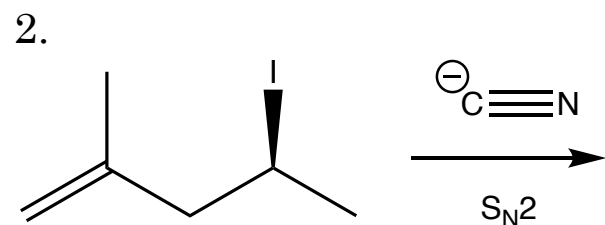
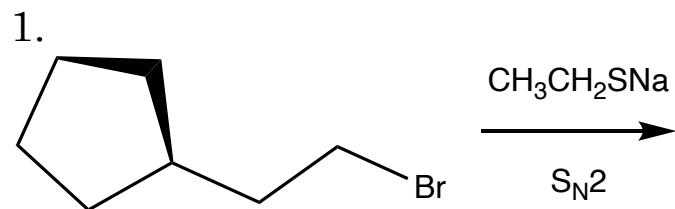


Name _____
CHEM 0203 (Organic)

Test 1 (2/20)
Spring 2026

(8 pts. ea.) Predict the likely organic products for the following substitution reactions. The likely mechanism is indicated under the reaction arrow. Remember to specify the stereochemistry of the products using wedge (\blacktriangleleft) and dashed (\cdots) bonds where appropriate.



1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

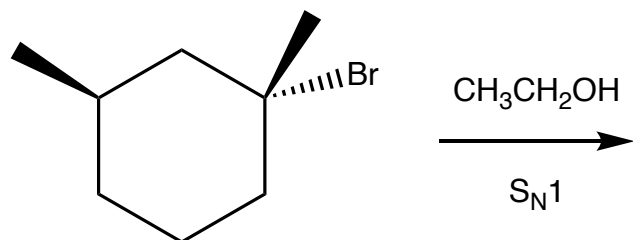
12. _____

13. _____

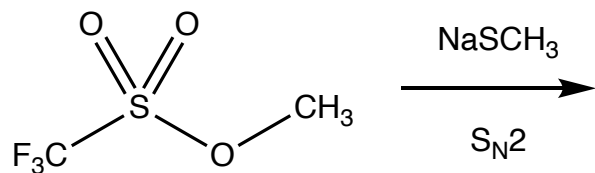
14. _____

(8 pts. ea.) Predict the likely organic products for the following substitution reactions. The likely mechanism is indicated under the reaction arrow. Remember to specify the stereochemistry of the products using wedge (\blacktriangleleft) and dashed (\cdots) bonds where appropriate.

3.

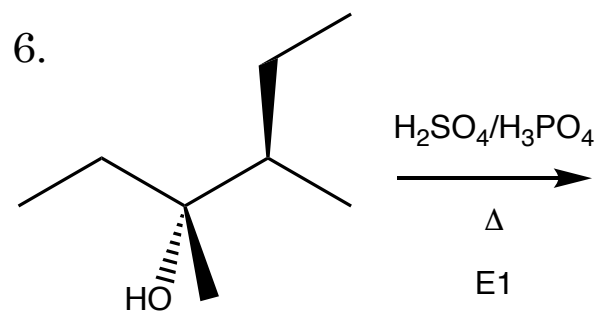


4.



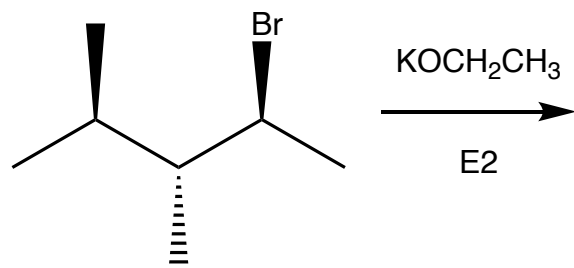
5. (8 pts.) Briefly explain how protic solvents interfere with nucleophiles.

(8 pts. ea.) Predict all likely organic products for the following elimination reactions. The likely mechanism appears under the reaction arrow. Remember to specify the stereochemistry of the products using wedge (\blacktriangleleft) and dashed (\cdots) bonds where appropriate.

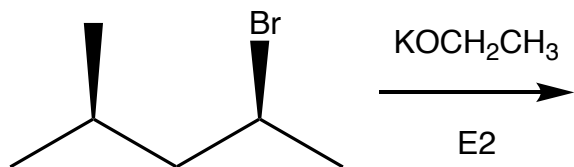


(8 pts. ea.) Predict all likely organic products for the following elimination reactions. The likely mechanism appears under the reaction arrow. Remember to specify the stereochemistry of the products using wedge (\blacktriangleleft) and dashed (\cdots) bonds where appropriate.

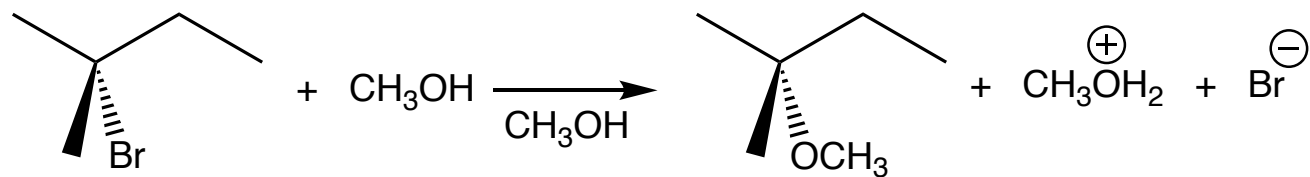
7.



8.

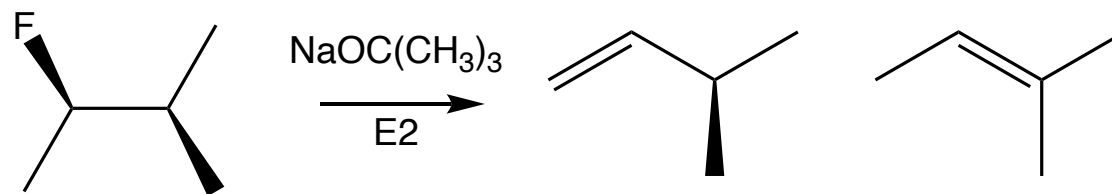


9. (10 pts.) Draw a mechanism for the following reaction. Remember to draw all intermediates and include electron movement arrows.

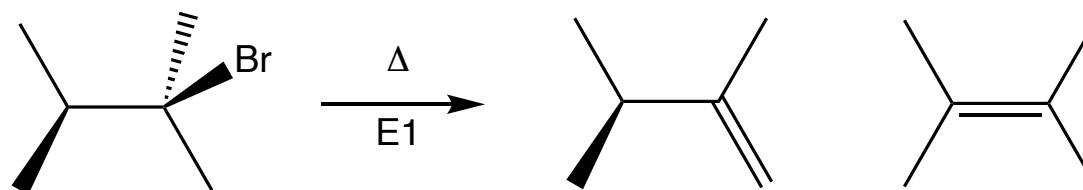


(8 pts. ea.) For the following elimination reactions circle the major product.

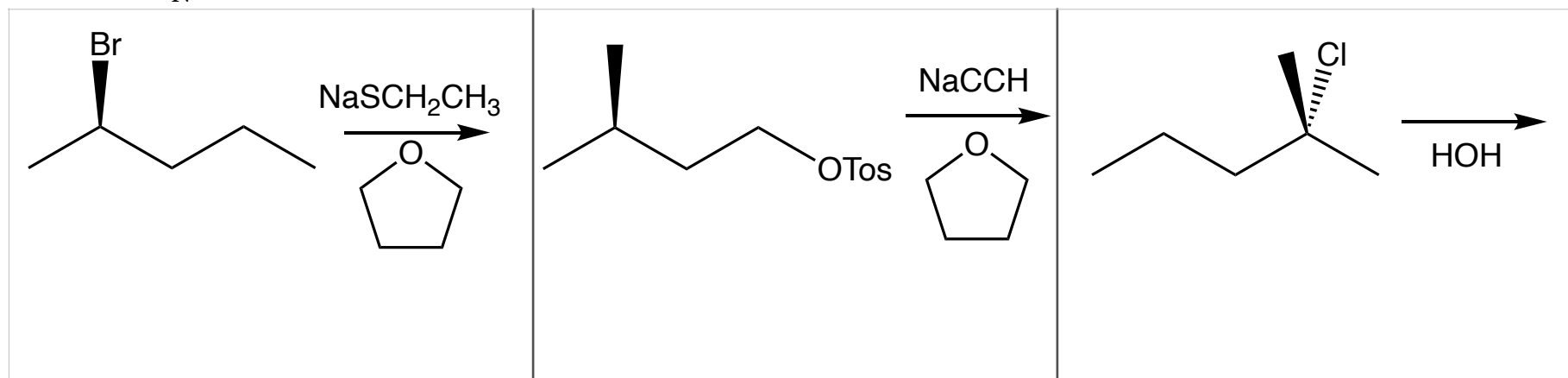
10.



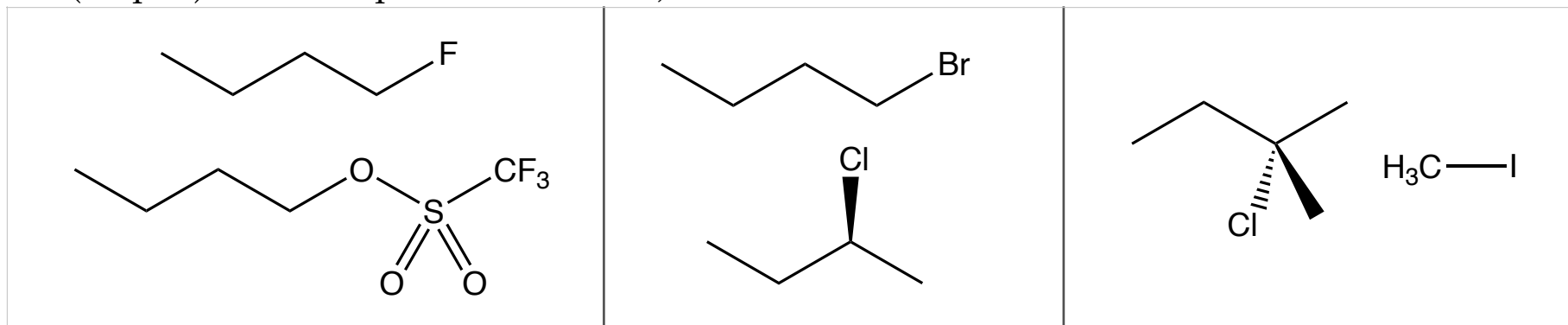
11.



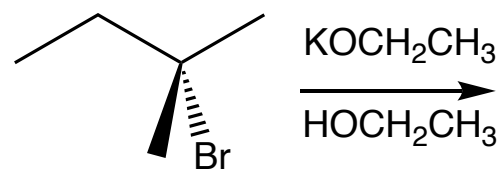
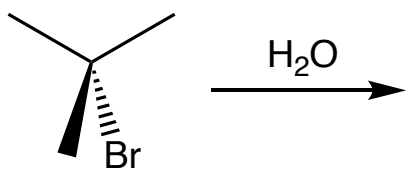
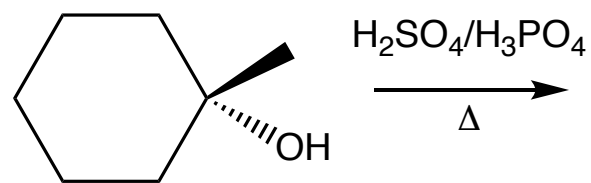
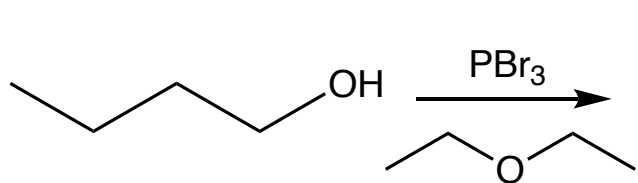
12. (12 pts.) Determine whether the following reactions are more likely to proceed by an S_N1 or an S_N2 mechanism.



13. (12 pts.) For each pair of reactants, circle the better S_N2 substrate.

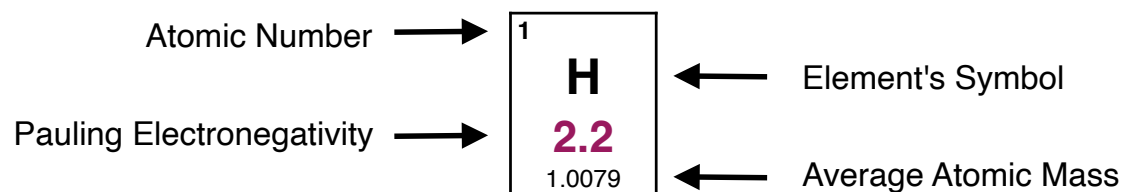


14. (12 pts.) Predict the most likely reaction mechanism (S_N1 , S_N2 , $E1$, or $E2$) for the reactions done under the following conditions.



Some Electronegativities of Elements of Interest to Organic Chemists¹

1 H 2.2 1.0079									2 He 4.0026
3 Li 0.98 6.941	4 Be 1.57 9.012		5 B 2.04 10.811	6 C 2.55 12.011	7 N 3.04 14.007	8 O 3.44 15.999	9 F 3.98 18.998	10 Ne 20.1797	
11 Na 0.93 22.989	12 Mg 1.31 24.305		13 Al 1.61 26.981	14 Si 1.90 28.086	15 P 2.19 30.974	16 S 2.58 32.065	17 Cl 3.16 35.453	18 Ar 39.948	
19 K 0.82 39.098	20 Ca 1.00 40.078								35 Br 2.96 79.904
									36 Kr 83.798
									53 I 2.66 126.90



¹ Electronegativity values obtained from <https://en.wikipedia.org/wiki/Electronegativity> on September 28, 2023