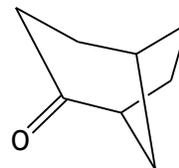


Chemistry 328N



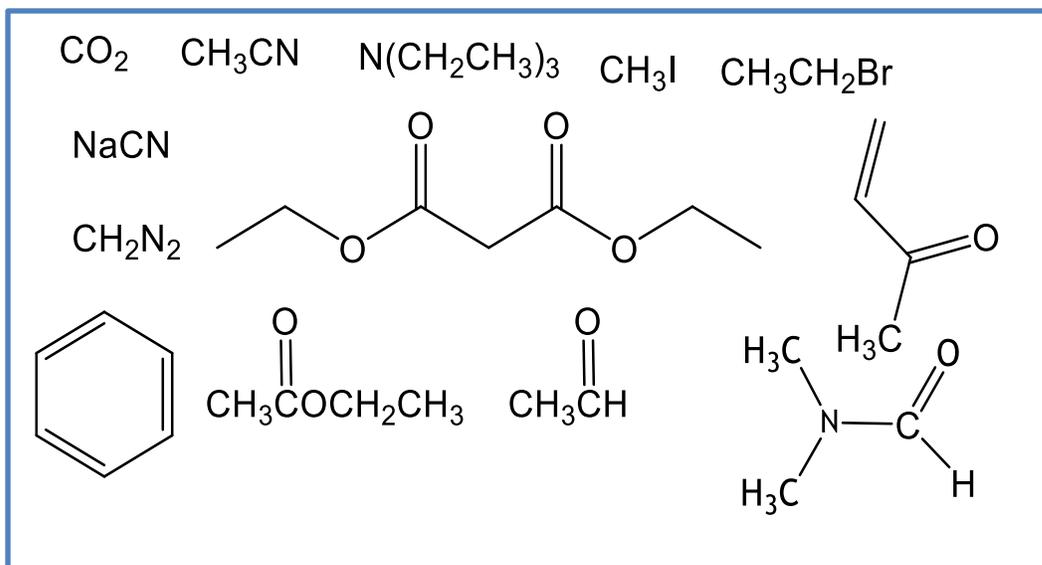
Practice Test Dr. Willson

Third Midterm Exam

This evening you will take two tests, one in chemistry and one in integrity. I want you to get A's on both of these tests but if you are to fail one, let it be the one on organic chemistry. GW

Name (Print as it appears on the Class Roster) _____

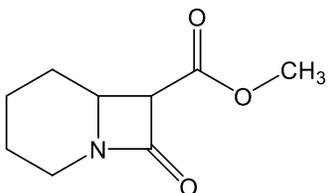
Signature _____



1. (10 Pts) Circle the best answer for each question below

weakest acid	HF	HI	HCl
Weakest Acid			
Requires a molar equivalent of acid	Ester hydrolysis	Lactone hydrolysis	Lactam hydrolysis
	7,7-dimethyl-bicyclo[3.2.1]octane	2,2-dimethyl-bicycle[1.2.3]octane	6,6-dimethyl-bicycle[3.2.1]octane
Not an equilibrium reaction	Acid hydrolysis of an acetal	Acid hydrolysis of a nitrile	Acid hydrolysis of a lactone
N/A			
Product of a crossed Claisen condensation			
Decarboxylates upon acid hydrolysis and heating			
Adds 1,4 to	$\text{H}_3\text{C}-\text{MgI}$		
The kinetic anion			

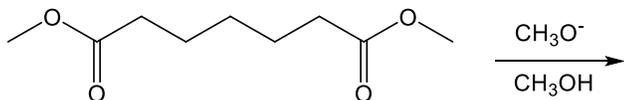
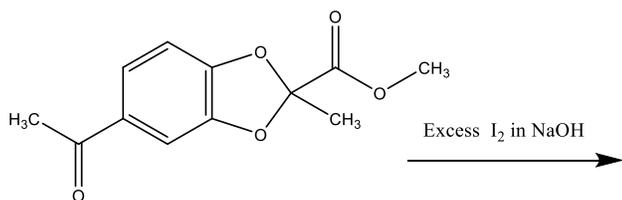
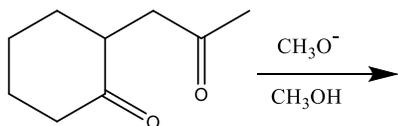
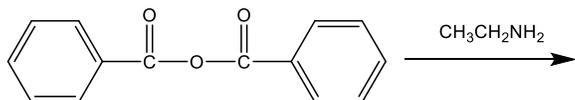
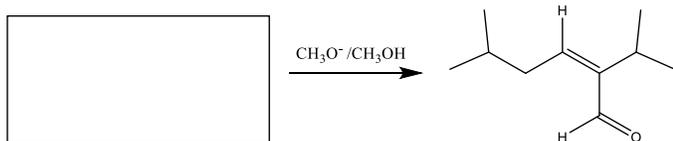
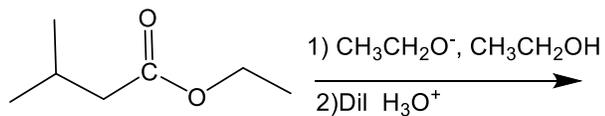
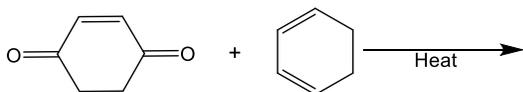
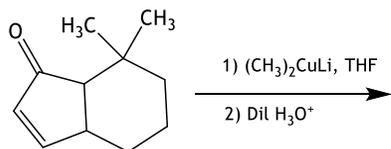
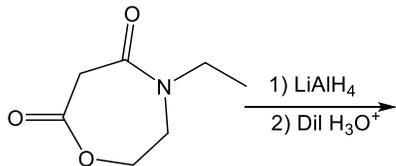
2. (20 Pts) Beta lactams are found in important antibiotics such as penicillin and cephalosporin. Please write the products you predict from exhaustive hydrolysis of the β -lactam below in hot aqueous acid; then use the curved arrow convention to show the step by step mechanism for that reaction. **Please** be neat!

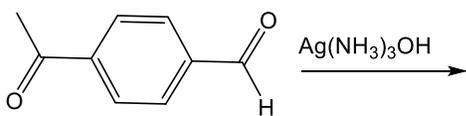
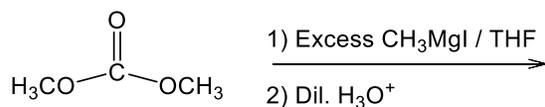
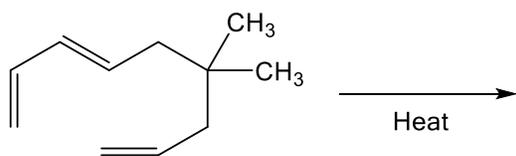
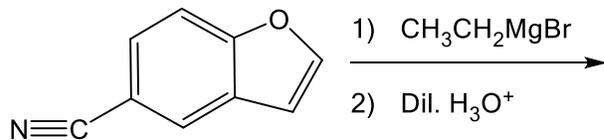


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Hydrolysis Products

3. (10 pts) Please complete the following equations by supplying the missing products, reactants or conditions:





4. N/A

5. (10 Pts) Homework problem 17.32 Give the expected organic products when phenylacetic acid, PhCH₂COOH, is treated with each reagent:

a) SOCl₂ →

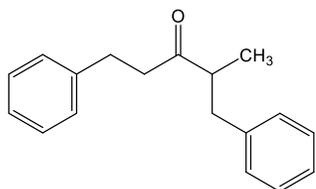
b) LiAlH₄ followed by H₂O →

c) CH₃MgBr (one equivalent) →

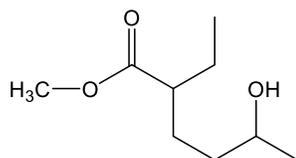
d) CH₂N₂ →

e) NaHCO₃, H₂O →

6. (10 pts) Using only the substances in your stock room (on cover page) as sources of carbon, show a synthetic path to the compounds below. You may use any other substances you choose to help in the synthesis, but all of the carbon in the product must come from the stock room. I encourage you to look for the signatures of reactions we have studied and to work backwards.



7. (10 pts) Using only the substances in your stock room (on cover page) as sources of carbon, show a synthetic path to the compounds below. You may use any other substances you choose to help in the synthesis, but all of the carbon in the product must come from the stock room. I encourage you to look for the signatures of reactions we have studied and to work backwards.



8. (10 pts) Using only the substances in your stock room (on cover page) as sources of carbon, show a synthetic path to the compounds below. You may use any other substances you choose to help in the synthesis, but all of the carbon in the product must come from the stock room. I encourage you to look for the signatures of reactions we have studied and to work backwards.

