well as the prefix such as 4- or p-, e.g., 4-cyanoaniline. I expect you to know what the following classes of compounds are: aldehydes, ketones, α,β (alpha, beta)-unsaturated ketones, aryl ketones, hydrazones, imines, carboxylic acids, esters, amides, acid anhydrides, acid halides, amines, anilines, alcohols, phenols, alkyl and aryl halides.

10. I will also assume that you know what the following chemicals/reagents/solvents you used in the lab (or will use in Expt 4) are (structures, their uses in the lab): ethyl acetate, acetone, hexane(s), dichloromethane (or methylene chloride), ethanol (or ethyl alcohol), ether (or diethyl ether), water!, brine, bleach (NaOCl), anhydrous calcium chloride, anhydrous magnesium sulfate, sodium borohydride, acetic anhydride, sodium acetate, aniline, (concentrated) sulfuric acid (>98% by weight), concentrated hydrochloric acid (37% by weight in H2O), sodium hydroxide, and sodium carbonate.

I will give the structure of any reagent/chemical/solvent that is not mentioned in this massage.