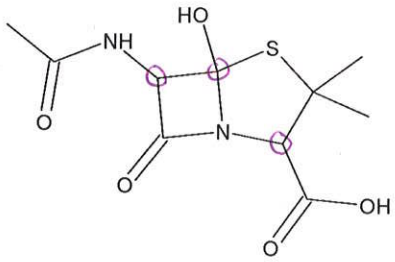
Organic Chemistry 1
Exam 2, Ch 4-6 Fall 2017

Name Key

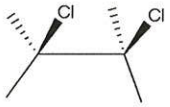
Ch 5 Stereochemistry, Ch 6b Drawing Mechanisms

_____/50
Ch 5, 6b

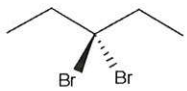
5. Circle all the chiral centers of the following compound, penicillin. (4 pts)



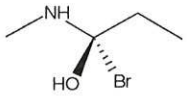
6. Determine if compound is chiral or achiral, and label meso if appropriate. (3 pts)



achiral (Not meso – No chiral centers)

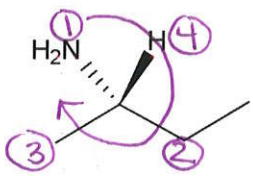


achiral (not meso)

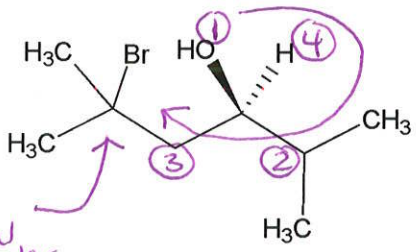


chiral

7. Identify the configuration of each chiral center and explain your answer (identify the priorities). (2 x 3 pts, 6 pts)

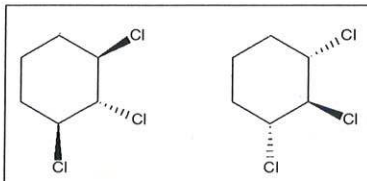
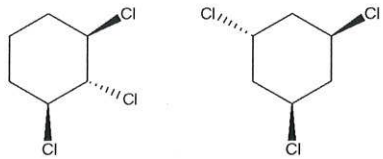
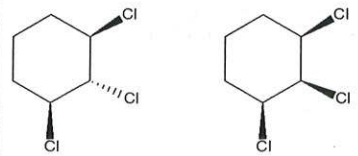
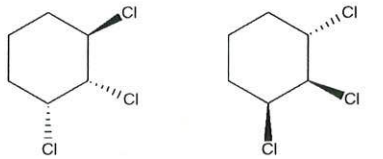


H is front, so S



Not a chiral center

8. Determine the relationship between the two compounds (enantiomers, diastereomers, same compound, constitutional isomers). (4 pt)

 Same (Not chiral!)	 Constitutional
 diastereomers	 enantiomers

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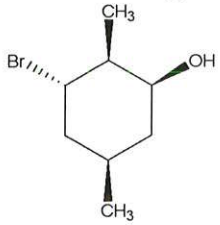
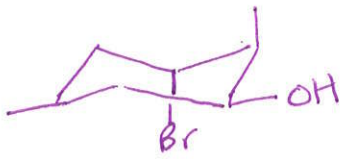
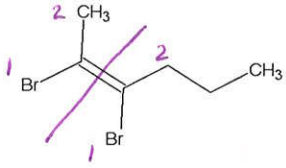
9. Draw the following in a chair conformation (only one form). **(5 pt)** Multiple acceptable answers

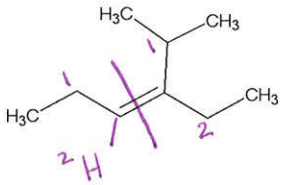




10. Identify the alkenes as cis/trans or E/Z, and show the priorities. (4 pts)

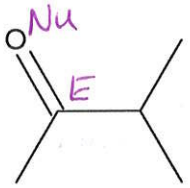


cis or Z

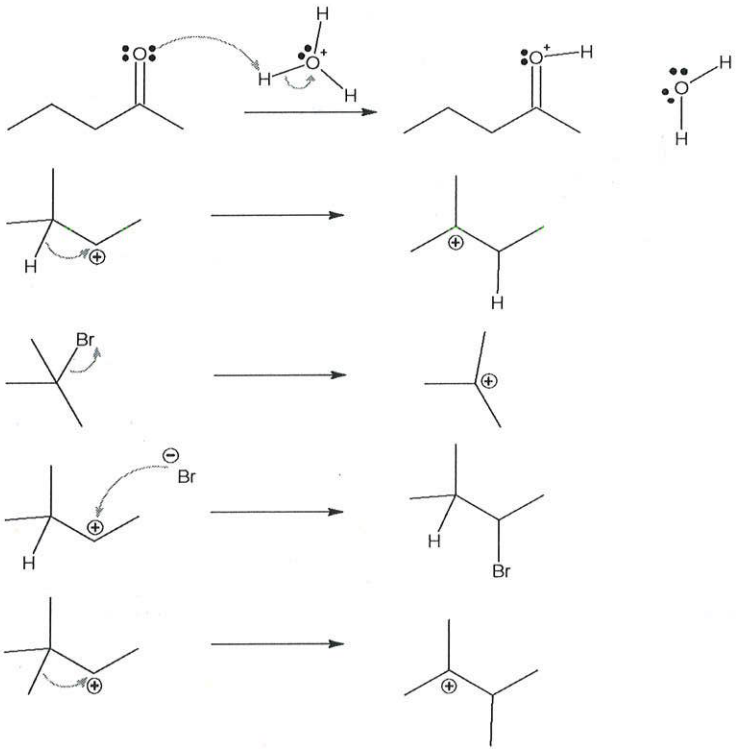


Z

11. Identify the Nucleophilic and Electrophilic site(s) in the following compounds. (3 pt)



12. Identify the mechanistic pattern in each of the reactions below. (5 pts)



proton transfer

Rearrangement - hydride transfer

Leaving Group

Nucleophilic Attack

Rearrangement (Not Hydride transfer)

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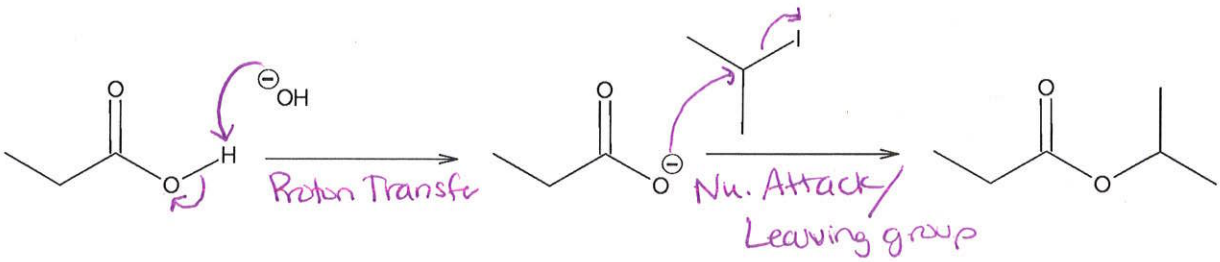
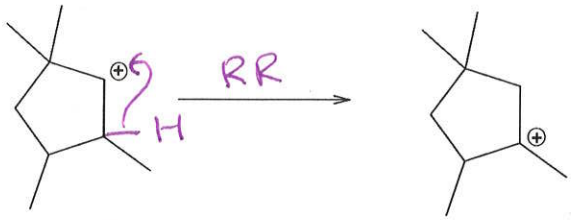
13. Draw curved arrows to explain the reactions below. It might be helpful to identify the type of reaction first. (9 pts)

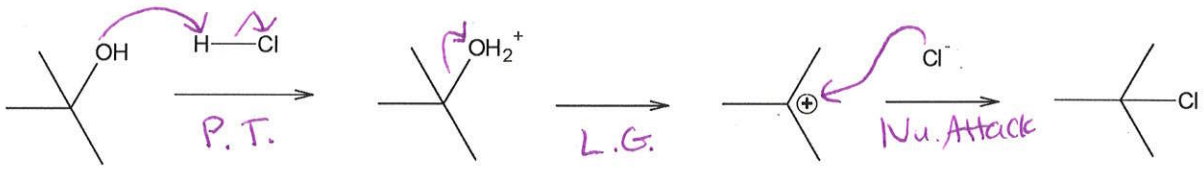
a)



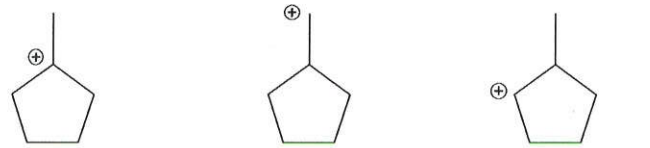
b)



c)

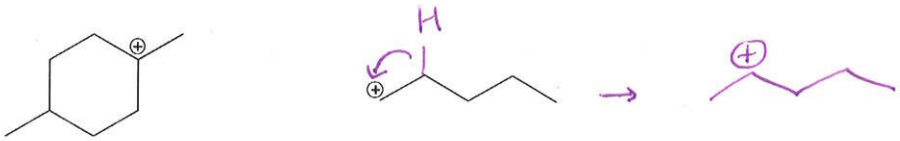


14. Identify the most, middle, and least stable carbocations. (3 pt)



most _____ least _____ middle _____

15. Predict if carbocation will rearrange. If it will rearrange, draw the mechanistic arrows and draw the product. (4 pts)



No Yes

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