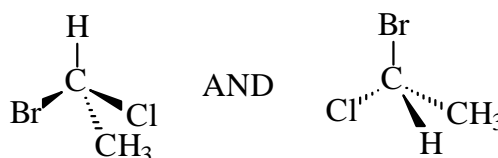


CHEMISTRY 59-230**SECOND TEST****Time: 50 Min****November 14, 2000****NAME:** _____**ID #:** _____**LABORATORY DAY:** _____

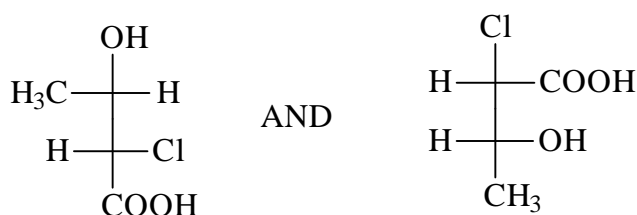
READ ALL QUESTIONS CAREFULLY AND ANSWER THE QUESTION ASKED!! Answer all questions on the test paper. One blank sheet at the end can be used for rough work which will not be marked. Only the FIRST answer to any question will be considered. Mechanisms are NOT required unless specifically asked for. Point values for each question are given. There are 5 questions and 4 pages in this test and the available points total 100.

1. Pick a word from the following list (enantiomers, diastereomers, identical) which correctly describes the relationship between the pairs of molecules shown below. [24 points]

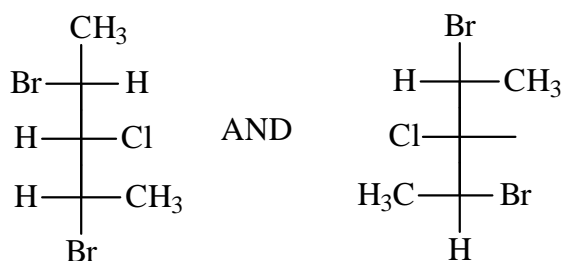
(a)



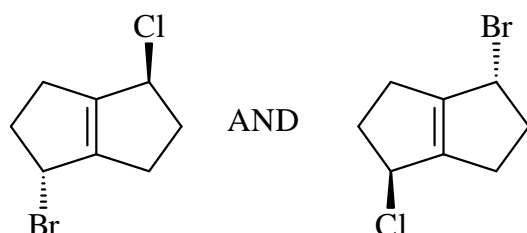
(b)



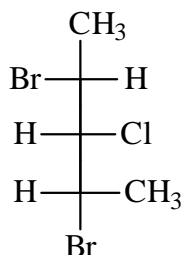
(c)



(d)



2. (a) Determine the absolute configuration (R or S) of each chiral centre in the LEFT drawing of question 1(c). Show how you arrived at your answer. [9 points]



- (b) Draw the Fischer Projection of the molecule (2R,3R,5S) 2,5-dibromo-3-methylhexane. [8 points]

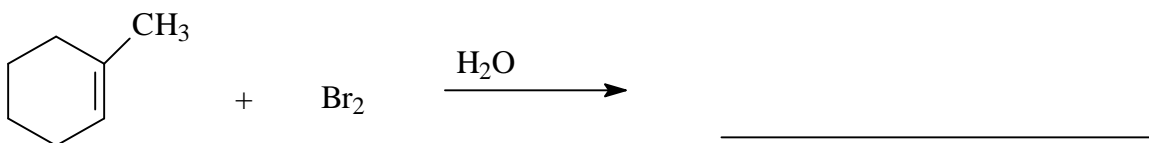
- (c) Indicate, by circling the correct entry in the table below, whether a 1:1 mixture of the compounds shown in each part of question #1 would show optical activity. [8 points]

(a)	Yes	No
(b)	Yes	No
(c)	Yes	No
(d)	Yes	No

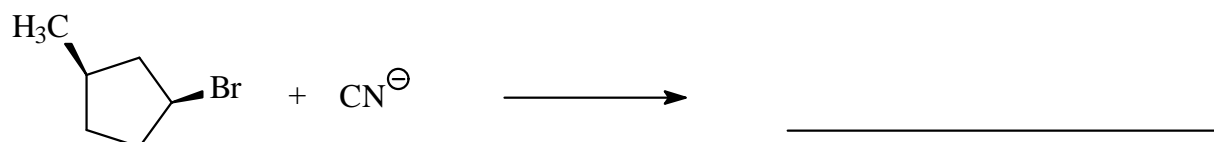
3. Draw the COMPLETE MECHANISM of the acid-catalyzed reaction of 2-methyl-2-butene with water. Be sure you indicate which steps are reversible and show any stereochemistry if this is important. ALSO, write an equation for the overall reaction. [11 points]

4. For each of the following reactions, fill in the blank with the structural formula of the required chemical. If stereochemistry is important, make sure your drawings show this.. Show any required catalysts over the reaction arrow. [4 points each]

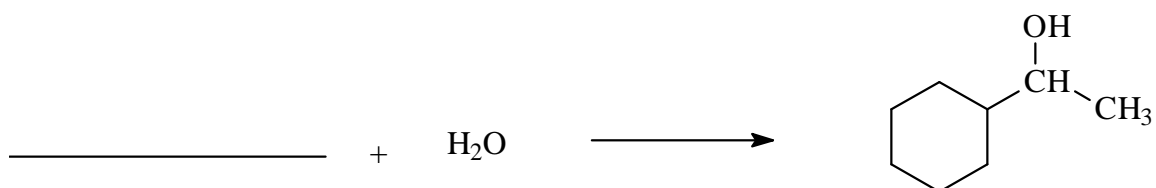
(a)



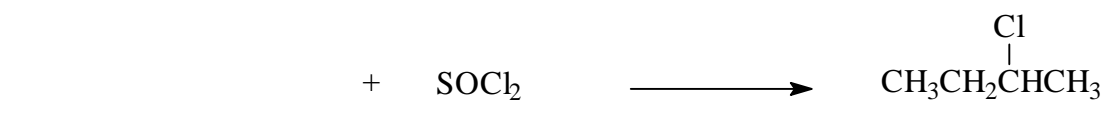
(b)



(c)



(d)



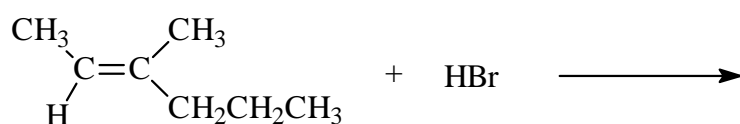
(e)



(f)

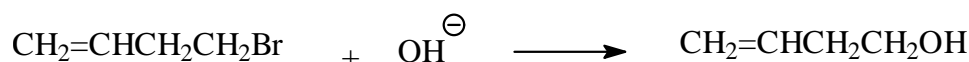
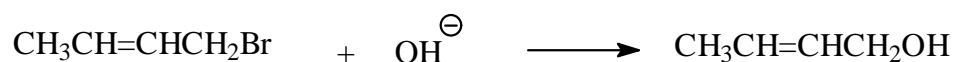


(g)



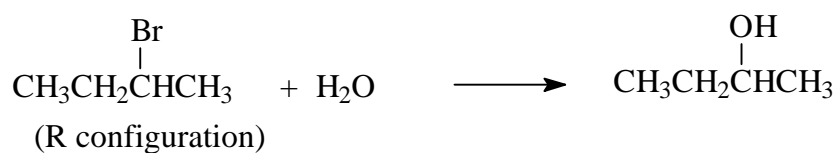
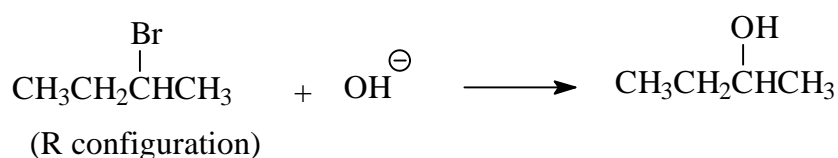
5. Consider the following pairs of reactions and answer the question posed. GIVE A REASON FOR YOUR ANSWER. Brief answers (a few words) are best. [4 points each]

(a)



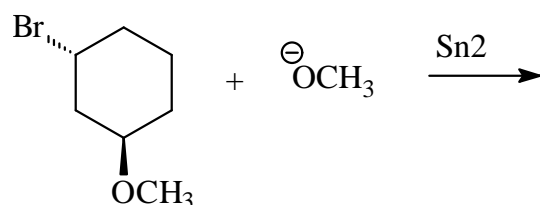
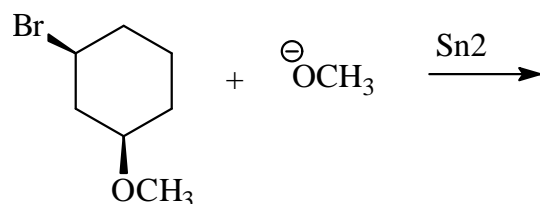
Which reaction will be more likely to go via a $\text{S}_\text{N}1$ mechanism AND WHY?

(b)



Which reaction will be more likely to give an optically active product AND WHY?

(c)



Which reaction is more likely to give a optically inactive product AND WHY?

