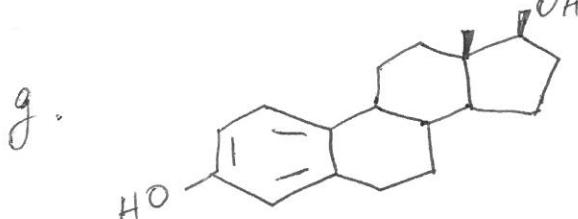
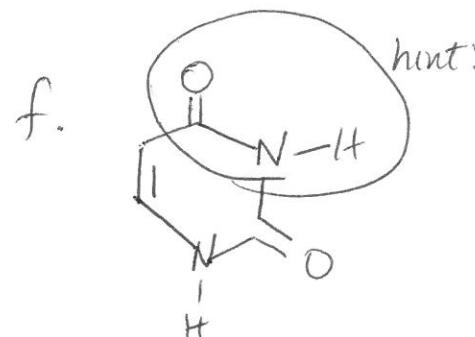
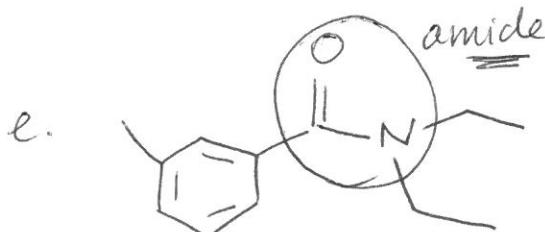
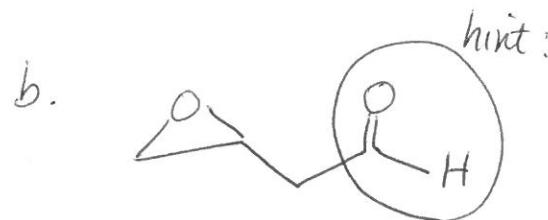


EXAM I - HOMEWORK due 8/1, 4:30 pm Name:

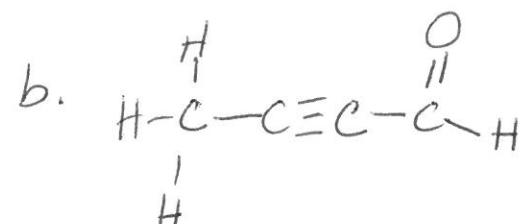
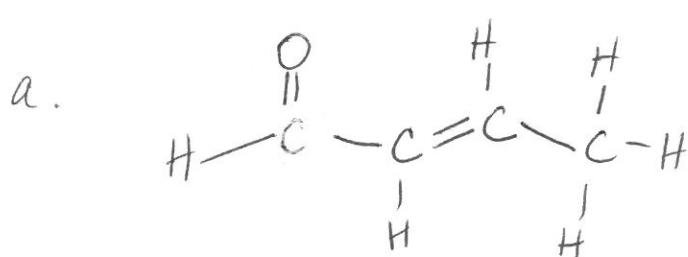
## I. FUNCTIONAL GROUPS

- Circle and label all of the important functional groups.



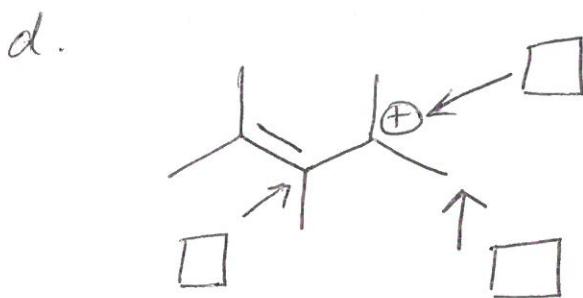
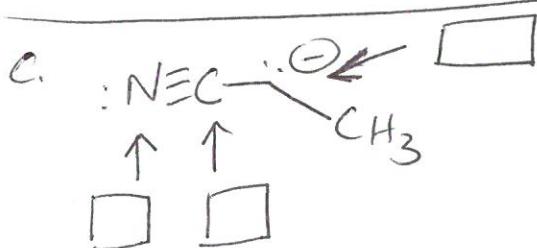
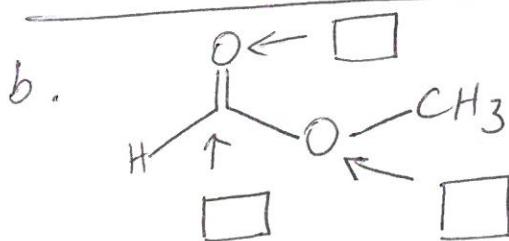
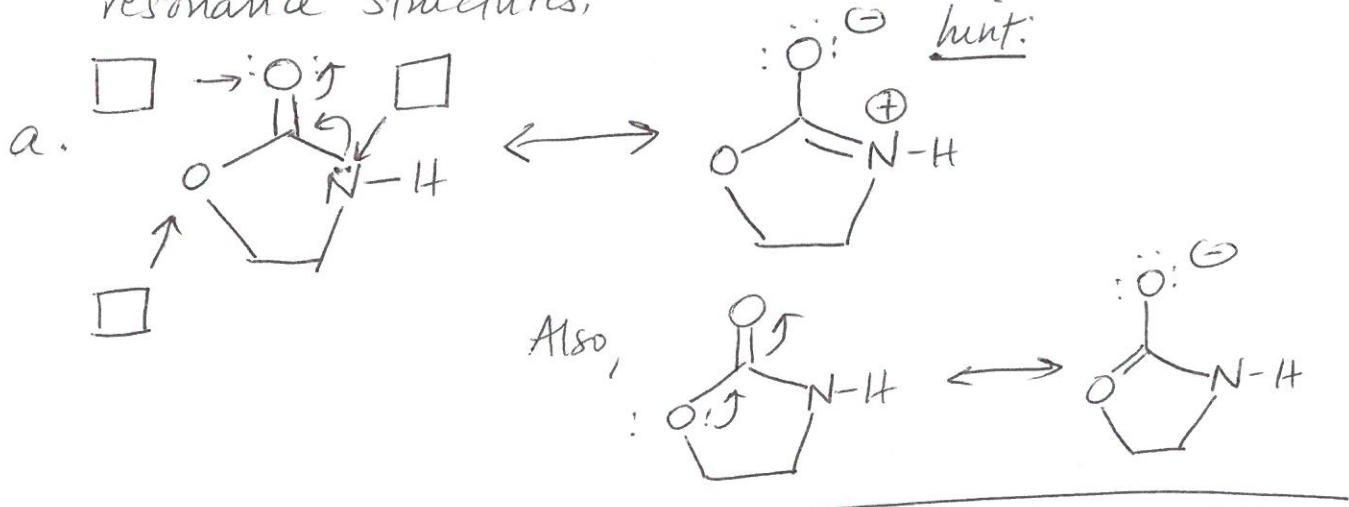
## II. ELECTRONIC AND MOLECULAR GEOMETRY

- Identify the geometry of each of the 10 non-hydrogen atoms.



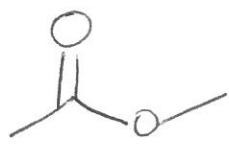
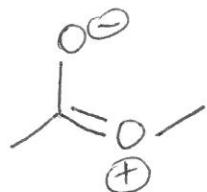
### III. HYBRIDIZATION AND RESONANCE

Indicate the correct / best hybridization of the atoms in the boxes provided. Show relevant resonance structures.

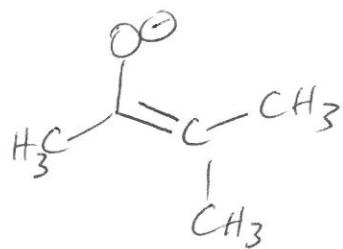
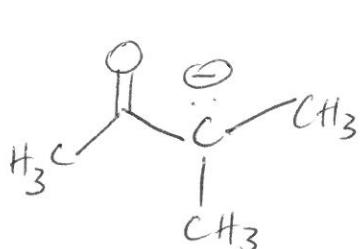


#### IV. Rankings -

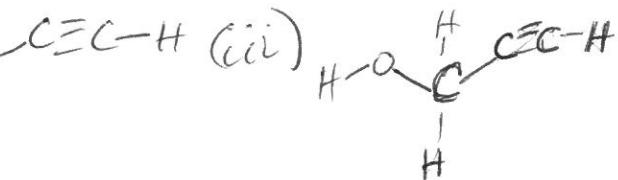
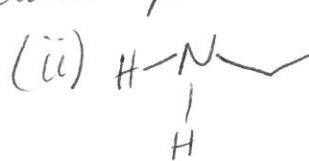
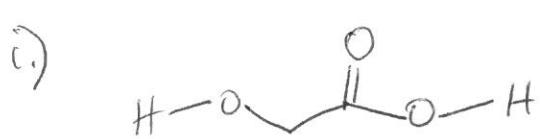
a. Circle the most stable structure



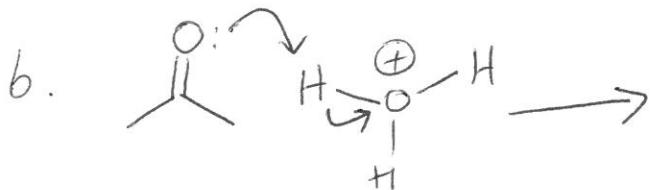
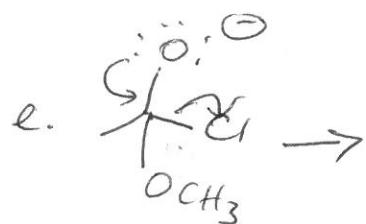
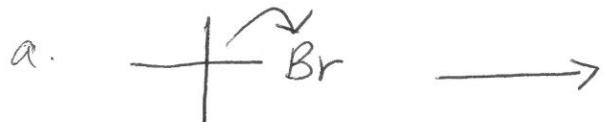
b. Circle the most stable structure



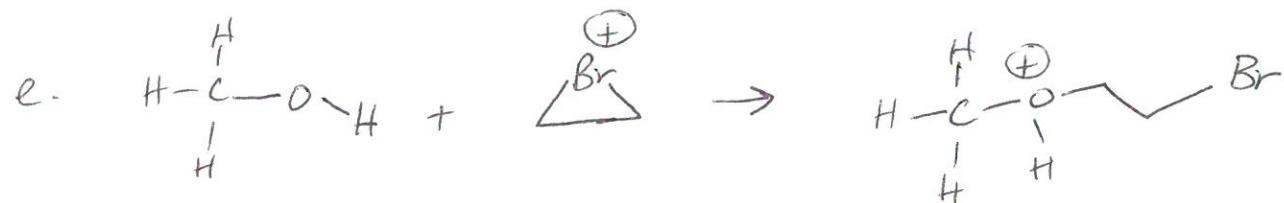
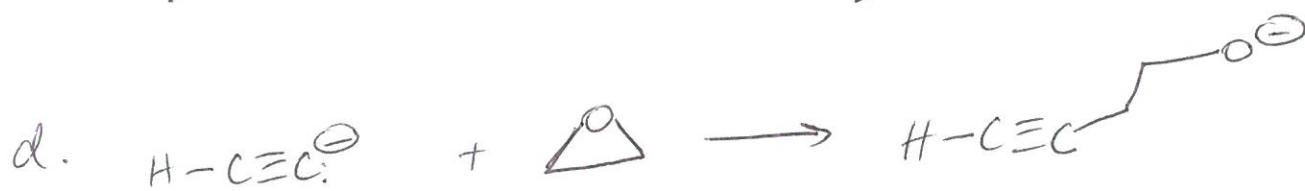
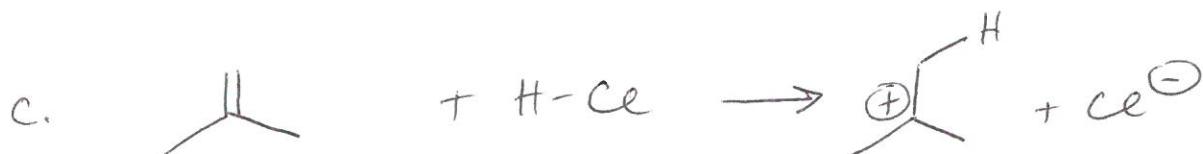
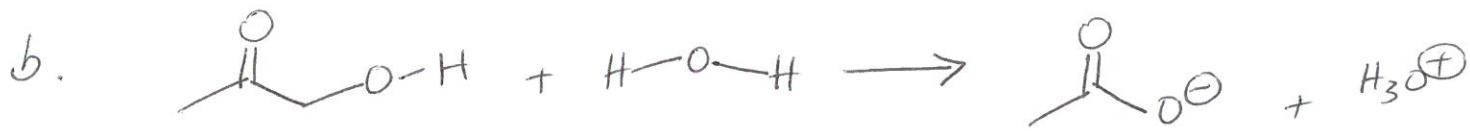
c. Circle the most acidic proton



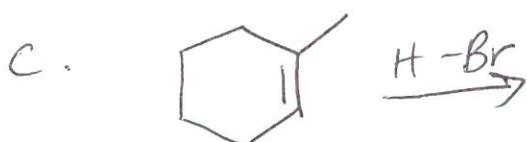
#### V. Curved Arrows - Draw the product(s)



VII. Mechanisms I - Draw curved arrows for each item.



VII. Reactivity - Provide complete curved arrow mechanisms for the following - to synthesize the major (i.e. most stable) product(s).

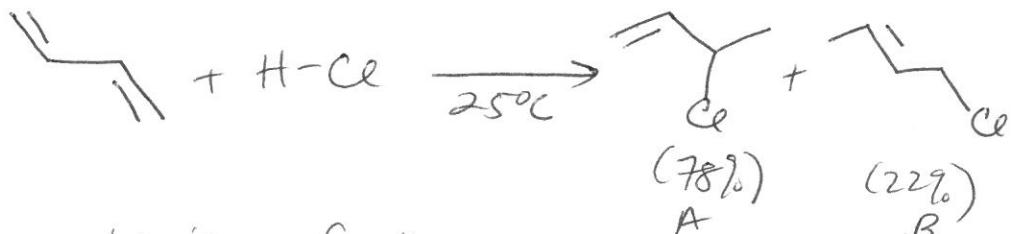


## VIII Nucleophiles vs. Bases

- Identify nucleophile, electrophile, acid, or base molecules on the reactants-side.
- Show curved arrows and the final product(s) (one-step only)



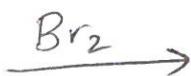
IX. EXPLAIN -



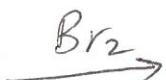
Provide curved arrow mechanisms for the production of A and B.  
Then explain why product A is the predominant product under these conditions.

X. More Reactivity - Fill in each box with the major organic products - Be sure to indicate the correct stereochemistry.

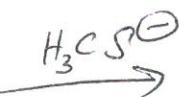
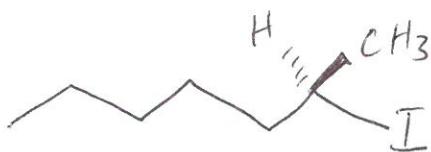
a.



b.



c.



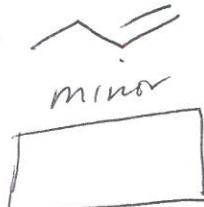
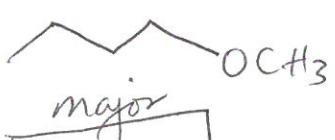
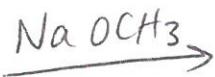
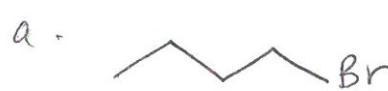
d



e.

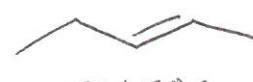
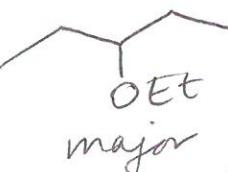
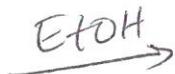
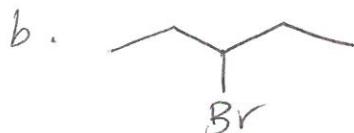


XI. Rate Law - Identify the mechanism(s) below - show the curved arrows and provide the correct rate law(s).



rate law:

mech:

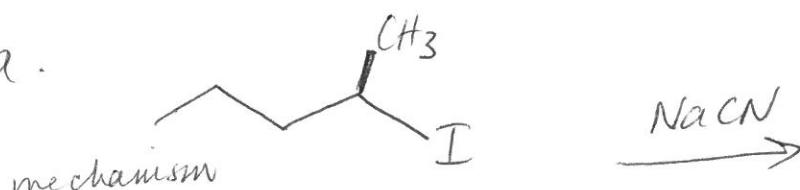


rate law:

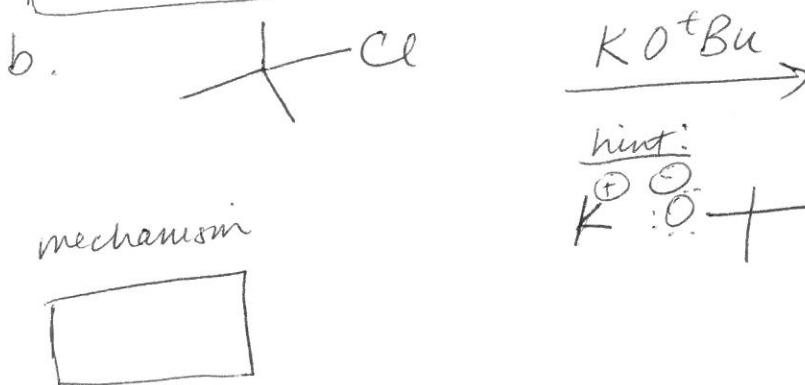
mech:

XII. Synthetic Paths - Draw the product(s) — Identify mechanism  
 Include curved arrow mechanism & correct stereochemistry.  
 (SN<sub>1</sub>, SN<sub>2</sub>, E1, E2)

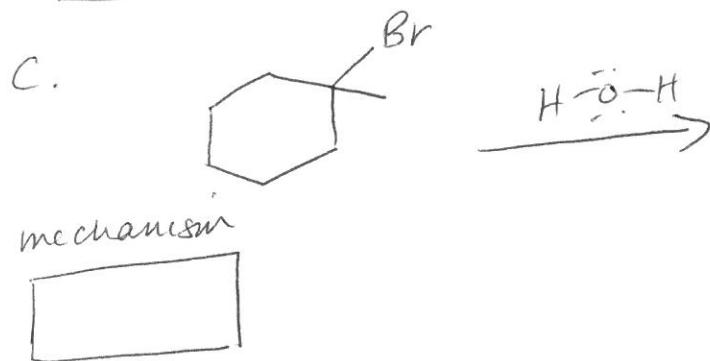
a.



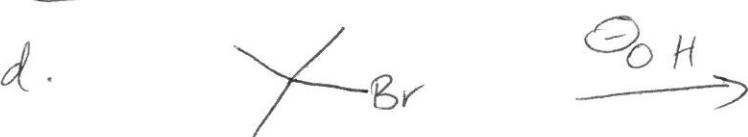
b.



c.



d.



<sup>\*best!</sup>  
mechanism



END.

