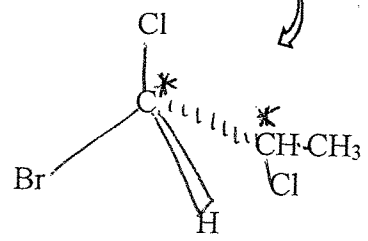
Organic Chemistry I (CHM 335) Fall 16 Dr. Hahn MW 12:30pm Quiz II 10/10M Exam # _____

Sign Name Key Print Name _____

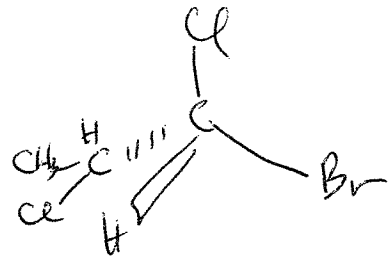
Please show work on all questions for partial credit even on questions which do not specify. (50 total pts)

1. For the following molecule, draw the appropriate (30 pts total, 10 pts each)

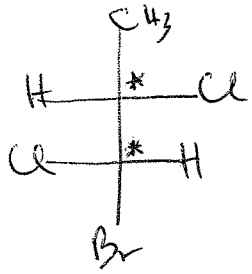
Original molecule



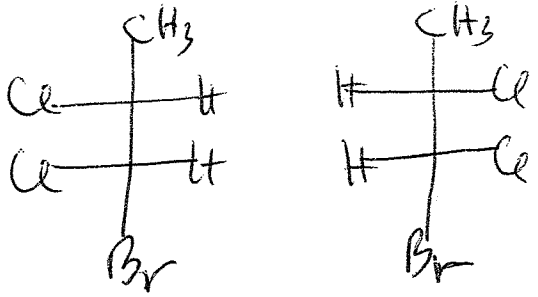
(a). Enantiomer of original molecule



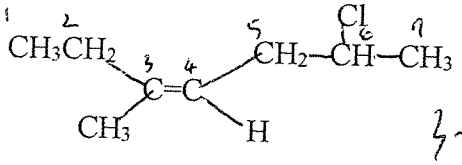
(b). draw a Fischer projection formula of the original molecule (showing the 2 chiral centers)



(c). diastereomer of the Fisher projection formula you drew in (b)



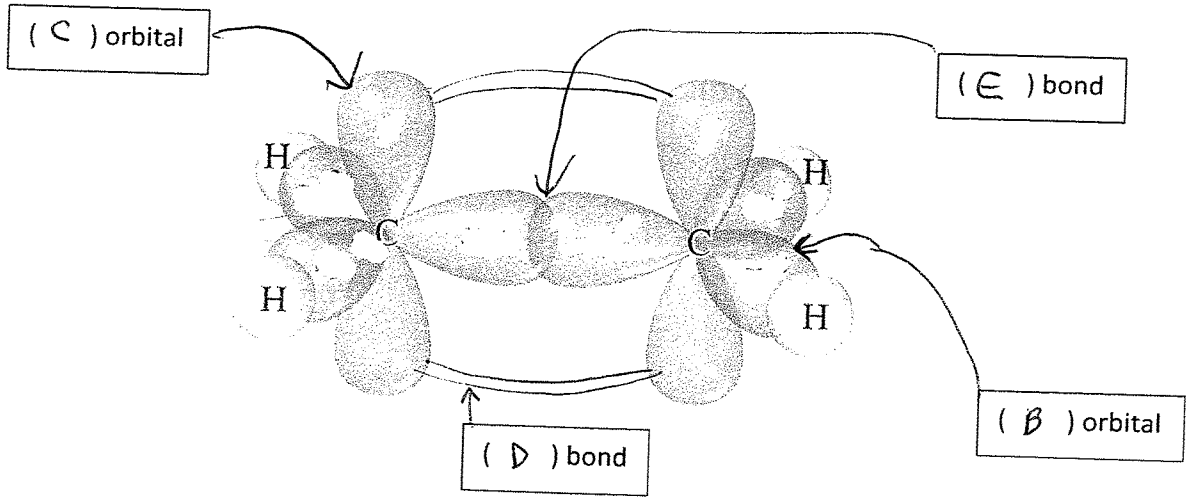
2. name the following molecule (12 pts)



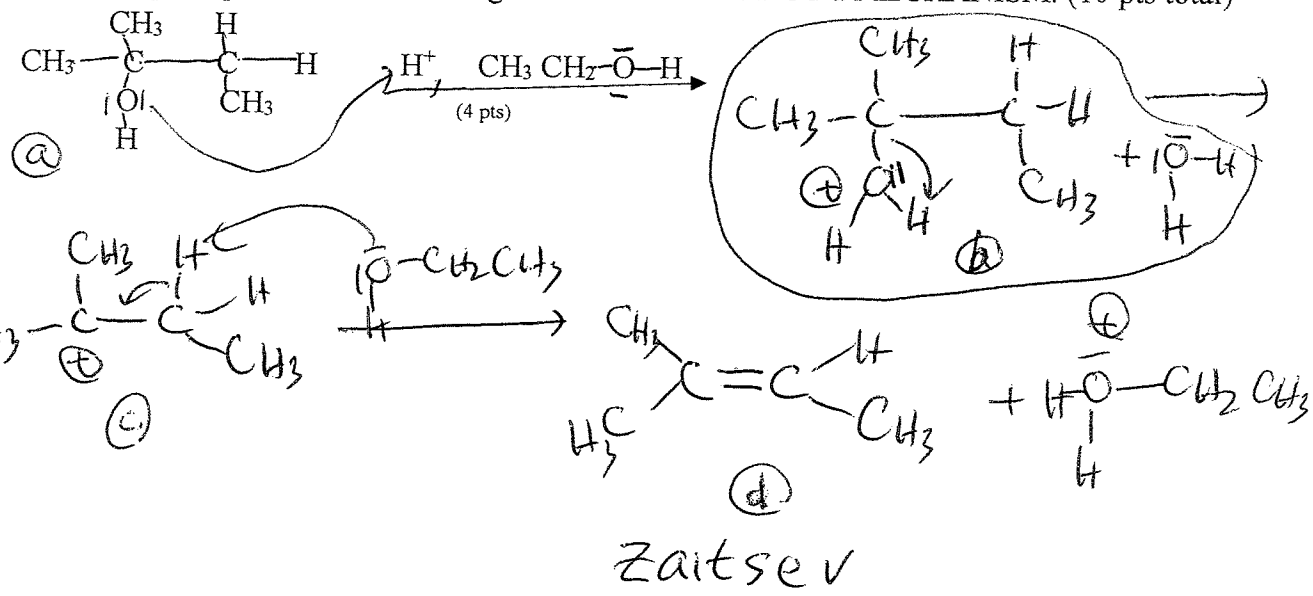
Z-6-chloro-3-methylhept-3-ene

3-methyl 6-chloro

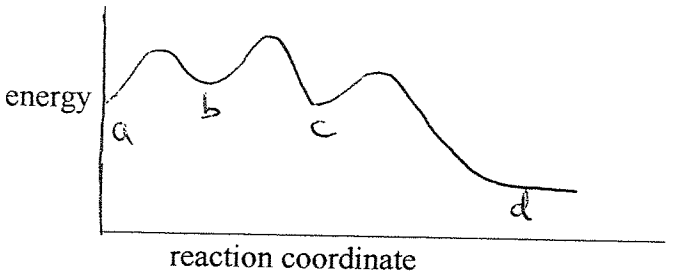
3 Match the labeling in the following parenthesis. Each parenthesis can hold one to multiple letters. Each letter may be used once, no time or multiple times (A) sp^3 hybridized orbitals (B) sp^2 hybridized orbitals (C) unhybridzed p orbital (D) π bond (E) σ bond (F) s orbital (8 pts, 2 pts each)



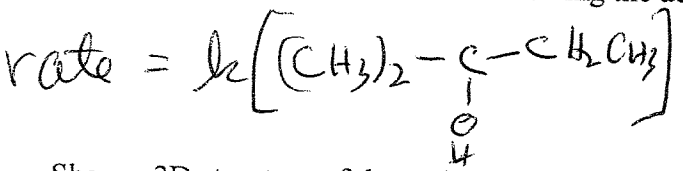
3. **Extra Credit**: Give the reaction mechanism of the following reaction assuming E 1 mechanism. Must show all steps stepwise. Just showing the intermediate is NOT a MECHANISM. (10 pts total)

(a) 

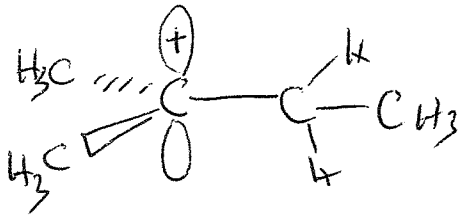
(b) Give the energy diagram. You MUST show an energy position for **EVERY INTERMEDIATE** in the reaction. (2 pts)



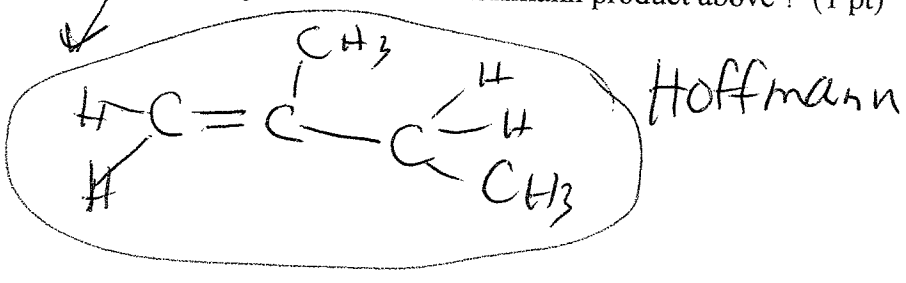
(c) Write the rate law for the reaction showing the actual molecule in the reaction. (2 pts)



(d) Show a 3D structure of the carbocation intermediate (using wedge, dash and line 3D drawing)(1 pt)



(e) What would be a Hoffmann product for the molecule if you showed the Zaitsev product above ? What would be a Zaitsev product if you showed the Hoffmann product above ? (1 pt)



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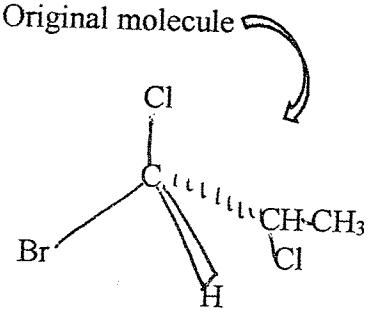

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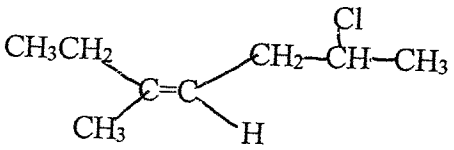

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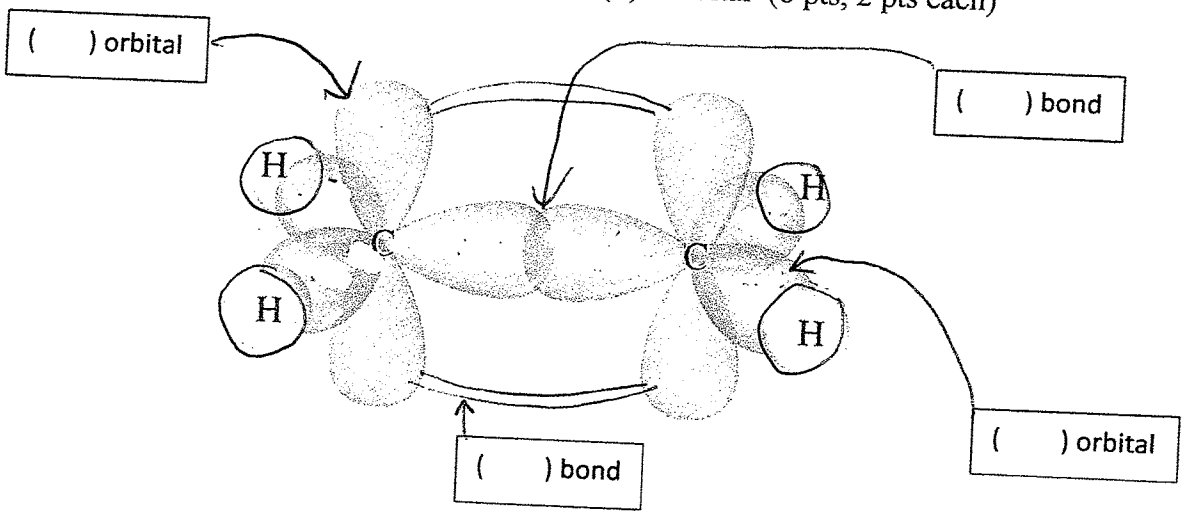

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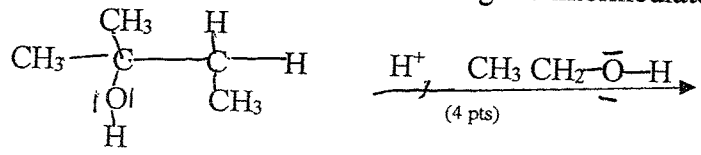
(a) 

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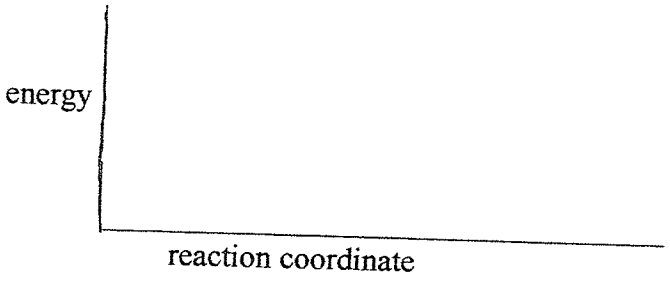

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