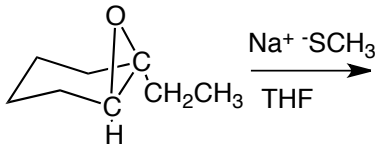
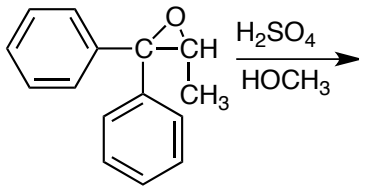
Name .....

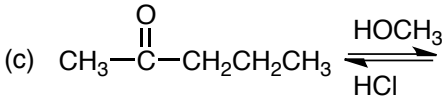
L.I.U.

Chem. 122, Sect 012, Quiz 2, 50 pts, Spring, 2011

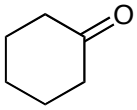
1. Give the product of the following reactions, showing the full reaction mechanism. Pay particular attention to stereochemistry where appropriate. (20 pts)

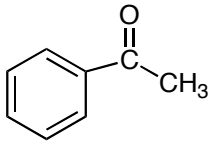
(a) 

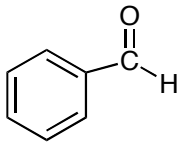
(b) 

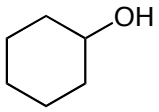
(c) 

2. One student's unknown carbonyl compound formed a yellow-orange precipitate when shaken with 2,4-dinitrophenylhydrazine. It did not form a silver mirror when shaken with a solution of $Ag^{+}(NH_3)_2$. It did not form a yellow precipitate when shaken in a test tube containing a slight excess of KI/I_2 in aqueous NaOH. Circle the compound below which best fits this data. For partial credit briefly interpret the results of each of the three tests. (10 pts)

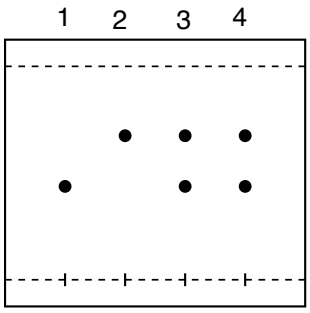
(a) 

(b) 

(c) 

(d) 

3. In the preparation of 2,4-dinitrophenylhydrazine (a) write the overall reaction, showing all three steps. (b) Explain briefly the purpose of putting on the acetyl group before doing the nitration. (c) Based on the tlc plate shown below, (i) did the student obtain a single pure product? Explain briefly. (ii) Was the recrystallization technique useful in purifying the product? Explain briefly.



1 pure *para*-nitroaniline

2 pure *ortho*-nitroaniline

3 unrecrystallized product

4 recryslallized product