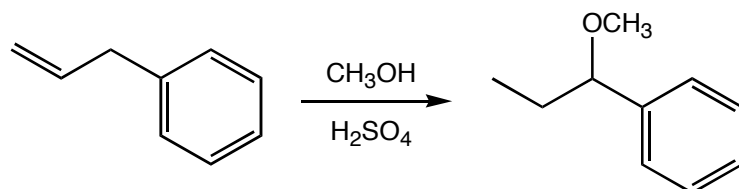


1. a. Determine the major products of the following reactions and identify the 1,2- and 1,4- addition products. 1. _____

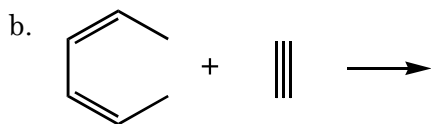
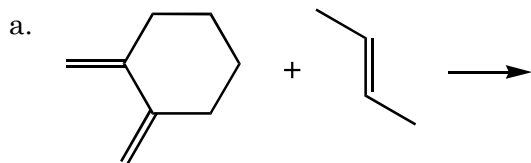
b. Label the thermodynamic and kinetic products in reactions ii. and iii. 2. _____



2. Draw a mechanism that accounts for the formation of the product in the following reaction.



3. Predict the products of the following reactions (indicate the stereochemistry for the product(s) in reaction a).

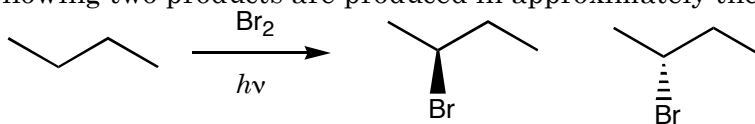


4. The diene in reaction 3.a. or 3.b. is the better Diels-Alder substrate (remember to consider the orientation that the diene must obtain to participate in the reaction)? Explain

5. Predicts the products for the following radical substitution reaction, and identify the major product (these numbers might be helpful: 1:3.8:5 and 1:82:1600).

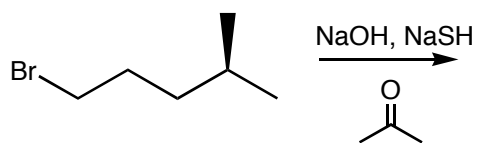


6. Explain why the following two products are produced in approximately the same yield.



7. Sodium hydrosulfide (NaSH) and sodium hydroxide (NaOH) were dissolved in acetone, and combined with 1-bromo-4-methylpentane.

a. Identify the likely substitution products.



b. Which substitution product would be the major product?

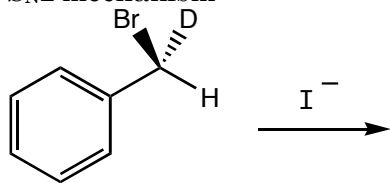
c. Would you expect the product distribution to change if the solvent was water? If so how?

8. For each pair of molecules shown below, which is the better S_N2 substrate? Explain (in 5 words or less).

a.		b.	
c.		d.	

9. Predict the product of the following reaction assuming the reaction follows an...

a. S_N2 mechanism



b. S_N1 mechanism

