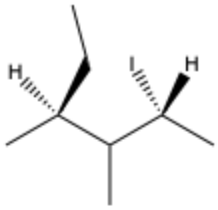
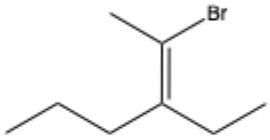
CHEM 2300 Exam 2 Review

1. Name/draw the following molecules

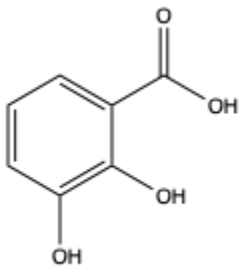


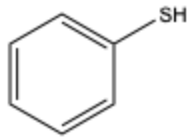


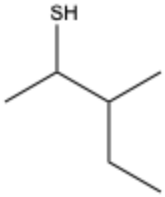
(*R*)-3-bromo-2,3-dimethylpentane

(*E*)-2-fluoro-3-methylpent-2-ene

3-methylpentan-2-ol

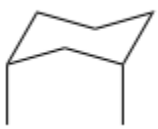


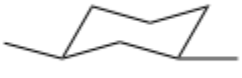


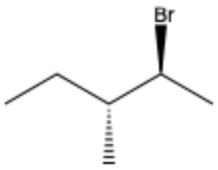


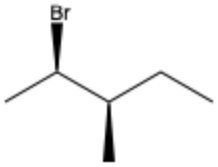
2. Draw all stereoisomers for (2R,4S)-2,4-dimethylpentane and list if it is an enantiomer or diastereomer

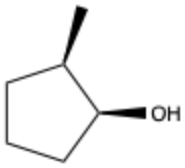
3. State whether the molecules are diastereomer, enantiomer, or identical.

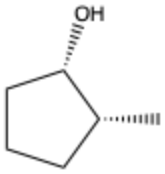






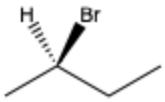


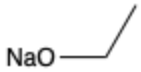


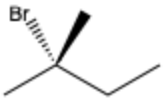


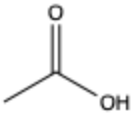
4. Draw the major product(s) and the mechanism for the following reactions

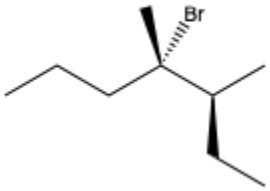
Are the products enantiomers or diastereomers?

S_N2 



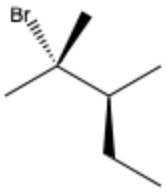
S_N1 



E2 

KOtBu

E1

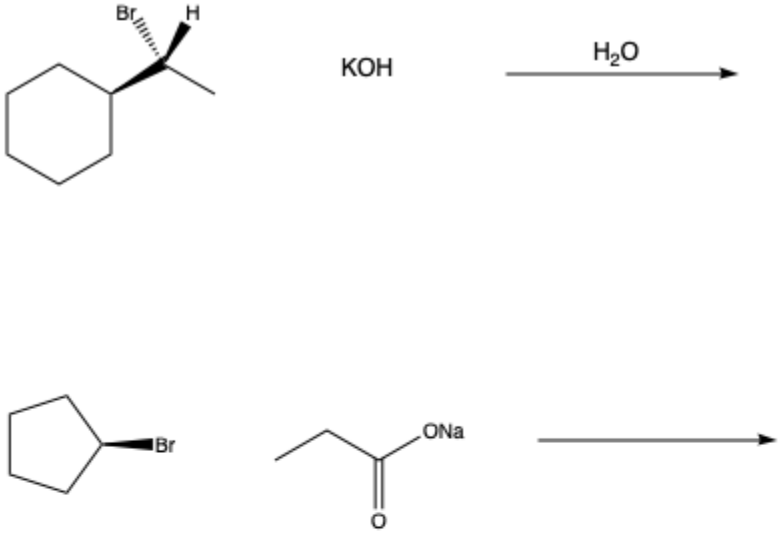


H_2O

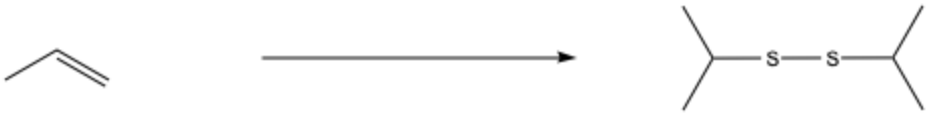
5. Why do we want a strong nucleophile/base for S_N2 and E2 but don't need that for S_N1 and E1 but we need a good leaving group for those?

6. Why do primary carbons prefer S_N2 while tertiary carbons prefer S_N1? Use the intermediate.

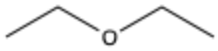
7. Give the major product(s) for the following reactions and state whether it is SN1, SN2, E1, or E2.

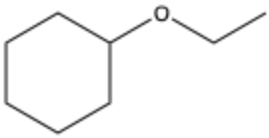


8. Give a synthetic route for these reactions.

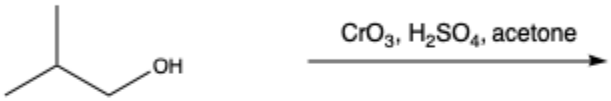


9. Name the following ethers

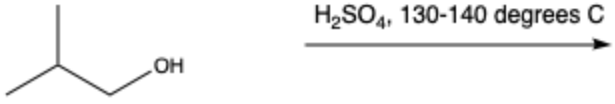




10. Give the product(s) of the following reactions



2



11. Draw a [24]crown-8