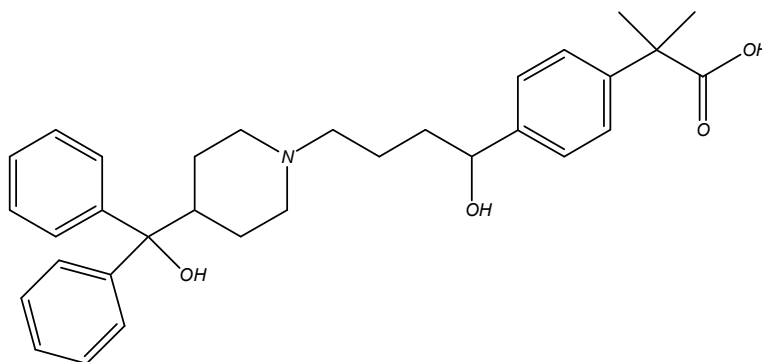
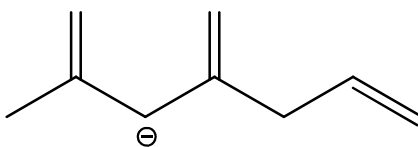
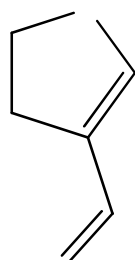


Practice Exam 1
R340

- (10pts) Draw bond-line structures for all typically bonded constitutional isomers of
 - $C_4H_{10}O$
 - C_3H_5Br
- (12pts) Antihistamines are drugs commonly used to treat allergy symptoms. Newer antihistamines are blockbuster drugs because they do not cause drowsiness (due to the fact that they don't cross the blood-brain barrier.) The structure of fexofenadine (Allegra) is shown below. How many lone pairs does it have? Name all of its functional groups.

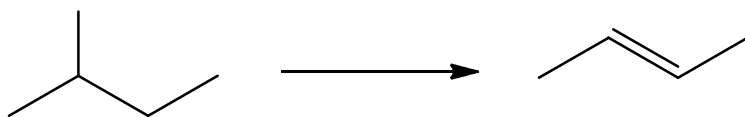


- (10pts) Draw the structures of these compounds, then draw dipole arrows designating any polar bonds. Indicate one atom that could be considered Lewis basic in each.
 - 2-propylpentanoic acid
 - oct-2-en-4-ol
- (10pts) Draw all significant resonance structures for these compounds:

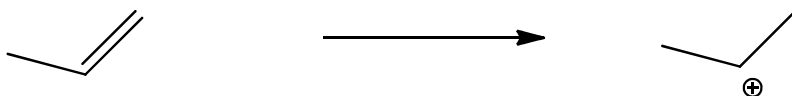


5. (8pts) In each of these reactions, something was added or removed. (It may or may not be charged.) Indicate what it was.

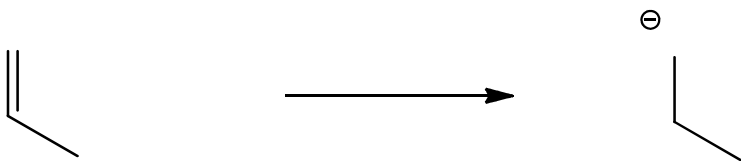
A.



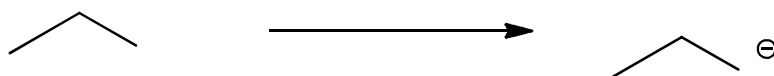
B.



C.

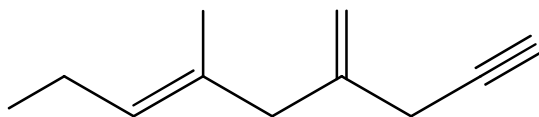


D.



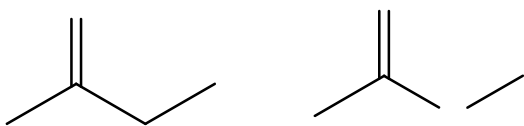
6. (12pts) Why is cyclopropene less stable than cyclopropane? Explain why there is no such thing as E-cyclopropene.

7. (8pts) Label each of these nitrogen atoms with its correct hybridization.

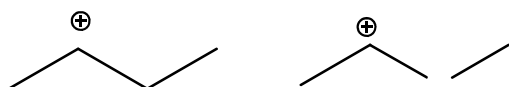


8. (15pts) Which of these compounds is a more reactive Lewis acid? Explain based on a good model of electron distribution in the molecule.

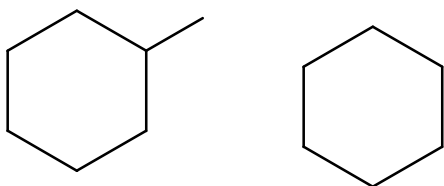
A



B

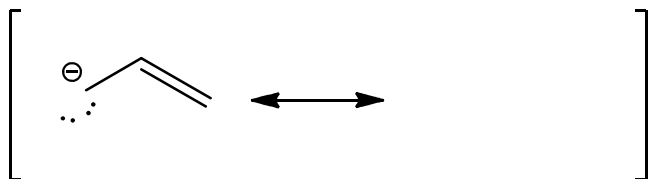


C



9. (15pts) Although the two lone pairs on the anion of aminoethene look the same in the Lewis Dot structure, they are very different.

A. Draw a significant resonance structure, then draw the resonance hybrid.



B. Draw an orbital overlap picture for the pi system in this anion.

C. How many electrons are in the pi system?

D. Indicate what types of orbitals the two lone pairs are in. Which lone pair is more localized?

E. Which carbon atom is more reactive? Explain.