

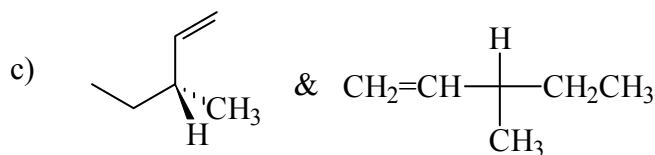
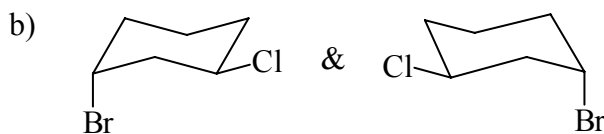
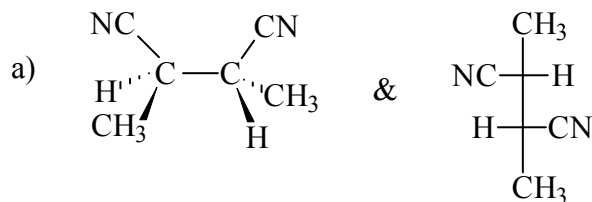
CHEM 241-601  
Quiz 2 - 80 pts  
November 8, 2005

Name \_\_\_\_\_

Signature \_\_\_\_\_

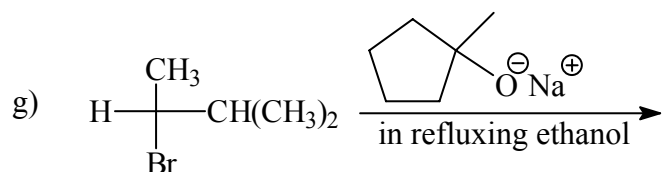
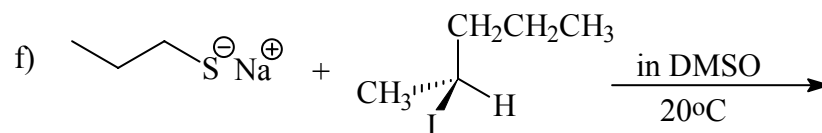
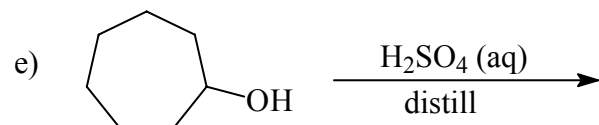
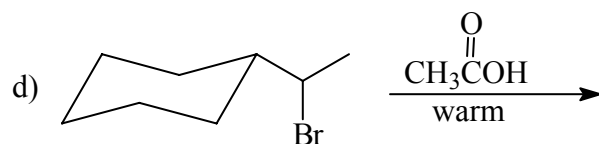
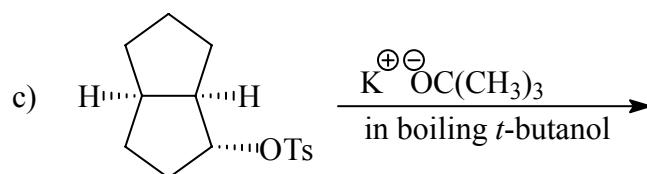
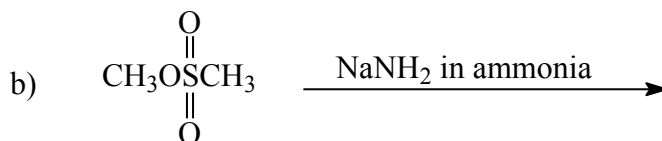
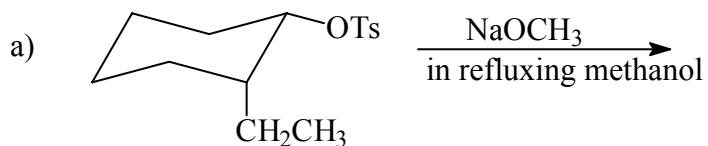
Answer the questions in the spaces provided.

1.(15) Determine the absolute configuration of each asymmetric center in the following pairs of compounds. **Also**, determine if the compounds in each pair are identical, enantiomers, or diastereomers.

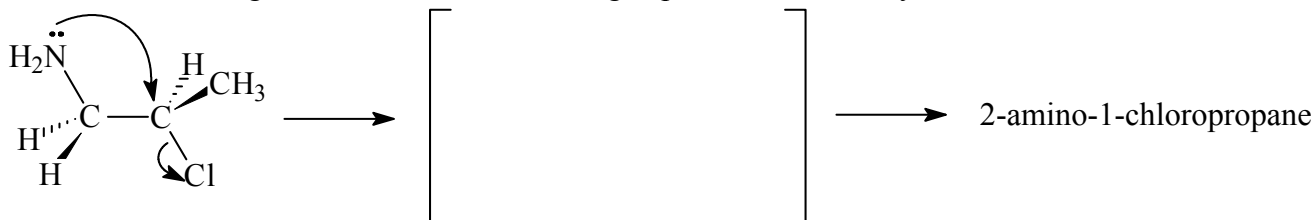


2.(10) Consider the molecule **1-bromo-4-*t*-butylcyclohexane**. Which isomer, *cis* or *trans*, will undergo rapid E2 reaction in the presence of NaOCH<sub>3</sub> in hot methanol (the other isomer reacts very slowly, if at all)? Explain with carefully drawn pictures (and some words) and draw the product.

3.(35) Give the major product or products of the following reactions. Also predict the mechanism through which the reaction proceeds (e.g. E1; do *not* draw out the mechanism). Only one of these reactions undergoes a rearrangement as a major pathway.



4.(10) The molecule (R) 1-amino-2-chloropropane can undergo a very unusual rearrangement to 2-amino-1-chloropropane. The process involves the intramolecular  $S_N2$  reaction shown below followed by a second  $S_N2$  reaction. Draw the intermediate that this rearrangement goes through and the final product (keep in 3 dimensions). Supply arrows on your intermediate that show how the product forms (complete the mechanism). What is the absolute configuration of  $C_2$  in the rearranged product? How do you know?



5.(10) Provide a mechanism for the following reaction to give both products. Use arrows to indicate electron flow and show all intermediates. Your arrows between intermediates should clearly distinguish between resonance and equilibrium.

