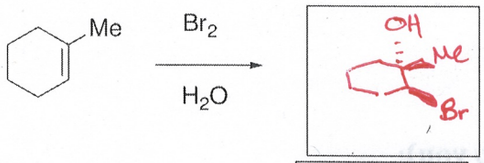
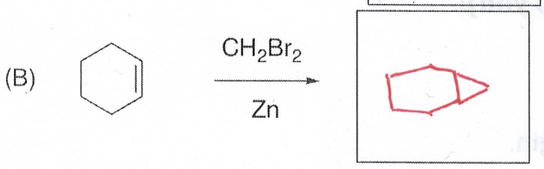
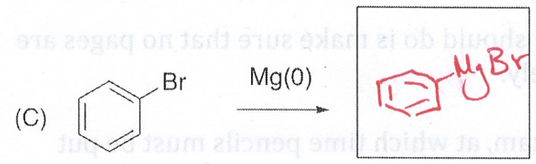
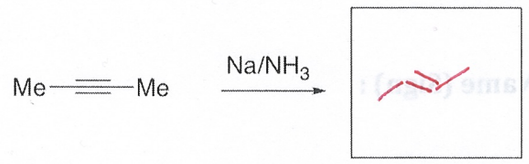
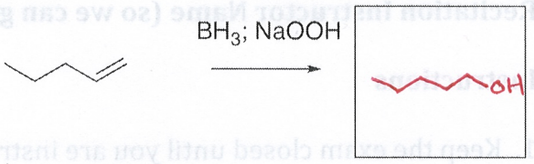
1) **Reactions Part A.** *Show the products of the following reactions. Chose 5 of the 6, and make sure to circle those you want graded. If you do not circle, we will grade the first 5. (20 points, 4 each)*

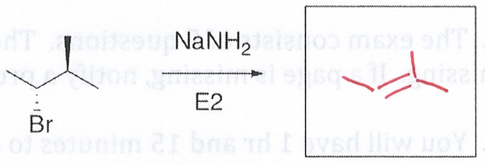
(A) 

(B) 

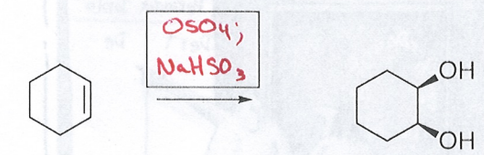
(C) 

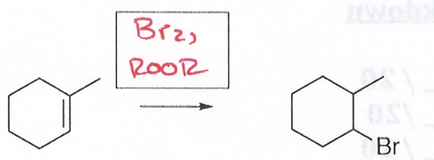
(D) 

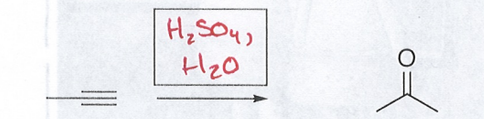
(E) 

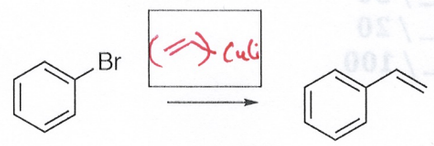
(F) 

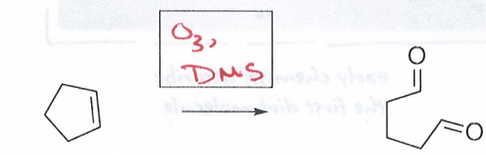
2). **Reactions Part B.** *Show the reagents for the following reactions. Chose 5 of the 6, and make sure to circle those you want graded. If you do not circle, we will grade the first 5. (20 points, 4 each)*

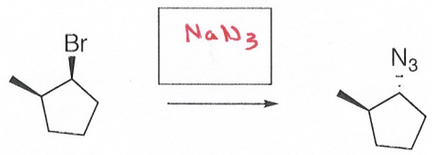
(A) 



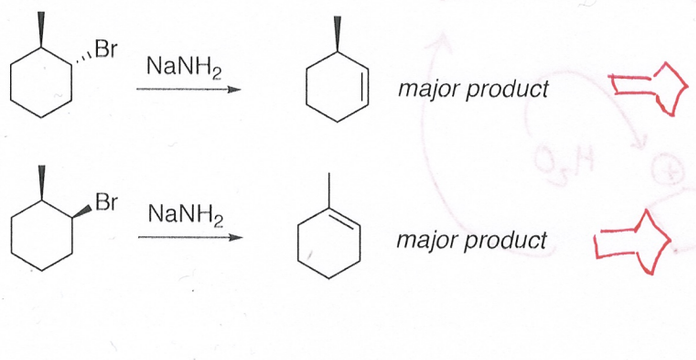
(B) 

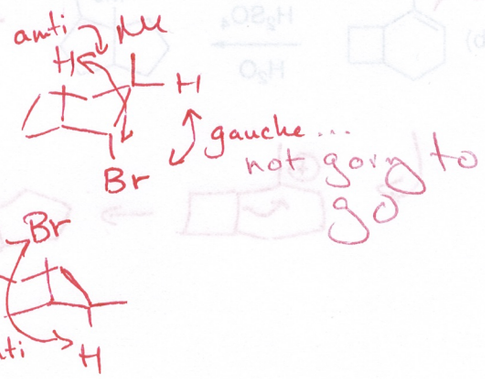


(C) 



3) **Concept Question.** *The following reactions illustrate two different elimination products that arise from E2 elimination from two different diastereomers. Explain this difference, using structures and mechanisms to help support your answers* (10 points)

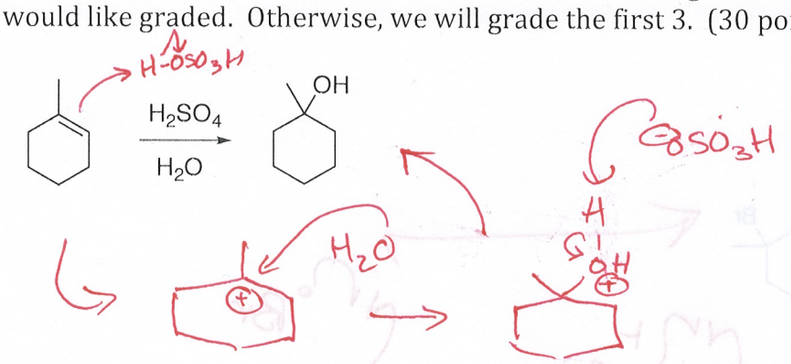




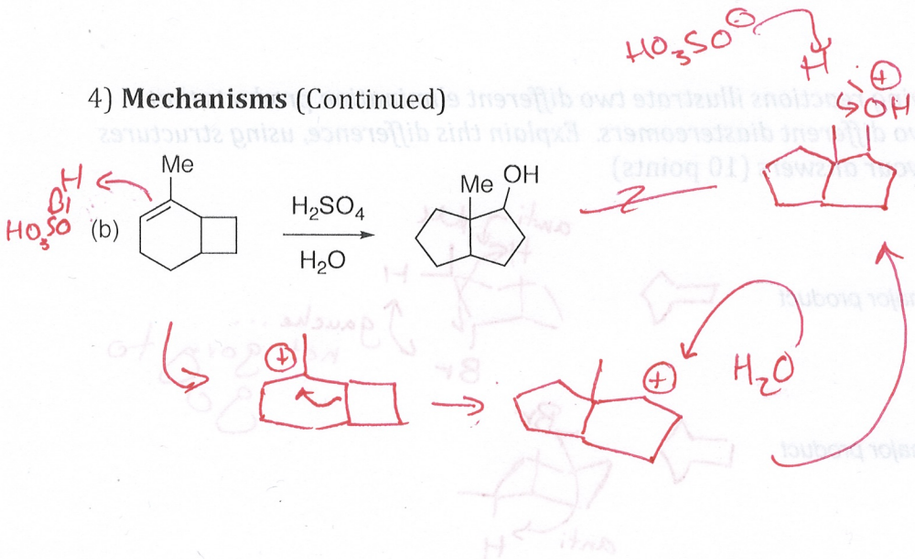
elimination should go through anti orientation. If both are possible, small base gives Zeitsev's pdt

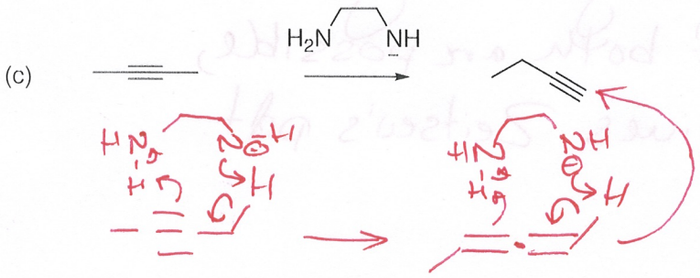
4) **Mechanisms.** Show the mechanism of 3 of the following 4 reactions. Make sure to circle the 3 you would like graded. Otherwise, we will grade the first 3. (30 points, 10 points each.

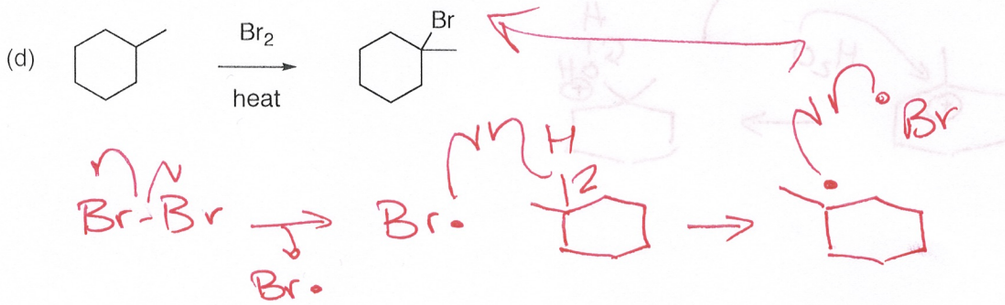
(a)



4) **Mechanisms** (Continued)

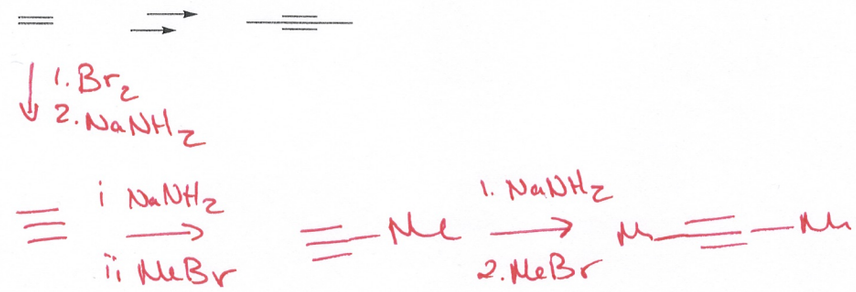






5) **Synthesis.** Propose a series of reactions that would help carry out the following synthesis. (20 points, 10 points each)

(a)



(b)