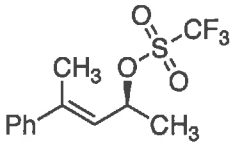
CHEM 2511/2611 REACTION REVIEW: 11/13/2020

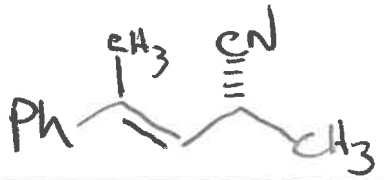
1. Predict whether the following conditions would mainly promote an S_N2, S_N1, E2, or E1 mechanism. Draw the **major product** in each reaction and show stereochemistry where appropriate.

S_N2, S_N1
E1, or E2

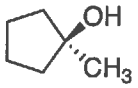
A. S_N2



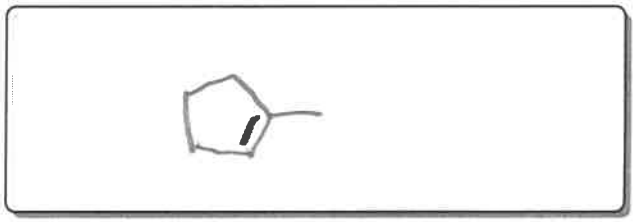
NaCN
DMSO



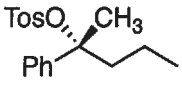
B. E1



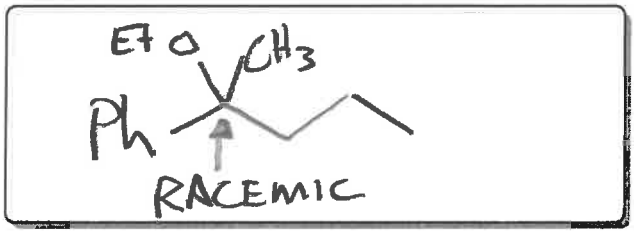
H_2SO_4, heat



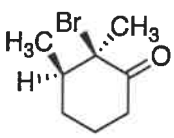
C. S_N1



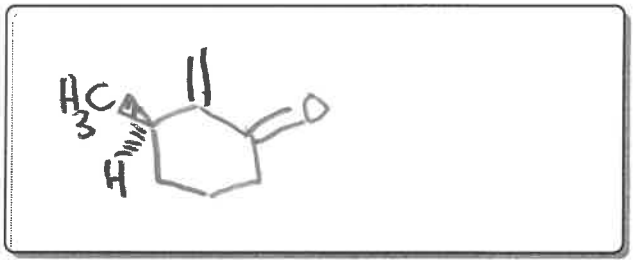
EtOH



D. E2

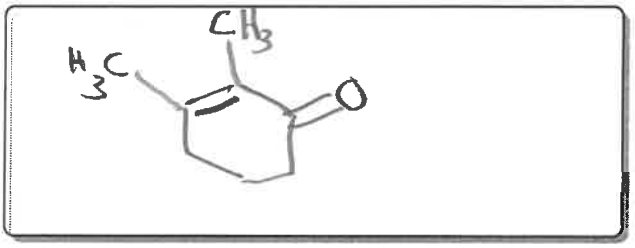


large
strong
KO*t*-Bu
t-BuOH

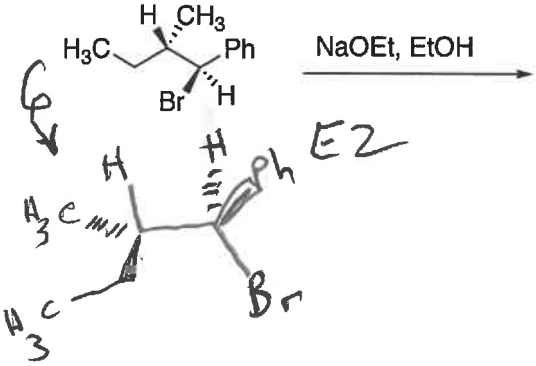


E. E2

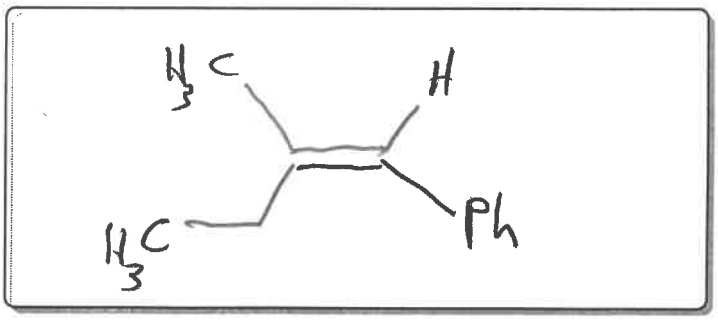
small
strong
NaOMe
MeOH



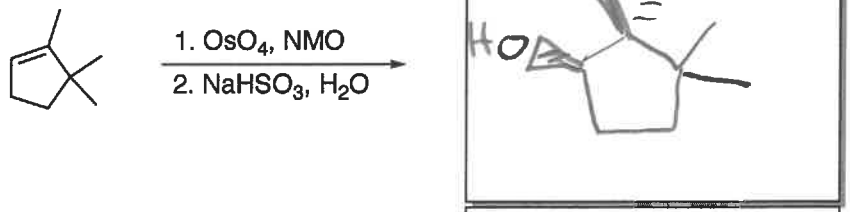
2. Predict the major product below (including stereochemistry).

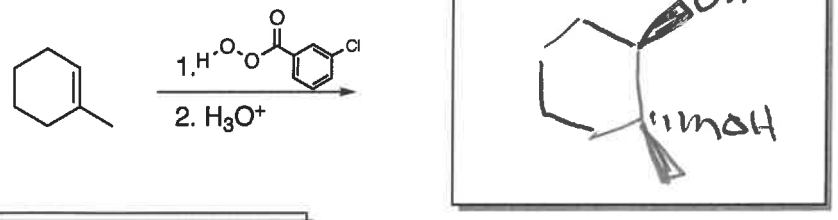


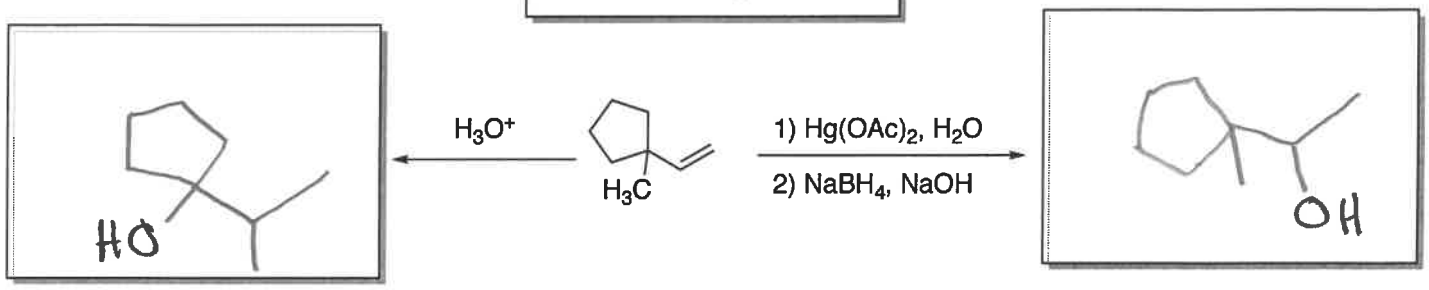
NaOEt, EtOH

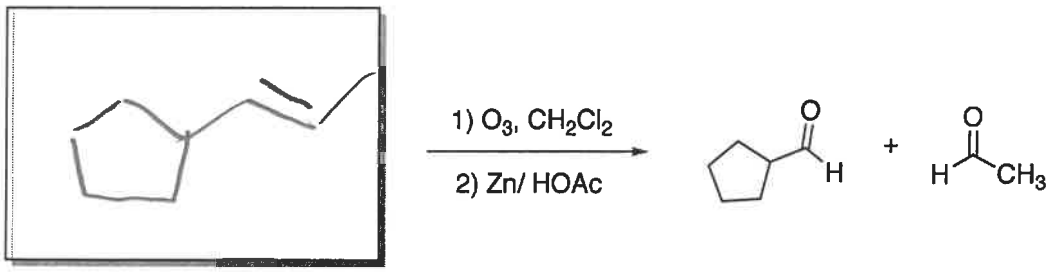


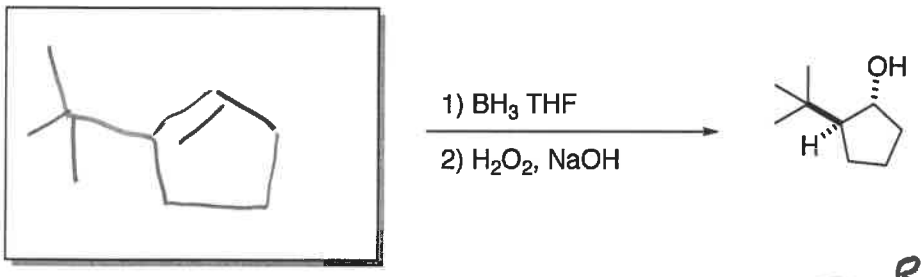
3. Fill in the boxes with the appropriate products or starting materials. Be sure to show stereochemistry where appropriate.



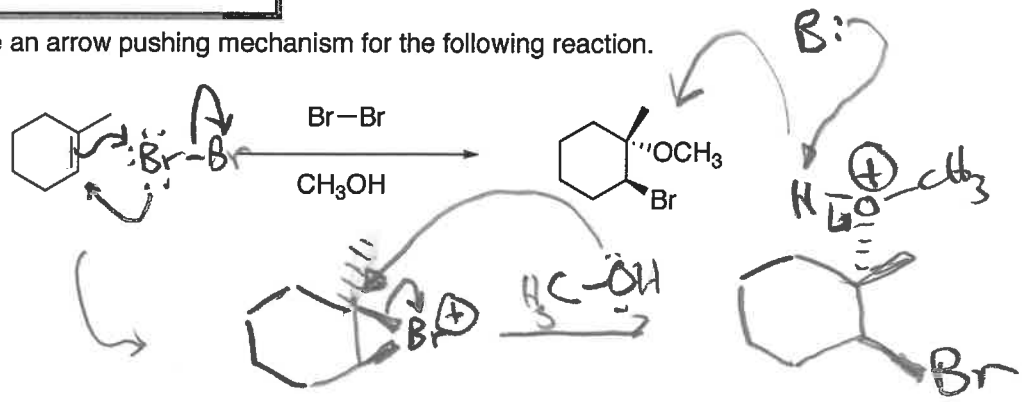






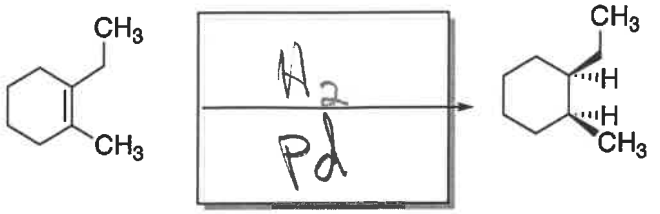


4. Give an arrow pushing mechanism for the following reaction.

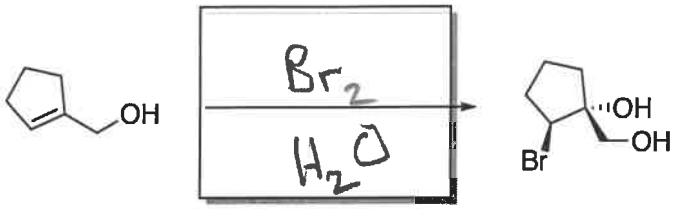


5. Fill in the appropriate reagents for the following reactions.

A.

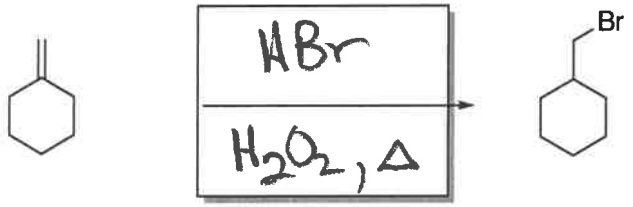


B.

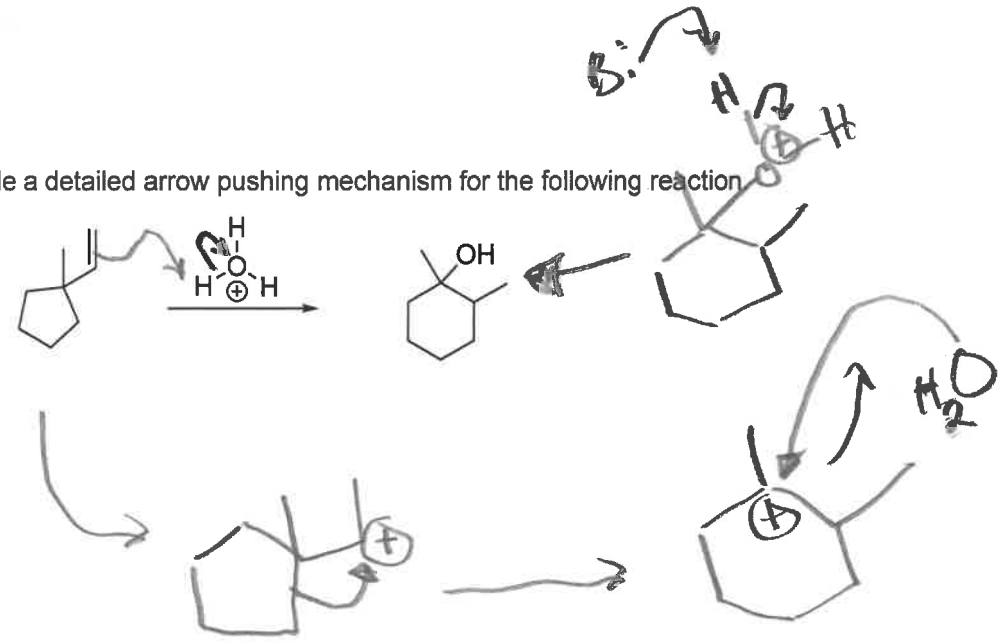


C.

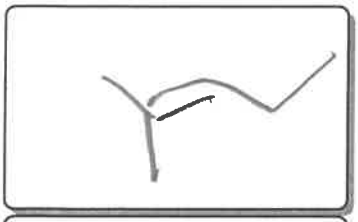
D.

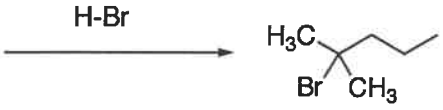


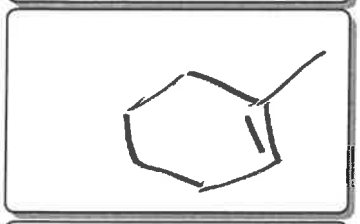
6. Provide a detailed arrow pushing mechanism for the following reaction

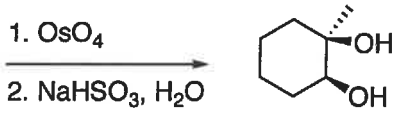


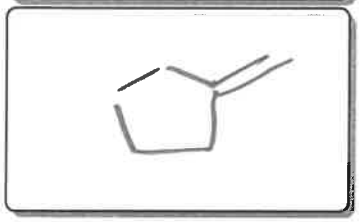
7. Give the appropriate starting materials for the following reactions. Remember to show stereochemistry when necessary.

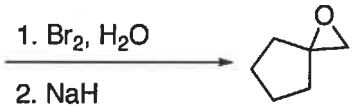
A. 

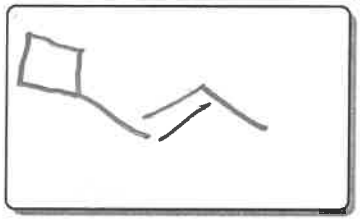


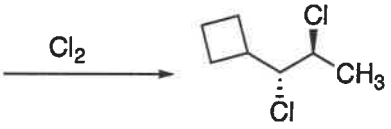
B. 



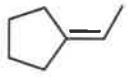
C. 

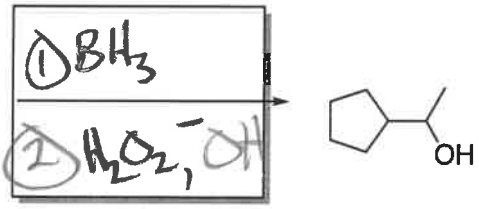


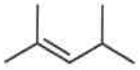
D. 

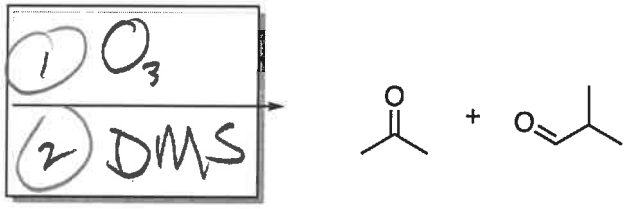


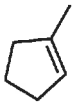
8. Fill in the appropriate reagents for the following reactions. Some may require more than one step.

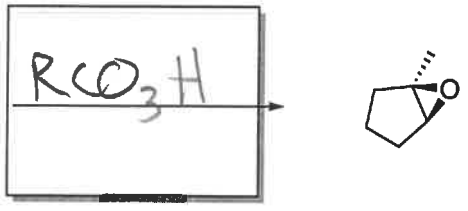
A. 



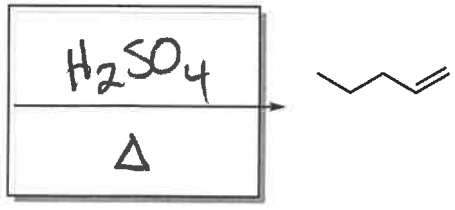
B. 



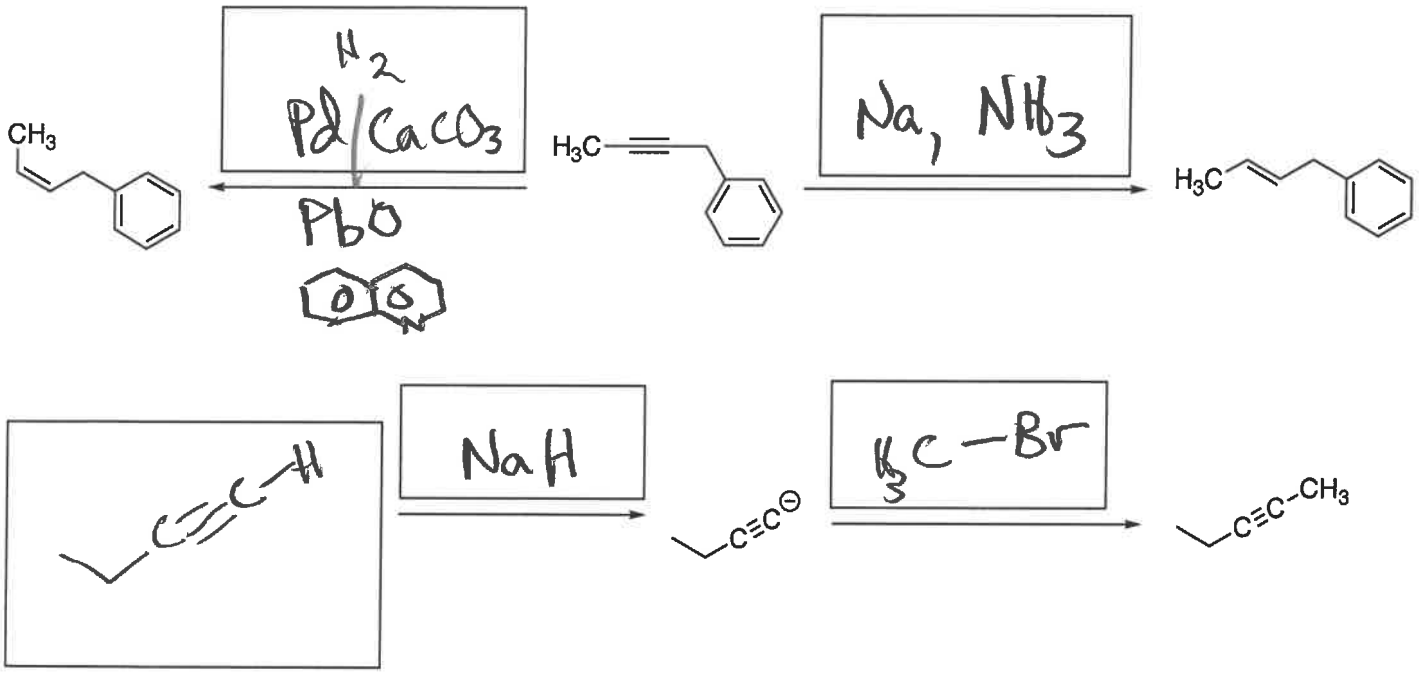
C. 



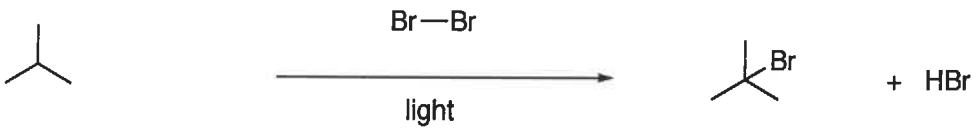
D. 



9. Provide the reagent(s) and starting materials for the following reactions.

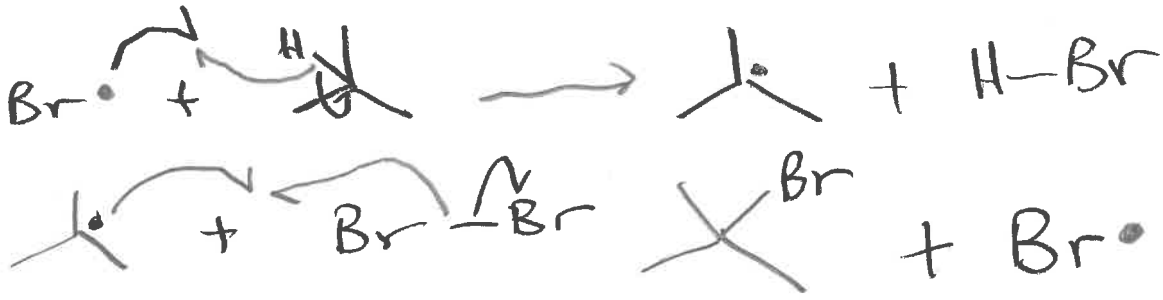


10. Provide an arrow pushing mechanism for the following transformation.



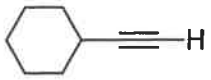
Initiation:

Propagation:

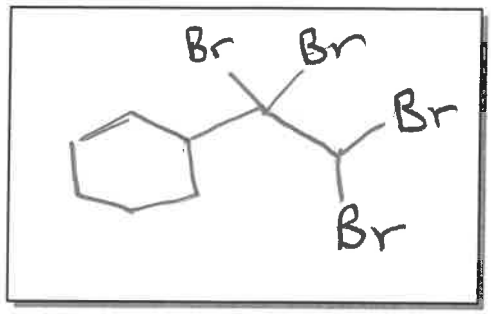


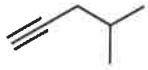
Termination (show one):

11. Give the major product for the following reactions. (Remember: Stereochemistry and regiochemistry!).

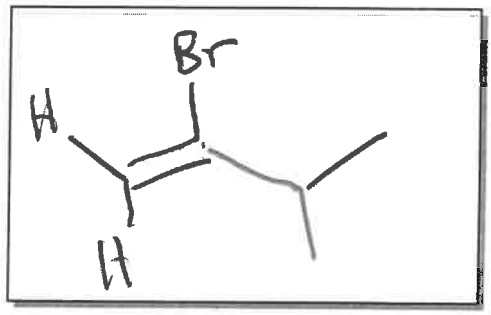


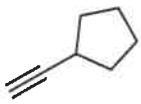
Br_2 (excess)



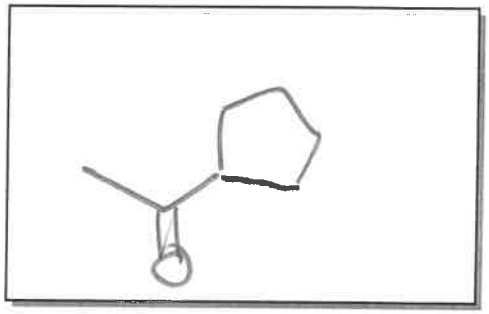


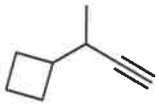
HBr (1 equiv)



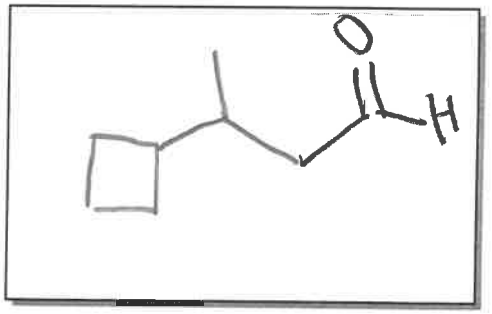


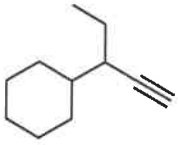
$HgSO_4$, H_2O,
H_2SO_4





1) BH_3
2) H_2O_2, NaOH





1) BH_3
2) H_2O_2, NaOH