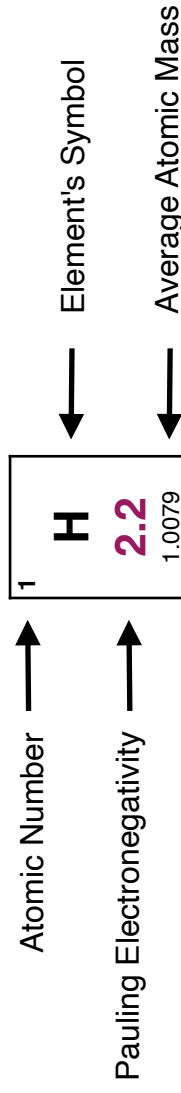


Some Electronegativities of Elements of Interest to Organic Chemists¹

1 H 2.2 1.0079								2 He 4.0026
3 Li 0.98 6.941	4 Be 1.57 9.012							10 Ne 20.1797
11 Na 0.93 22.989	12 Mg 1.31 24.305	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	17 Cl 3.16 35.453	18 Ar 39.948
19 K 0.82 39.098	20 Ca 1.00 40.078	13 Al 1.61 26.981	14 Si 1.90 28.086	15 P 2.19 30.974	16 S 2.58 32.065	35 Br 2.96 79.904	53 I 2.66 126.90	36 Kr 83.798



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

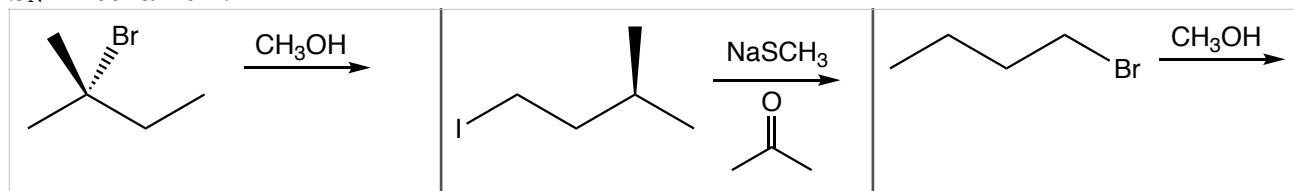
(8 pts. ea.) Predict the likely organic products for the following substitution reactions. The likely mechanism is indicated under the reaction arrow. Remember to specify the stereochemistry of the products using (————) and dashed (·····) bonds where appropriate.



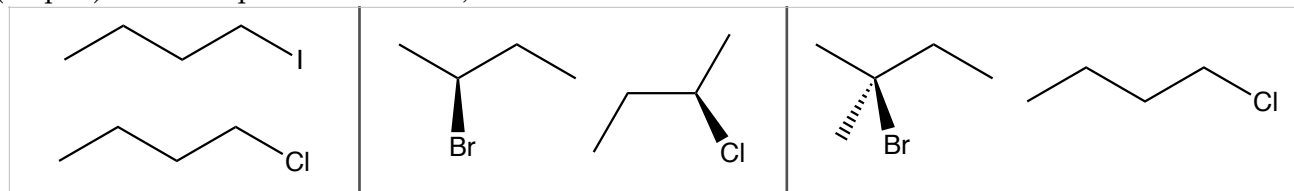
5. (8 pts.) Provide two examples of protic solvents.

6. (8 pts.) Briefly explain how protic solvents interfere with nucleophiles.

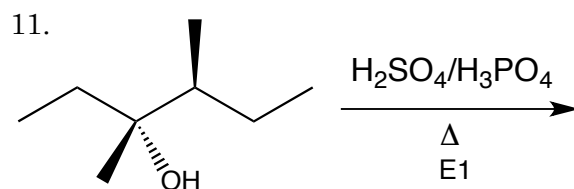
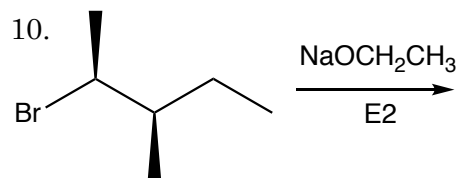
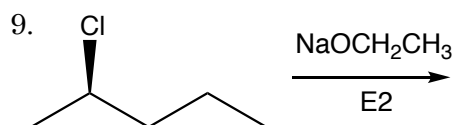
7. (12 pts.) Determine whether the following reactions are more likely to proceed by an S_N1 or an S_N2 mechanism.



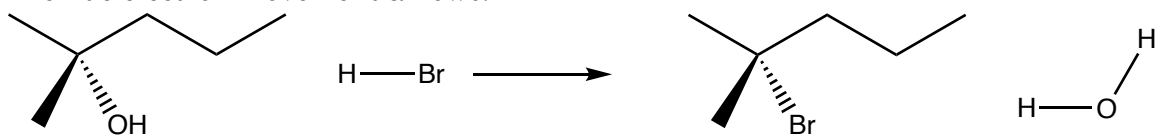
8. (12 pts.) For each pair of reactants, determine which would be the better S_N2 substrate.



(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 () and dashed () bonds where appropriate.



12. (10 pts.) Draw a mechanism for the following reaction. Remember to draw all intermediates and include electron movement arrows.



13. (12 pts.) Predict the most likely reaction mechanism (S_N1, S_N2, E1, or E2) for the reactions done under the following conditions.

