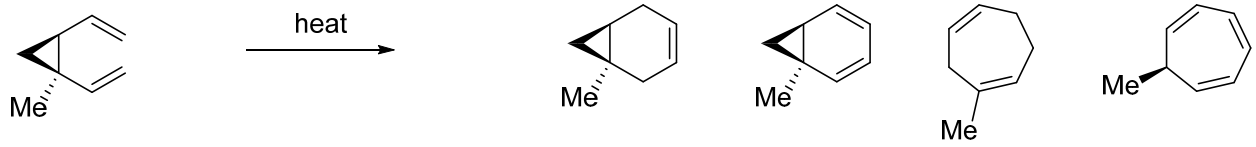
Chem 221
Exam 1 Green

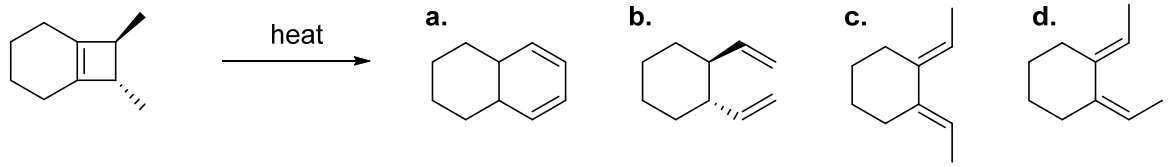
Name:_____

1. Circle the correct solution for each question. (10 points)

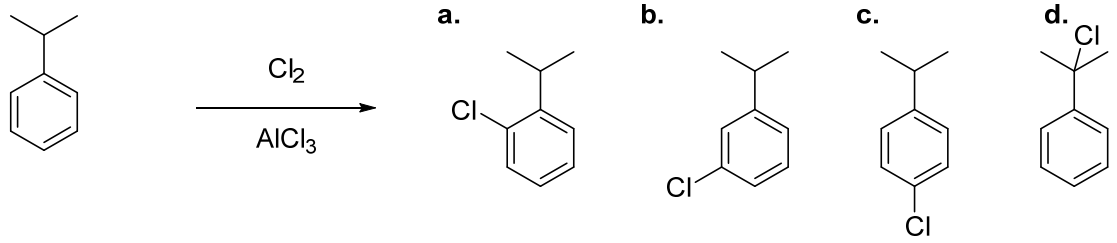
i.



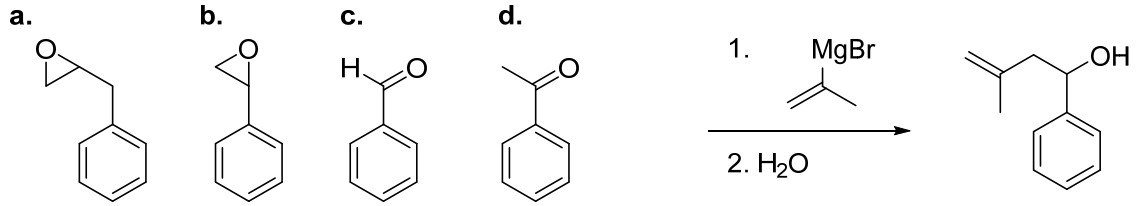
ii.



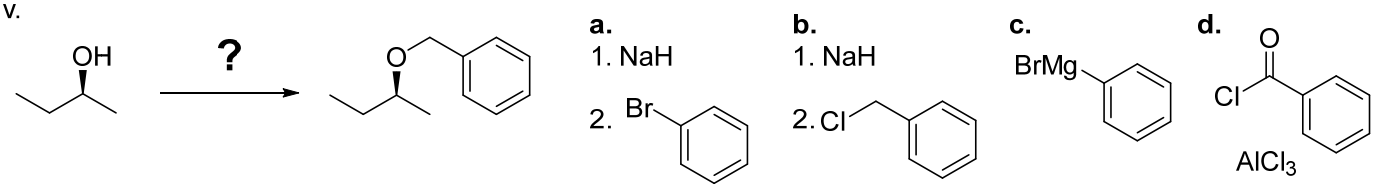
iii.



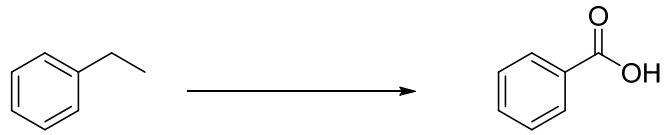
iv.

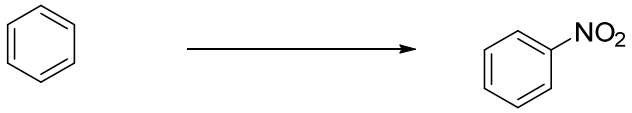


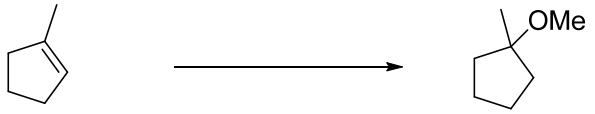
v.



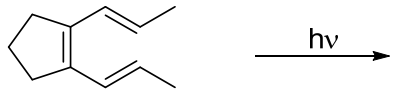
2. Provide the necessary reagents for the following reactions. (6 points)

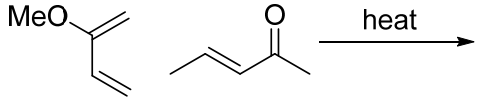
a. 

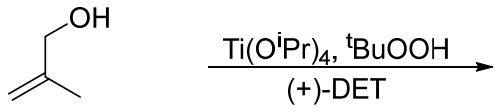
b. 

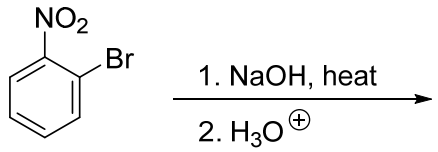
c. 

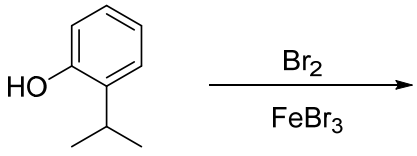
3. Provide the major product(s) for the following reactions. Be sure to clearly indicate stereochemistry where appropriate. (10 points)

a. 

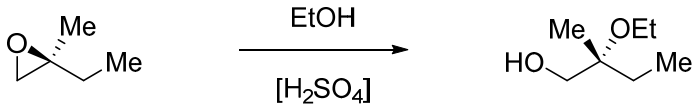
b. 

c. 

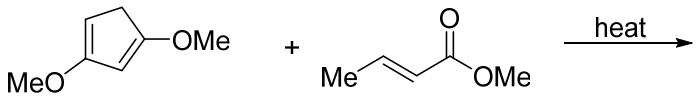
d. 

e. 

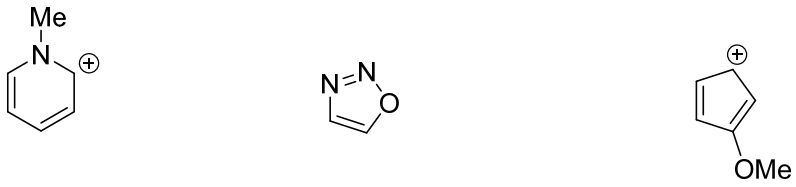
4. Provide a mechanism for the following reaction. (4 points)



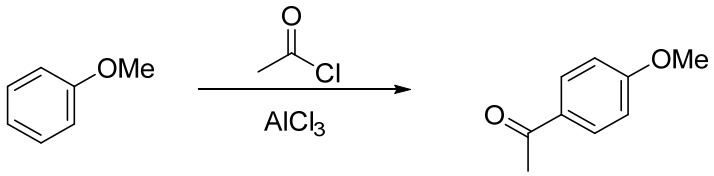
5. Draw an arrow pushing mechanism which includes a **transition state arrangement** to predict the product for the following reaction. (6 points)



6. Identify the following compounds as aromatic, anti-aromatic or non-aromatic. (3 points)

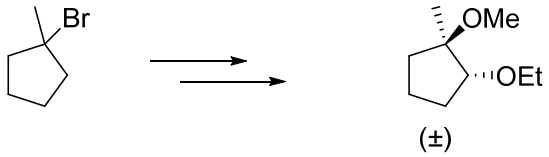


7. a. Provide a mechanism for the following reaction.
   b. Using this mechanism and relevant **resonance structures**, explain the observed regioselectivity. Be sure to account for both **steric** and **electronic** factors.
   (6 points)



8. Provide a synthesis for the following transformations. You do not need to draw mechanisms for this problem.
   (8 points)

i.



(±)

ii.