

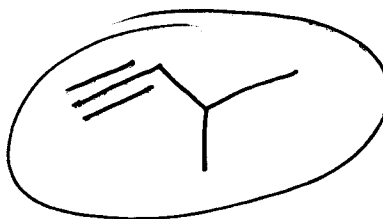
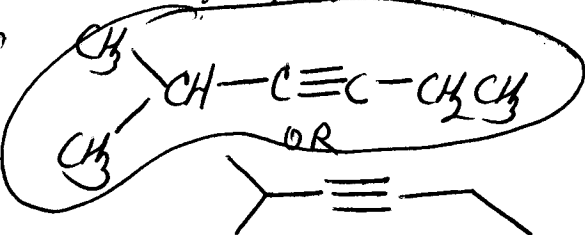
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Partial Credit (Use a pen to fill out the remaining questions on the exam itself. Circle the answer to be graded.)

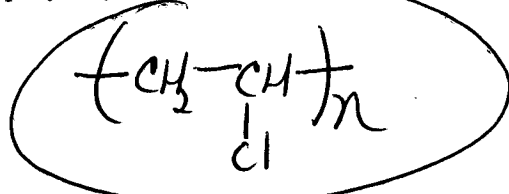
16. Give a correct structure (line or structural) for each of the following compounds. Where applicable, show the correct three-dimensional stereochemistry.

A. ethyl isopropyl acetylene

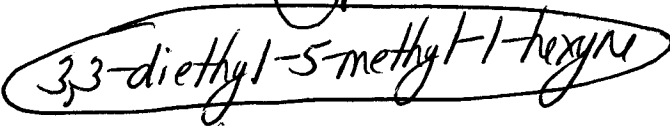
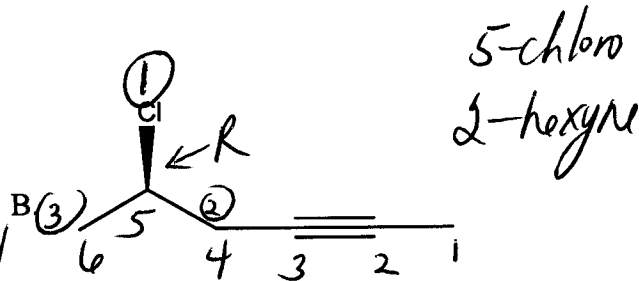
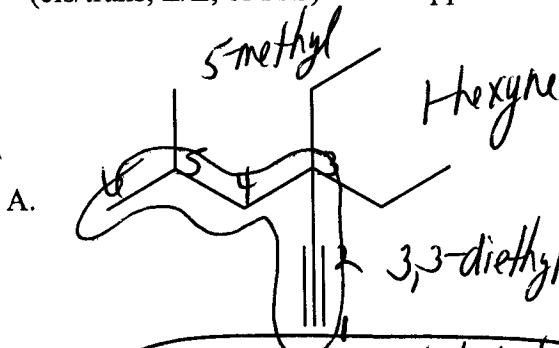
B. 3-methyl-1-butyne



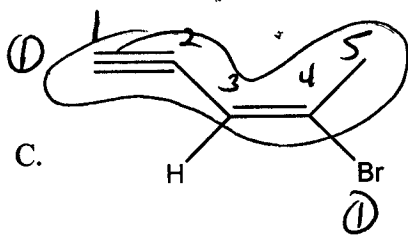
C. polyvinylchloride (PVC)



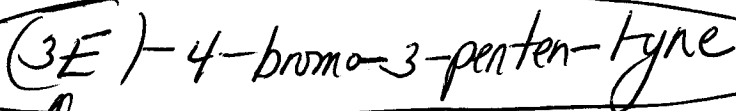
17. Give a correct IUPAC name for each of the following compounds. Include stereochemistry (cis/trans, E/Z, or R/S) where applicable.



or (R)



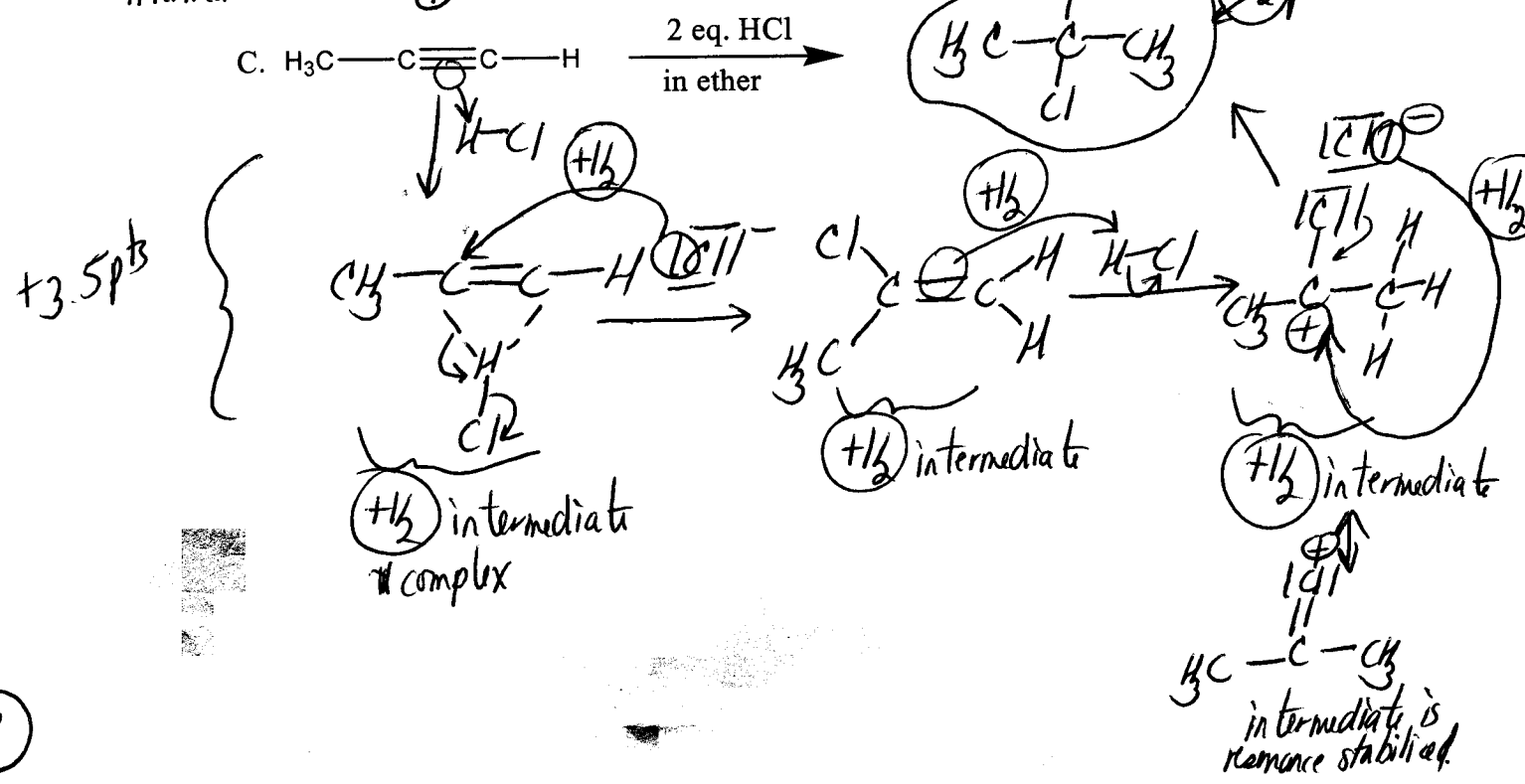
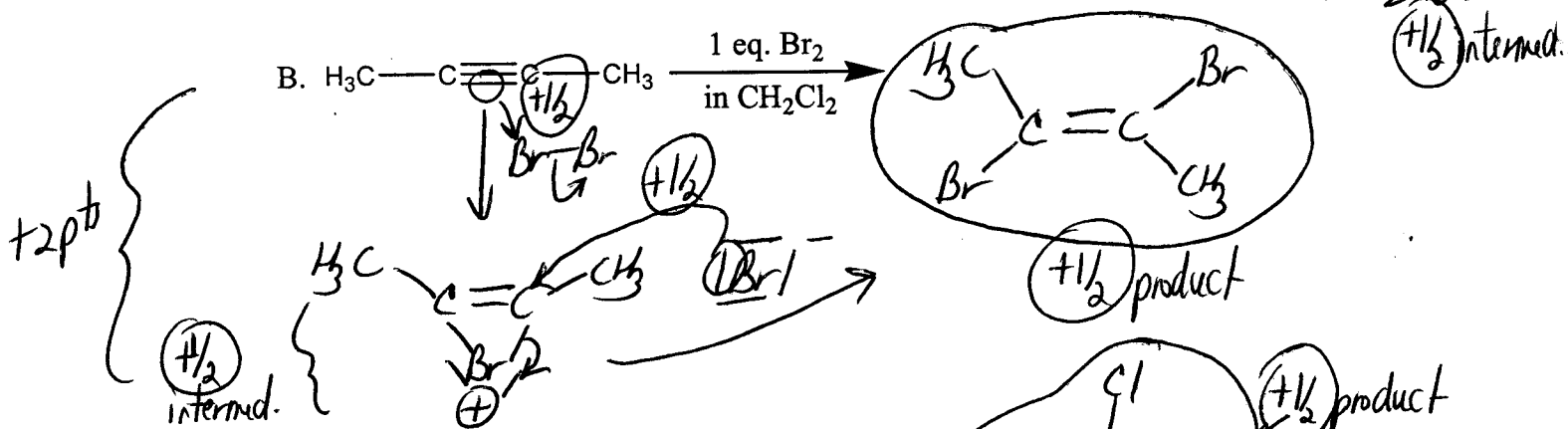
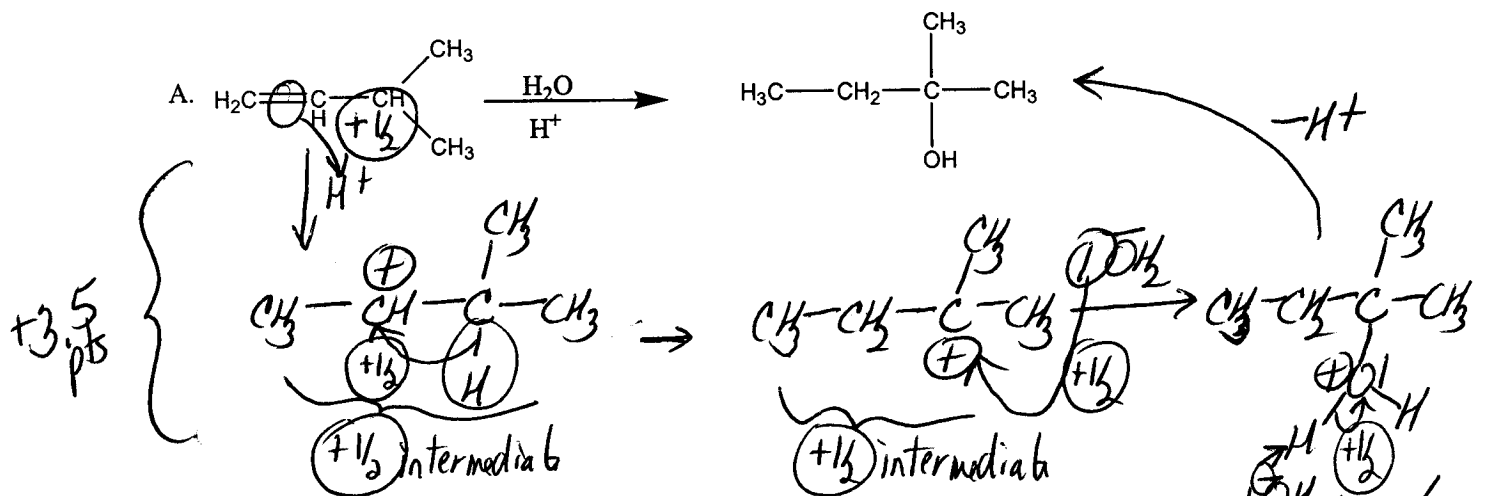
pentenyne
4-bromo



or E

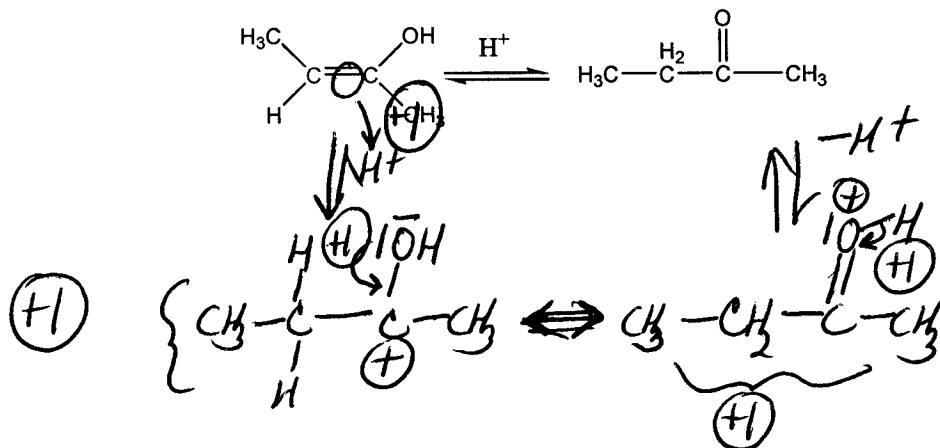
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18. Provide detailed step-by-step mechanisms for the following reactions. Additionally, predict the major organic product for the reactions in B and C. Your detailed mechanisms should include arrows designating movement of electrons and correct charges.

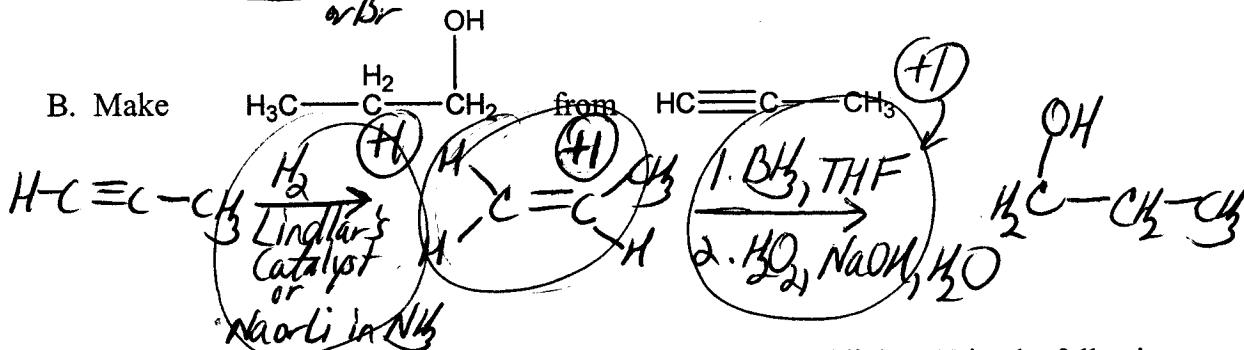
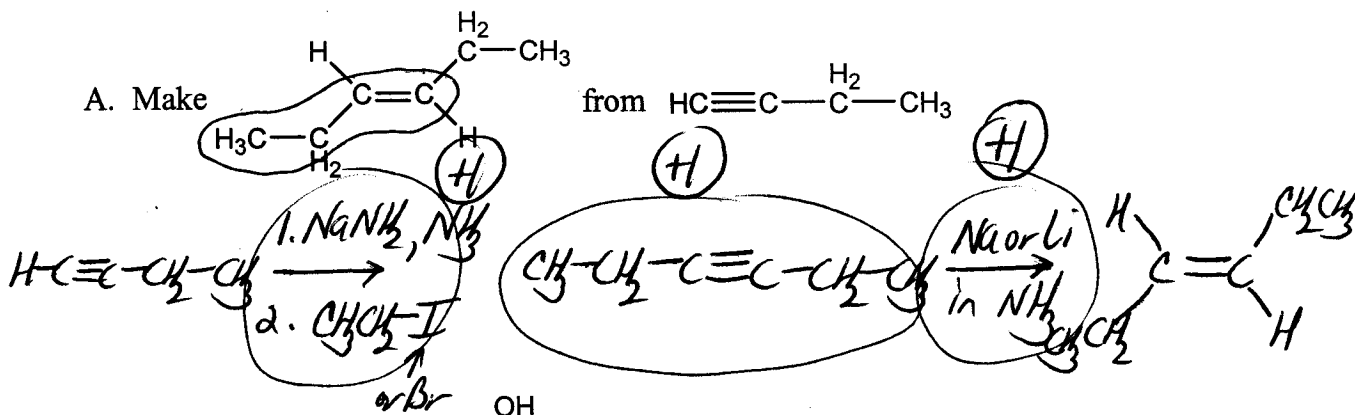


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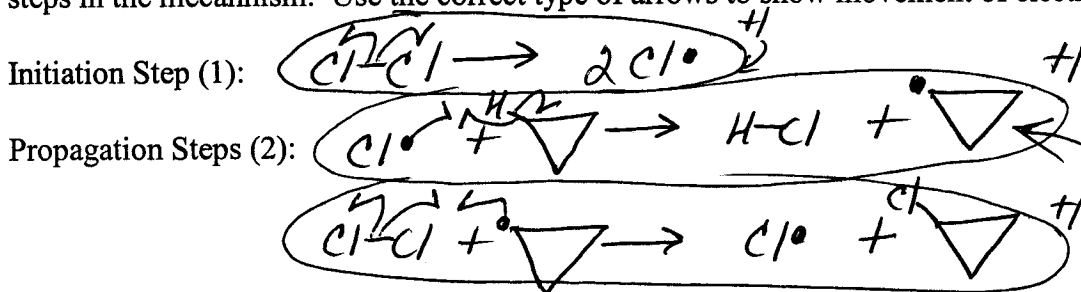
19. Give a step-by-step mechanism for the acid catalyzed conversion of the enol tautomer shown below to the keto tautomer.



20. Show a synthesis for A and B below. In your answer, show all reagents, intermediate products, and steps. Complete mechanisms need not be shown.



21. Consider the monochlorination of cyclopropane by chlorine and light. Write the following steps in the mechanism. Use the correct type of arrows to show movement of electrons.



Which step is the slow or rate determining step in this reaction mechanism?

The first propagation step is the slow step.

(5)

22. Give the major organic product(s) for each of the following reactions. If applicable, show the cis/trans nature of the product(s). However, neglect different stereoisomer products.

