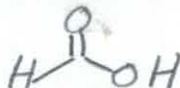


Chemistry 3331  
Organic 2  
Professor Eaton  
Spring 2015

## EXAM 3

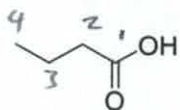
1. (2 pts) Draw the structure of Formic Acid



2. (2 pts) Draw the structure of Acrylic Acid

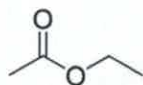


3. (3 pts) For the molecule drawn below provide the IUPAC name



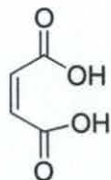
butanoic acid

4. (3 pts) For the molecule drawn below provide IUPAC or common name



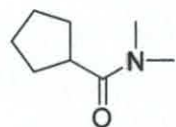
ethyl ethanoate or ethyl acetate

5. (3 pts) For the molecule drawn below provide the common name



maleic acid

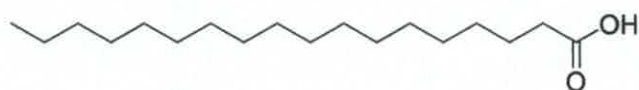
6. (3 pts) Name the drawn below according to the IUPAC rules



N,N-dimethylcyclopentanecarboxamide

7. (3 pts) For the molecule drawn below give the common name

stearic acid

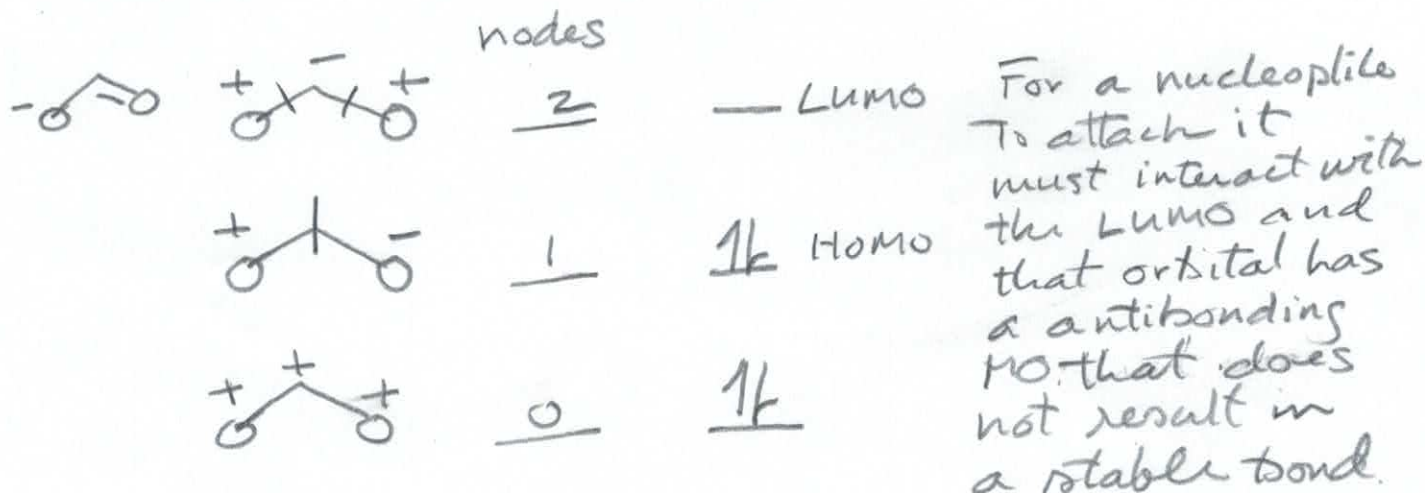


Stearic acid

8. (3 pts) The carboxylic acid carbonyl oxygen is:

- a. sp<sup>2</sup> hybridized
- b. sp<sup>3</sup> hybridized
- c. a hydrogen bond donor
- d. rapidly equilibrating between sp<sup>2</sup> and sp<sup>3</sup>
- e. a and c
- f. a and d

9. (5 pts) Draw the MO diagram for the carboxylate anion and explain what orbital would be involved if it was attacked by a nucleophile

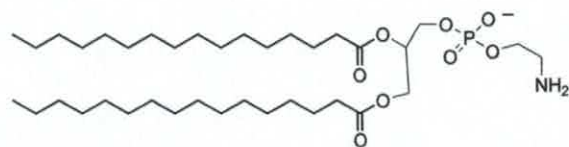


10. (3 pts) The order of reactivity at the carbonyl carbon for a carboxylic acid derivatives is:

- a. ester > amide > carboxylic acid > anhydride
- b. amide > ester > anhydride > carboxylic acid
- c. carboxylic acid > anhydride > ester > amide
- d. acid chloride > anhydride > amide > carboxylic acid
- e. amide > ester > acid chloride > carboxylic acid
- f. none of the above

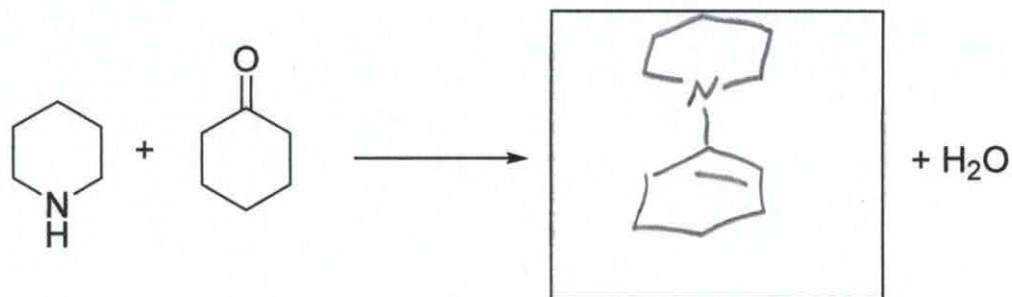
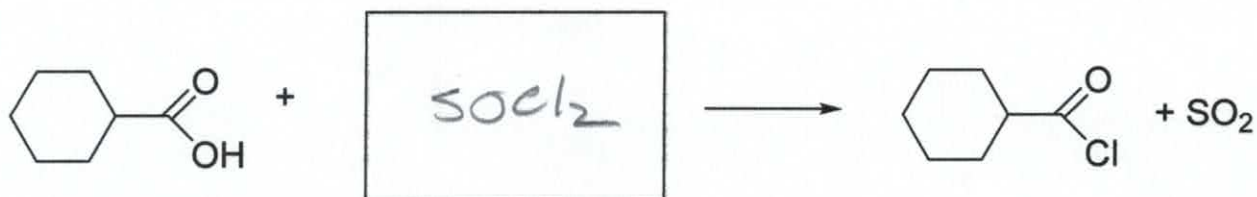
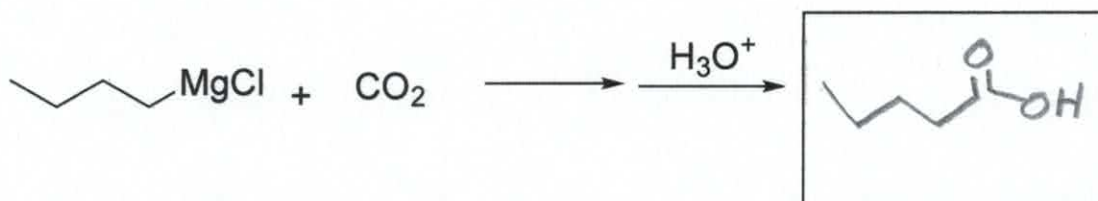
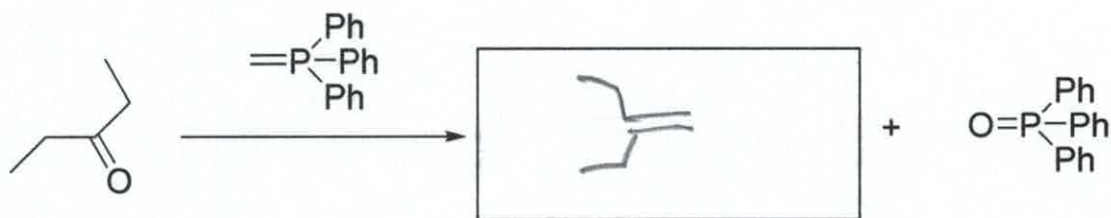
11. (2 points) the molecule drawn below is an example of a:

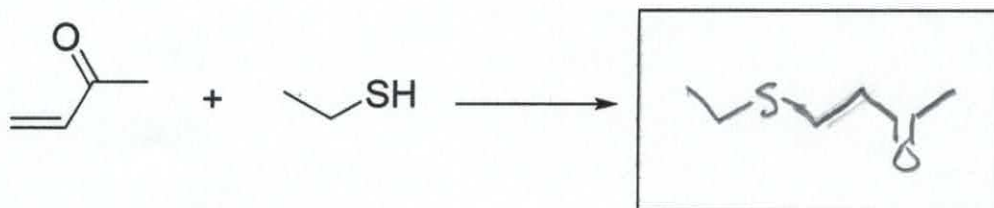
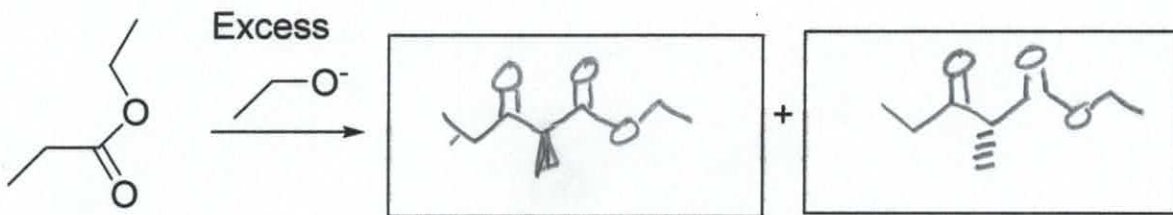
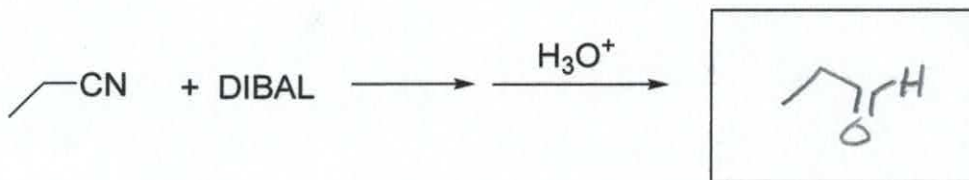
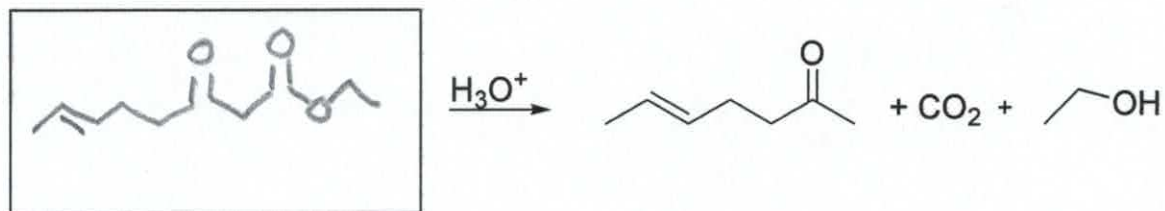
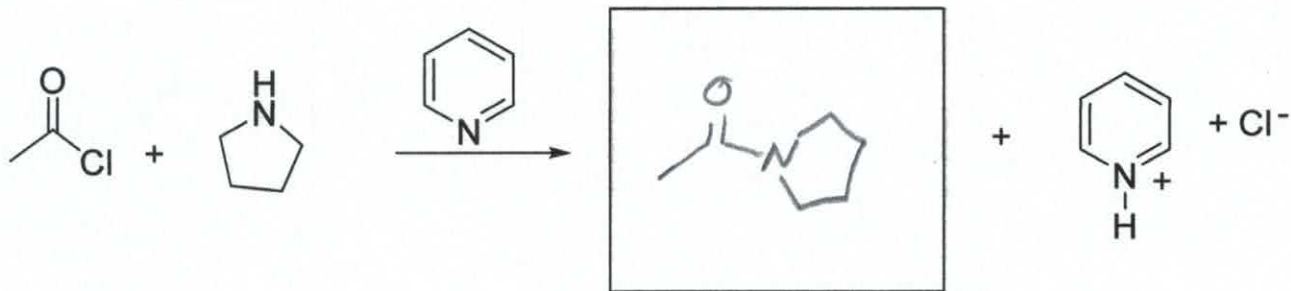
Student Name \_\_\_\_\_

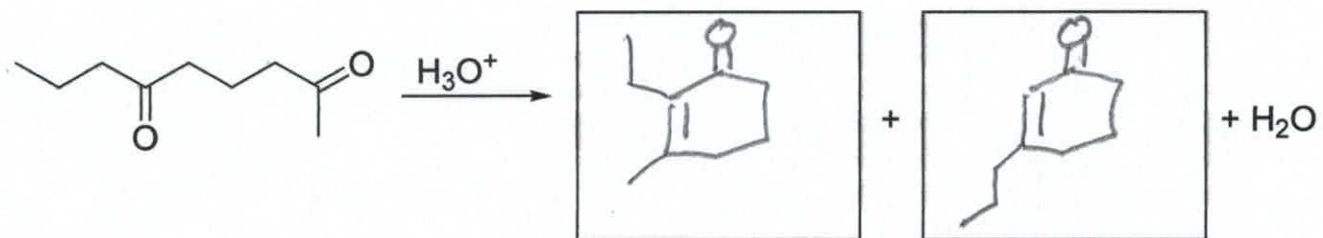


- a. Wax
- b. Soap
- c. Triglyceride
- d. Phospholipid

12. (68 pts) for the reactions shown below fill in the box to complete the chemical equation. Draw only organic products.







Thermo Product

