

First Exam
CHEM 256 – Organic Chemistry II
Prof. Bastin
Spring 2016

Name Key

Section _____

1. DO NOT START this exam until you are instructed to begin.
2. There are SEVEN pages including this cover sheet - make sure they are all here!
3. Provide *CLEAR, CONCISE* answers using unambiguous, carefully drawn structures and mechanisms for the appropriate questions. *Be sure to read each question VERY CAREFULLY.*
4. Do not provide mechanisms for synthesis and product prediction problems.
5. You may only use a pen or pencil and the materials provided in this packet on this exam.
6. If you have papers and/or books with you, they are to be left on the floor **AT THE FRONT OF THE ROOM**. If you need scrap paper please ask.
7. Cell phones must be **OFF** and placed on the table at the **FRONT** of the **ROOM**.

1) _____/30 pts

2) _____/30 pts

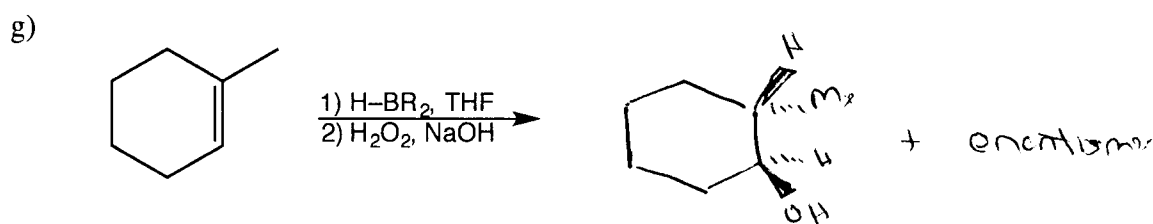
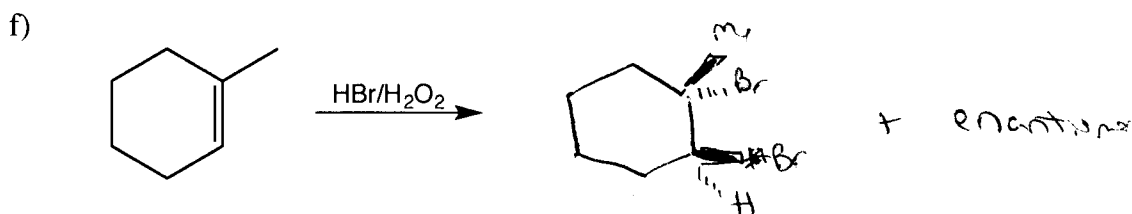
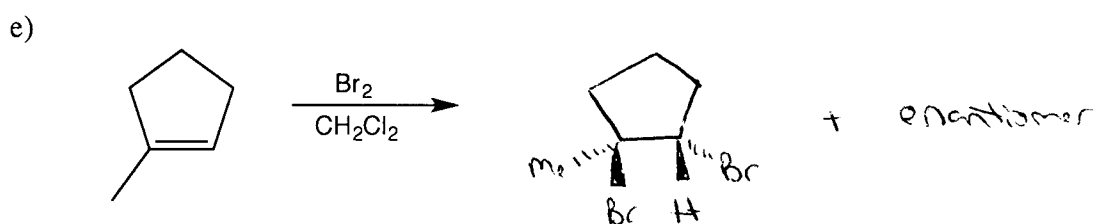
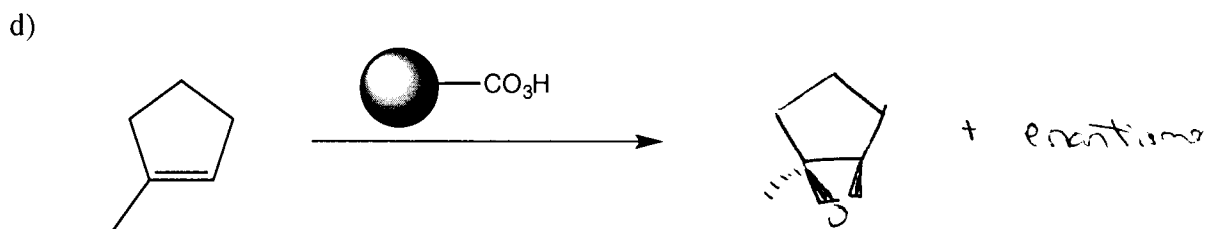
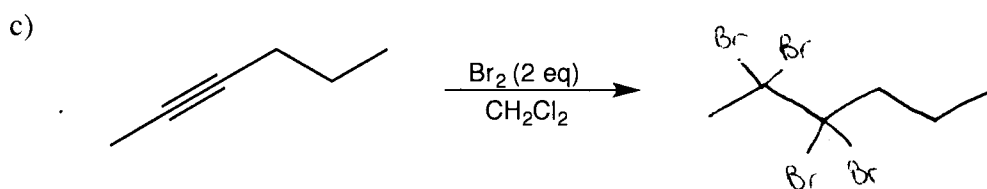
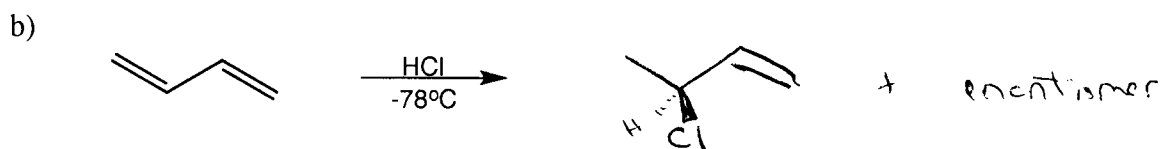
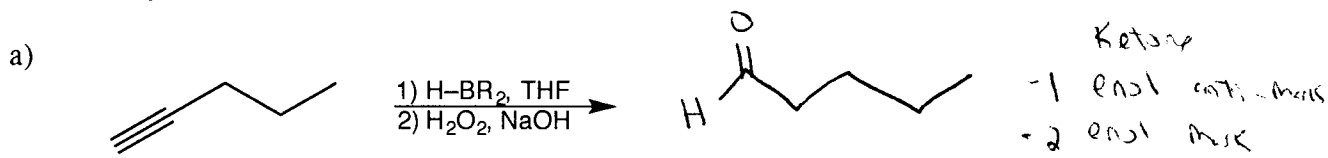
3) _____/15 pts

4) _____/10 pts

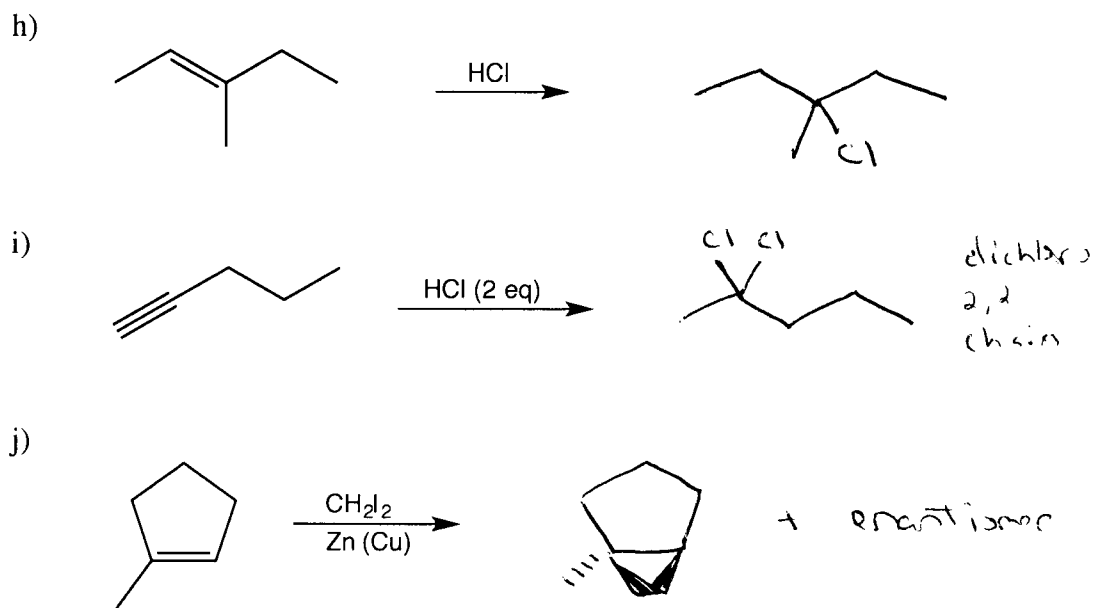
5) _____/15 pts

Total: _____/100 pts

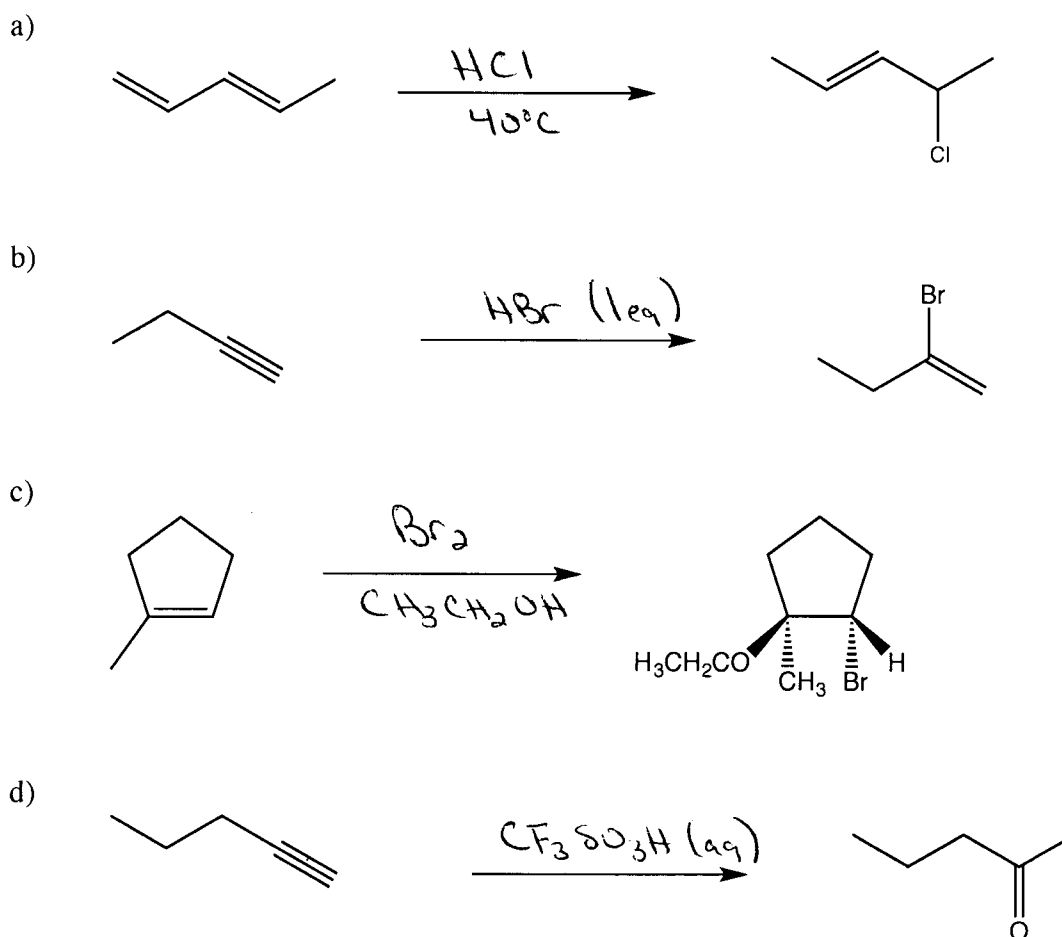
- 1) (30 pts) Draw the MAJOR product(s), if any, of the following reactions. Indicate stereochemistry where relevant.



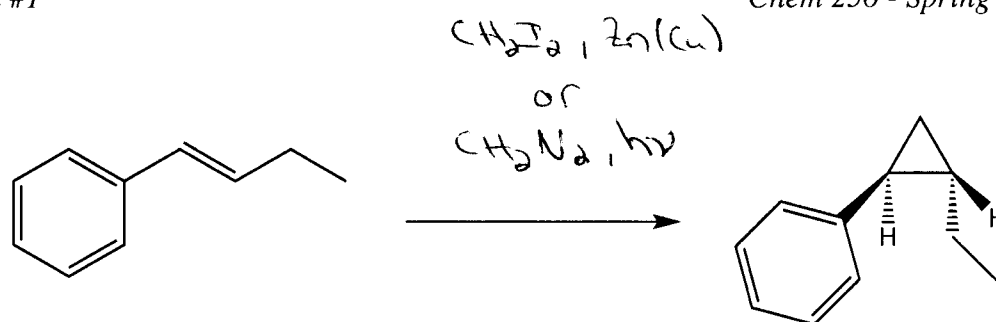
anti-mark
2
stereoc
OH, not Br



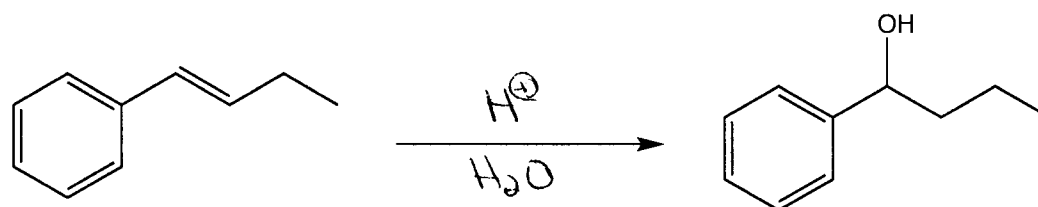
2) (30 pts) Provide the reagents needed to bring about the following transformations.



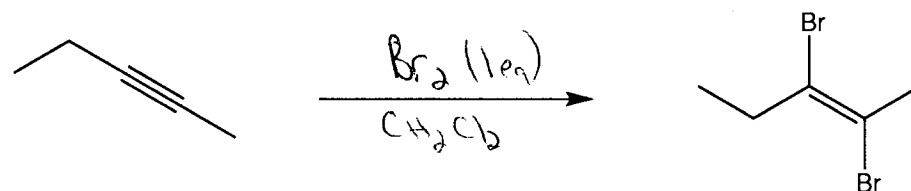
e)



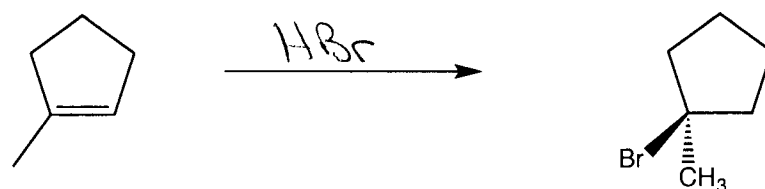
f)



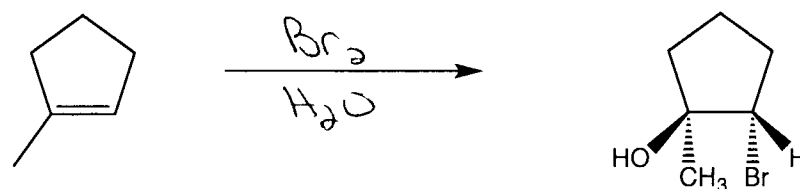
g)



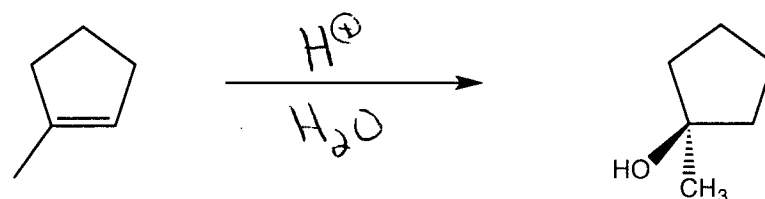
h)



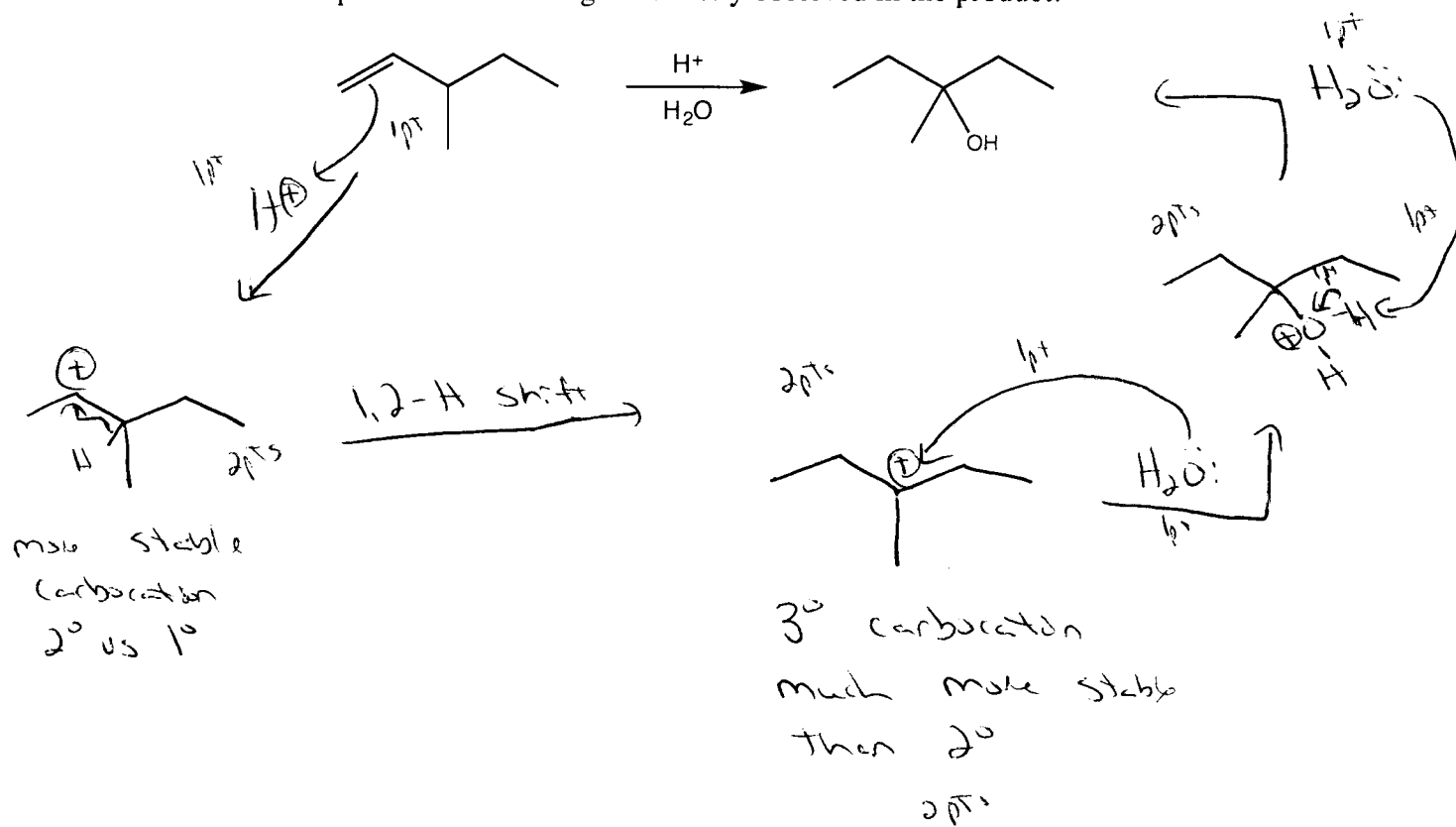
i)



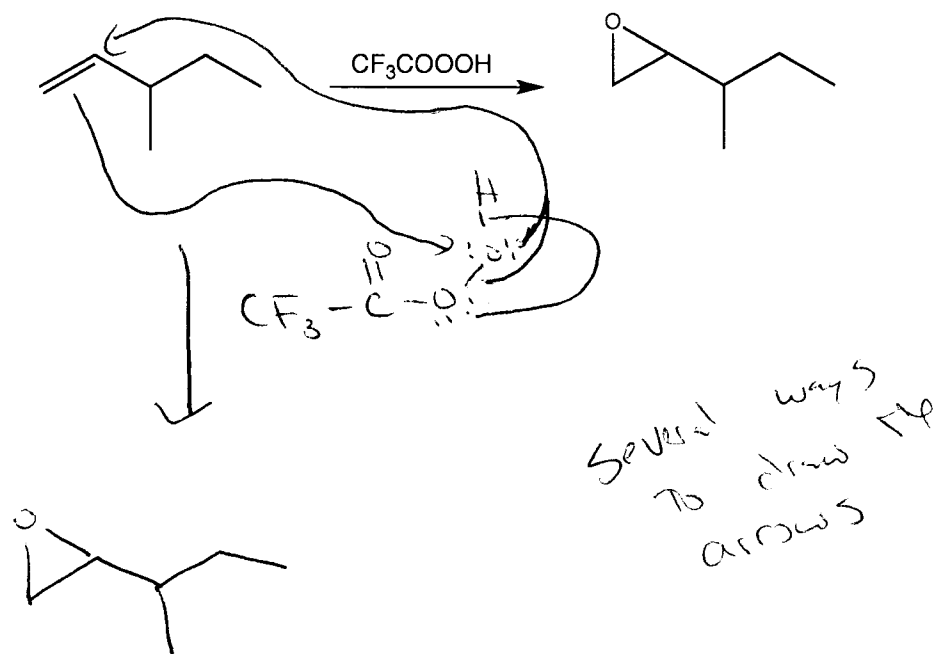
j)



- 3) (15 pts) Provide a curved-arrow mechanism for the following reaction. Additionally, provide a mechanistic explanation for the regiochemistry observed in the product.



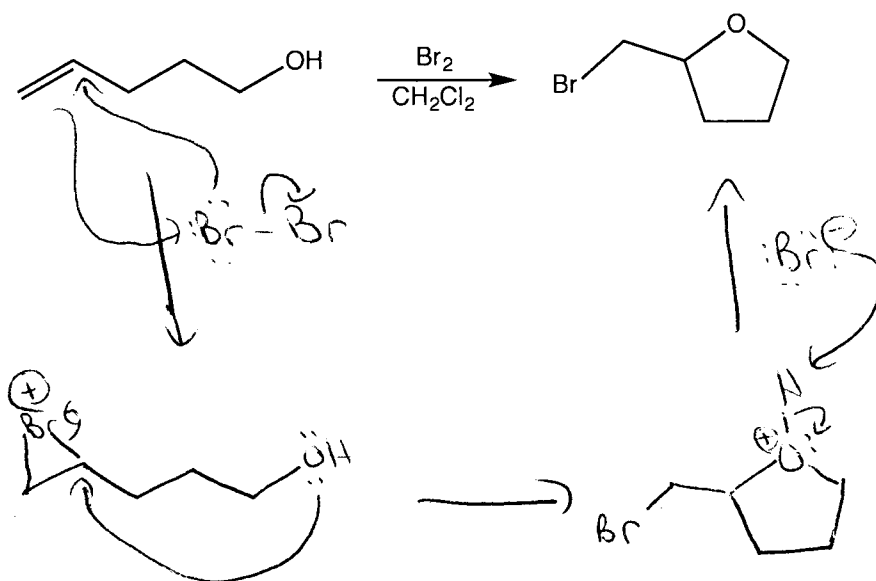
4) (10 pts) Provide a curved-arrow mechanism for the following reaction.



1 step - 4 pts

arrow - 6 pts

- 5) (15 pts) A student attempted to brominate the double bond in 4-penten-1-ol, but ended up with the following cyclic ether instead. Propose a mechanism for the formation of this product.



competes with
intermolecular Br^-
attack