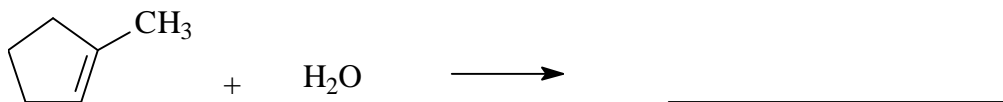


CHEMISTRY 59-230**SECOND TEST****Time: 50 Min****November 12, 1998****NAME:** _____**ID #:** _____**LABORATORY DAY:** _____ **Afternoon** _____ **Evening** _____

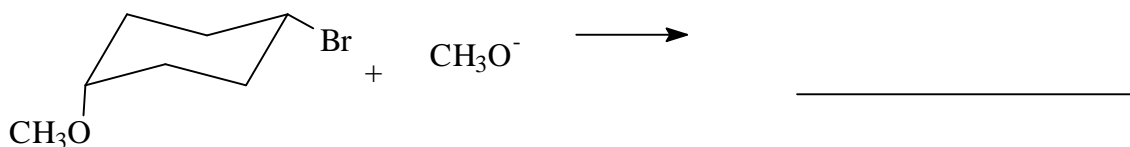
READ ALL QUESTIONS CAREFULLY AND ANSWER THE QUESTION ASKED!! Answer all questions on the test paper. Only the FIRST answer to any question will be considered. Point values for each question are given. There are 5 questions and 5 pages in this test and the available points total 100.

1. Complete the following equations by filling in the blanks with a structural formula. If stereochemistry is important, make sure your drawing indicates it. Show any required catalysts over the reaction arrow. [28 points]

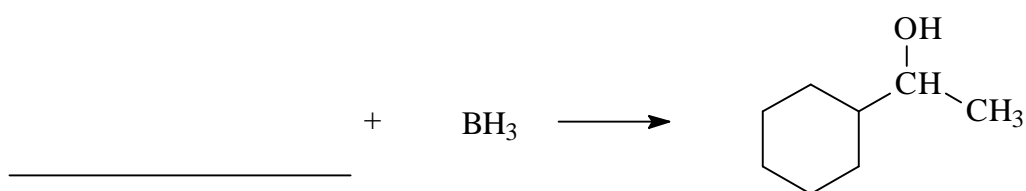
(a)



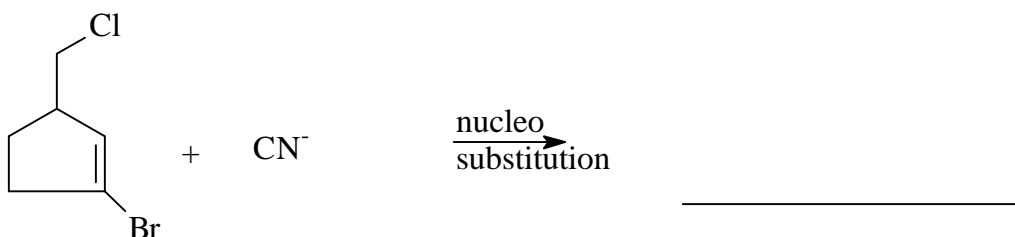
(b)



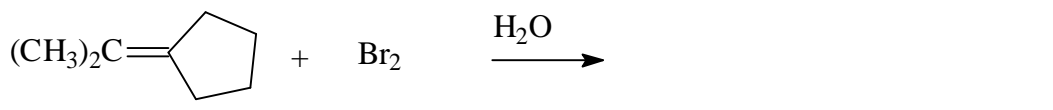
(c)



(d)



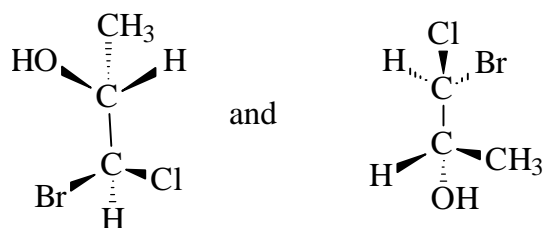
(e)



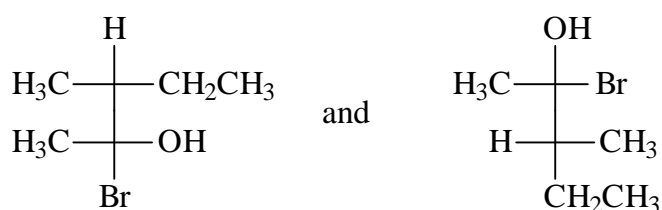


2. (a) Pick the word from the following list (enantiomers, diastereomers, identical, positional isomers) that correctly describes the relationship between the pairs of compounds shown .[20 points]

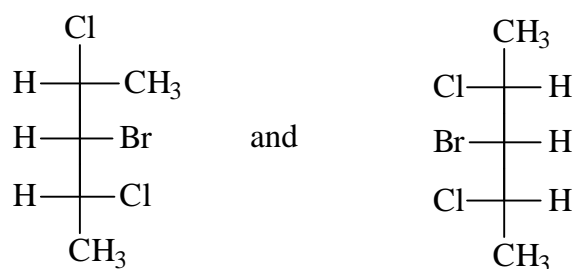
(i)



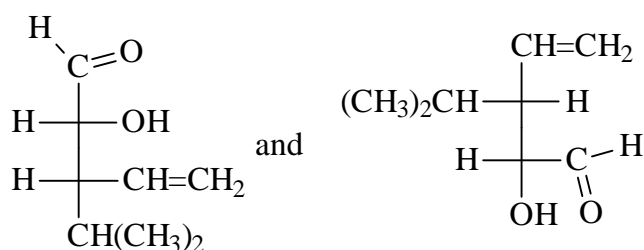
(ii)



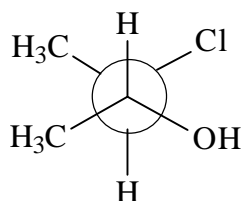
(iii)



(iv)



(b) Assign the correct stereochemical descriptor to each of the chiral centres in the molecule shown. On the drawing, show the priorities that you assign to each group to arrive at your answer. Also give the correct IUPAC name, including stereochemistry for this molecule.. [10 points]



(c) Draw the Fischer Projection of the molecule (2R,4R) 4-bromo-2-pentanol. [6 points]

(d) Which, if any, of the drawings in 2(a)(i) or 2(a)(iii) represent meso forms? Circle your answers [6 points]

2(a)(i) left drawing

2(a)(i) right drawing

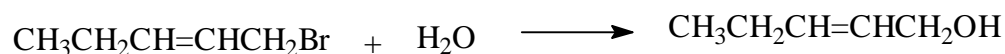
2(a)(iii) left drawing

2(a)(iii) right drawing

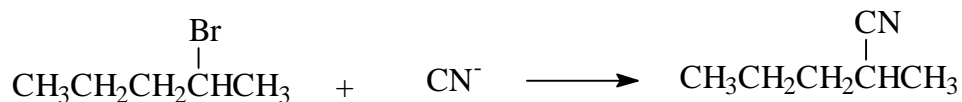
3. Show the COMPLETE MECHANISM for the reaction of water with 1-methylcyclohexene. Make sure you indicate which steps are reversible. Also, give the overall equation for the reaction. [10 points]

4. For each of the following questions, answer the question posed and give a reason for your choice. [4 points each]

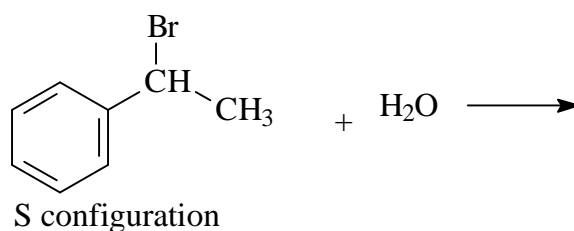
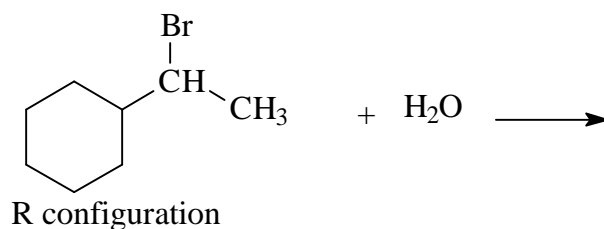
(a) Which of the following reactions will be more likely to proceed by a S_N2 mechanism and why?



(b) Which of the following reactions will proceed faster and why?

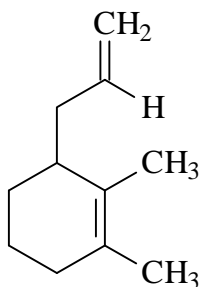


(c) Which of the following reactions is more likely to give an optically active product and why?



5. (a) Explain why the addition of HBr to $\text{CH}_3\text{CH}_2\text{OCH}=\text{CHCH}_3$ gives $\text{CH}_3\text{CH}_2\text{OCH}(\text{Br})\text{CH}_2\text{CH}_3$ and not $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}(\text{Br})\text{CH}_3$ [4 points]

(b) One double bond of the molecule shown below is more reactive in electrophilic addition than the other one. Which one is more reactive and why? [4 points]



USE FROM HERE DOWN FOR ROUGH WORK WHICH WILL NOT BE MARKED