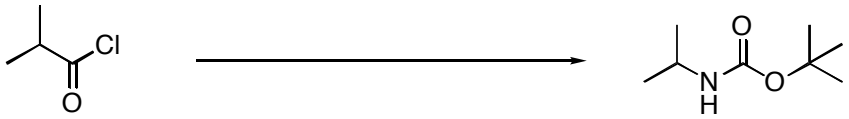
Chem 332
Exam 1
March 12, 2008
Prof. Fox
50 minutes
100 points

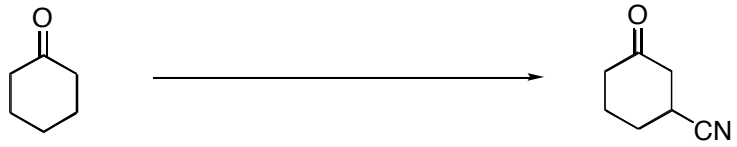
Show your work in detail

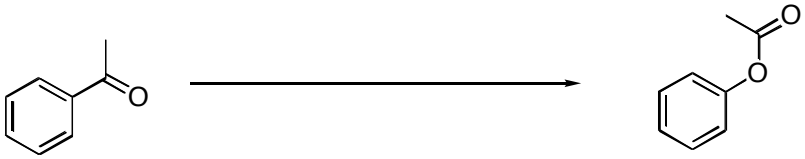
WRITE YOUR NAME ON EVERY PAGE

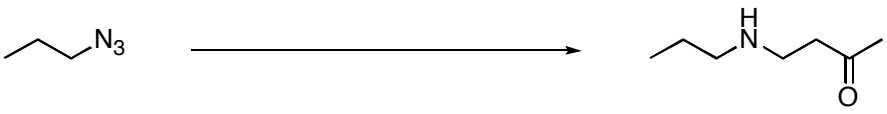
NAME _____

1. Provide reagents for the following transformations (5 pts each)

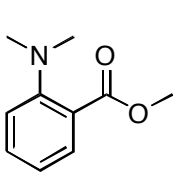


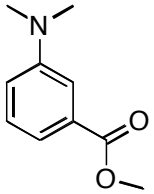




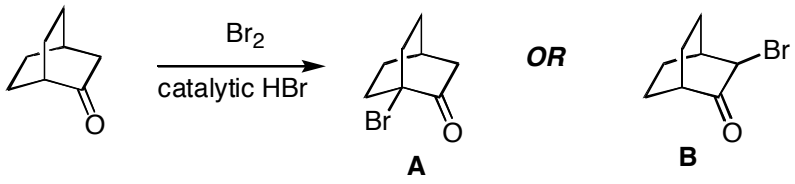


2a Circle the product below that is the stronger amine base. Provide a detailed but brief explanation to support your answer. Use chemical structures to support your answer. (15 points)





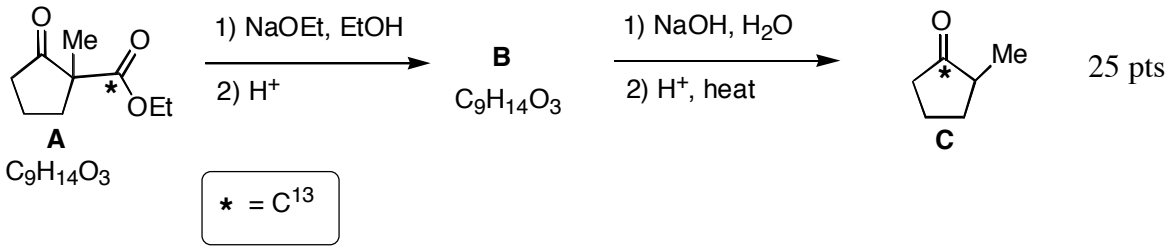
2b The reaction displayed below could plausibly form both products **A** and **B**, but only one product is formed. Circle the product that is formed. Provide a detailed but brief explanation to support your answer. Use chemical structures to support your answer. (15 points)



A **B**

HINT: consider the structure and bonding of the intermediate that is formed

3. Treating **A** with NaOEt gives isomeric compound **B**. Further treatment with NaOH, and then acid with heat gives 1-methylcyclopentanone **C**.



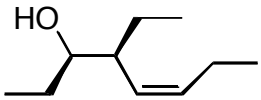
25 pts

* = C^{13}

a. Provide a structure for **B** and a mechanism for it's formation.
b. Provide a mechanism for the conversion of **B** into **C**.

NOTE: Your mechanisms must account for the incorporation of the C^{13} (*) labeled carbon into the product

4 Provide a synthesis from any materials that contain **3 carbons or less.** Reagents that do not become incorporated into the product (e.g. nBuLi, PPh3) may be employed



25 pts