

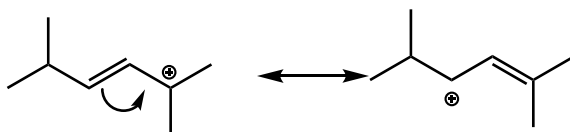
Problem Set Chapter 17

Organic Chemistry for
Life Sciences: CHM 224

Name _____

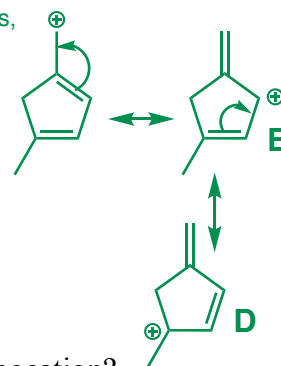
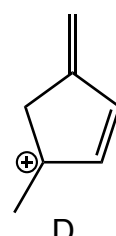
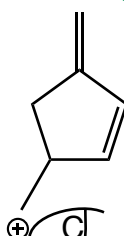
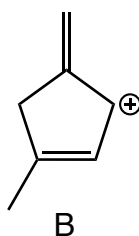
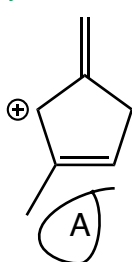
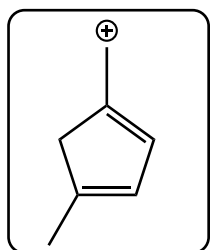
DUE: Friday, January 19 in class

1. Draw ONE additional important resonance form for the following carbocation (include proper curved arrows AND resonance arrows):

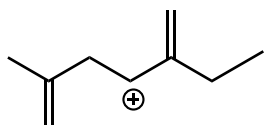


2. Which of the following is NOT a resonance form for the structure provided in the box (may be more than one answer)?

REMEMBER: no atoms are allowed to move when drawing resonance forms, only electrons can move!! In A and C below, atoms (H's) have moved!



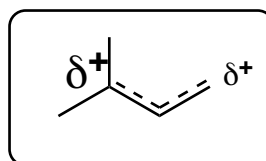
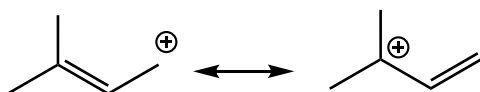
3. How many additional good resonance forms may be drawn for the following carbocation?



- there is only 1 additional resonance form possible because the C=C bond to the left of the molecule is separated from the others by a saturated CH₂ group
- the positively charged carbon MUST be directly connected to the C=C bond to engage in resonance

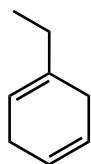
- (A) 1
B. 2
C. 3
D. 4
E. 5

4. Draw the hybrid form for the carbocation below. Indicate which carbon atom has the largest partial positive charge.

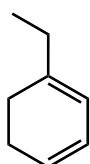


the carbon with the larger δ^+ sign will have the largest partial positive charge because the positive charge is more stable on the 3° site over the 1° site.

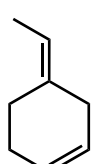
5. Which one of the dienes below would be the most stable and which least stable?



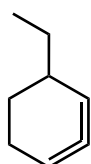
A
isolated diene



B
conjugated diene



C
isolated diene

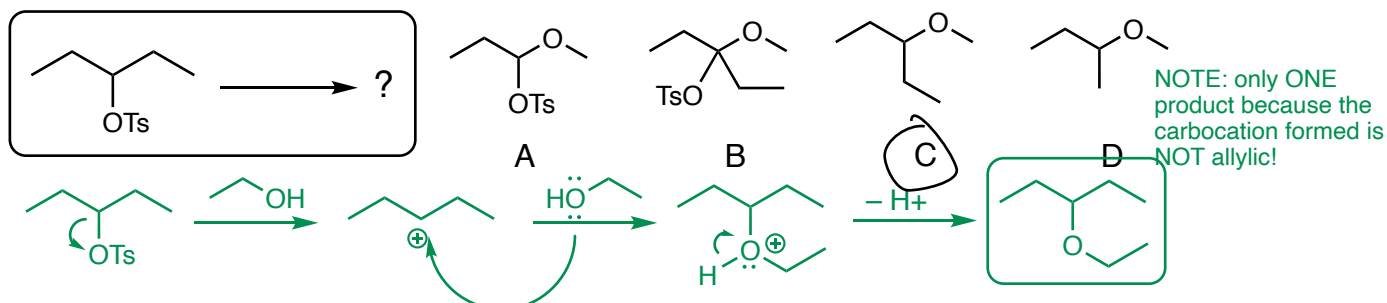


D
cumulated diene

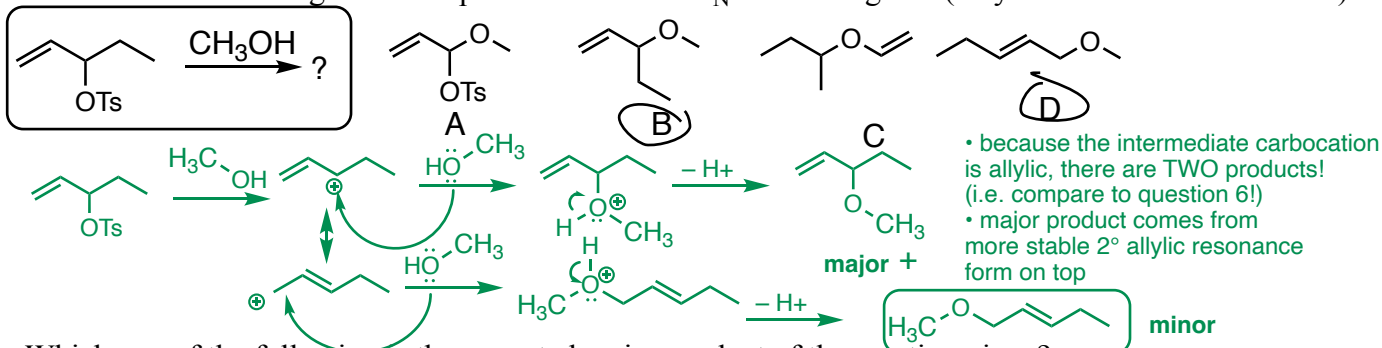
most: B

least: D

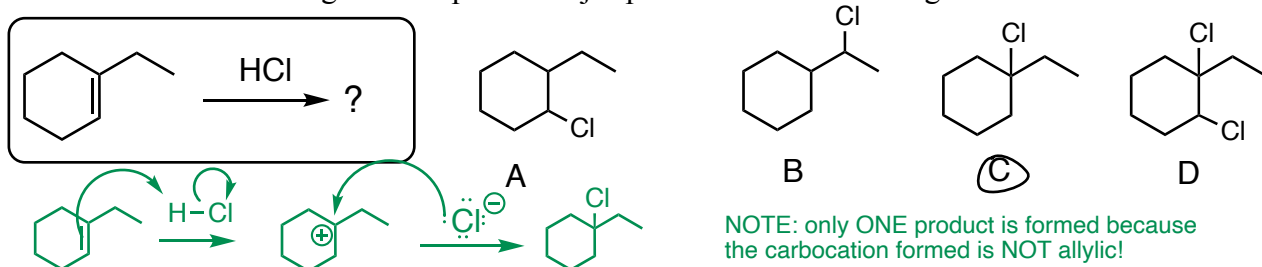
6. Which of the following would be products from the S_N1 reaction given (may be more than one answer)?



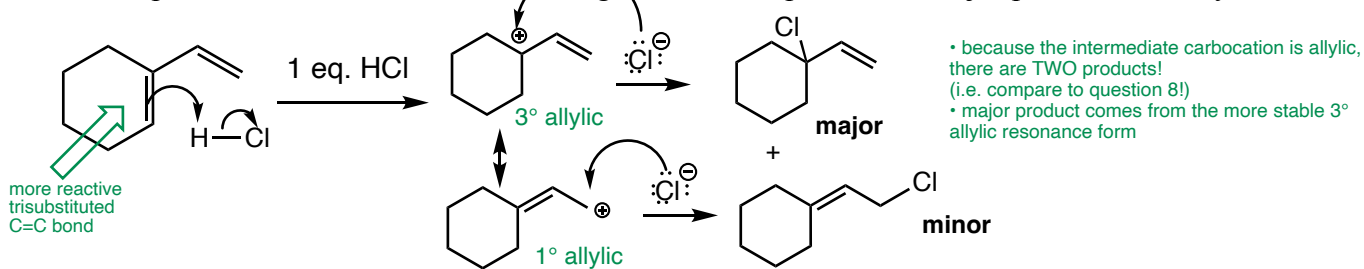
7. Which of the following would be products from the S_N1 reaction given (may be more than one answer)?



8. Which one of the following is the expected major product of the reaction given?



9. Draw the products formed from the following reaction and predict the major product. Show your work.



10. Using the C=C bonds in the benzene ring, Jimmy, after drawing all reasonable resonance forms, predicts the hybrid form shown as a good representation of the benzylic carbocation. Do you agree with Jimmy? If not, what is the correct hybrid form (do not be concerned with the size of the δ^+ symbol)?



Jimmy!

