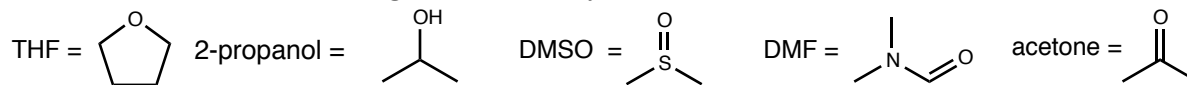


Common solvents used in organic chemistry.



1. _____

2. _____

1. (6 pts. ea.) Predict the outcome of the following reactions. Remember to use wedge and dashed bonds to indicate the stereochemical outcome of the reaction where appropriate.

3. _____

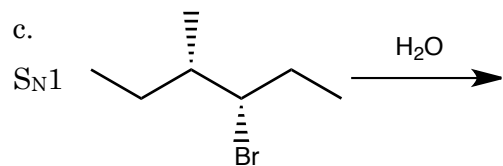
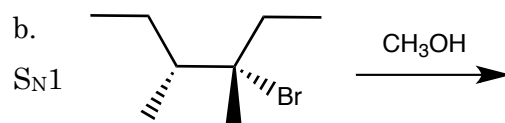
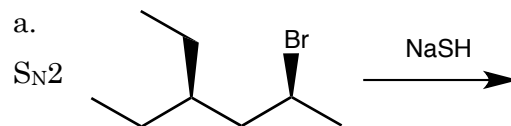
4. _____

5. _____

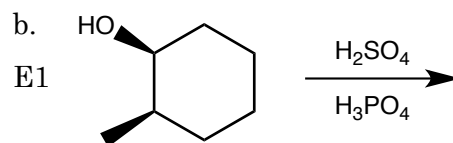
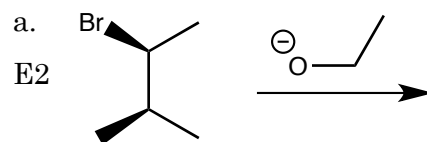
6. _____

7. _____

8. _____



2. (6 pts. ea.) Predict the outcome of the following reactions. If more than one product is produced, identify the major and minor products.

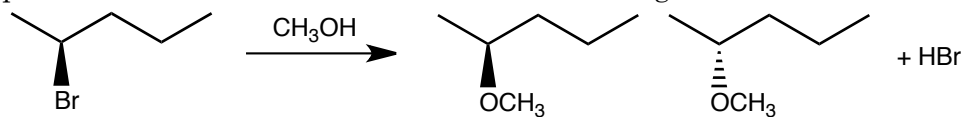


3. a. (8 pts.) For each of the molecules, atoms, or ions drawn below, circle the atom that could act as a nucleophile.

b. (8 pts.) For each pair of molecules, atoms, or ions drawn below, circle the one that would be the better nucleophile when dissolved in 2-propanol.

$\text{CH}_3\text{—SH}$ vs $\text{CH}_3\text{—OH}$	 vs 
$\text{CH}_3\text{—NH}_2$ vs $\text{CH}_3\text{—OH}$	$(\text{CH}_3)_3\text{P}$ vs $(\text{CH}_3)_3\text{N}$

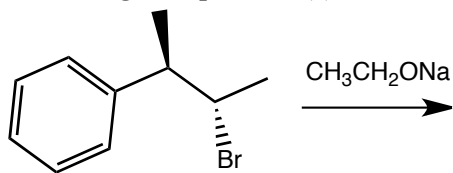
4. (10 pts.) Explain the stereochemical outcome of the following reaction.



5. Predict the organic product(s) for the following reactions.

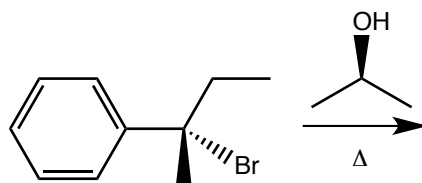
a.

E2

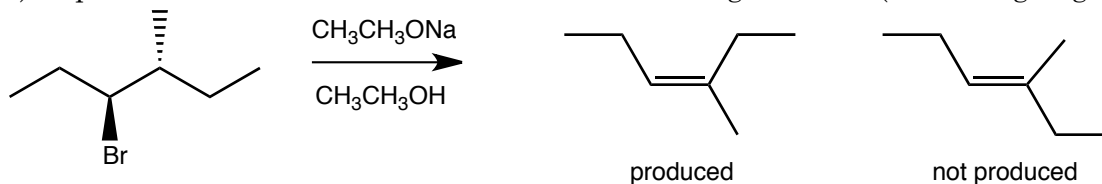


b.

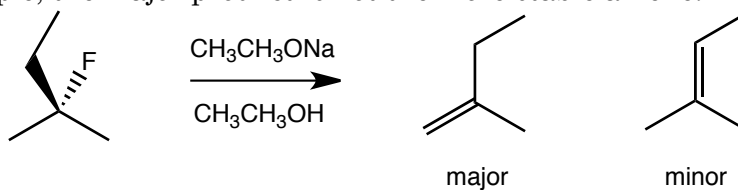
E1



6. (10 pts.) Explain the stereochemical outcome of the following reaction. (A drawing might help.)



7. (10 pts.) During an E2 reaction, the major product is usually the more stable alkene, however, in the following example, the major product is not the more stable alkene. Explain.



8. (3 pts. each) Determine whether the following alkyl halides could undergo $\text{S}_{\text{N}}1$, $\text{S}_{\text{N}}2$, both $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions, or neither.
