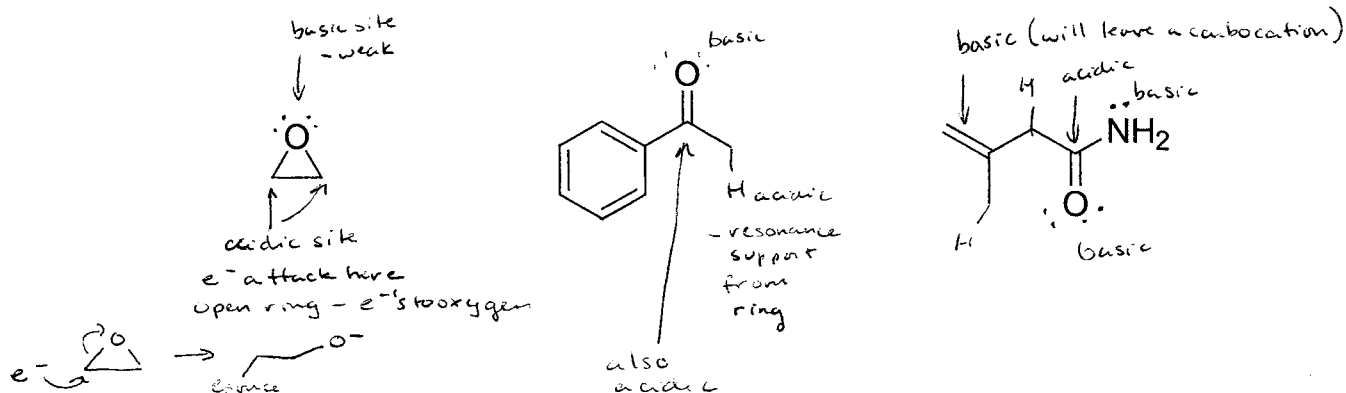


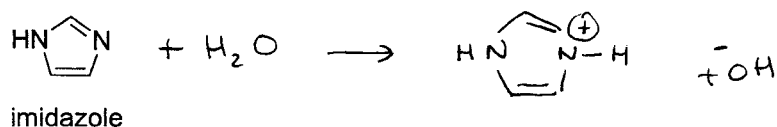
Chem 30A- Week 5

Warm up exercise

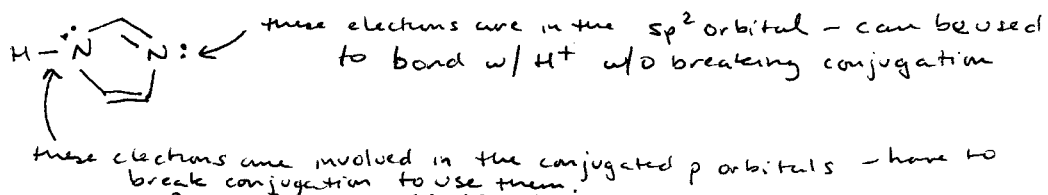
Identify the acidic and basic sites on each of the molecules below.

Group problems

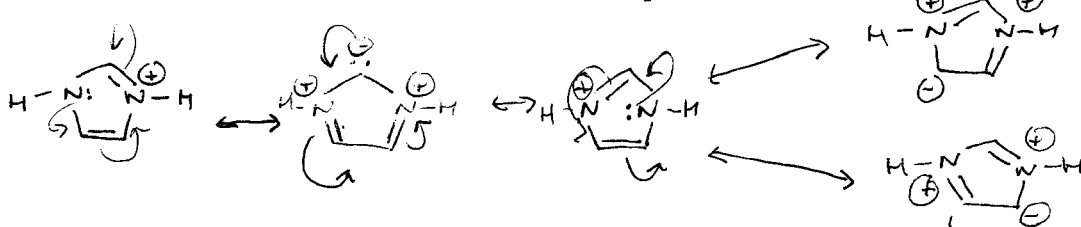
- Imidazole acts as a base in water.
 - Write a balanced equation for that reaction.



- Explain why one nitrogen in imidazole is favored over the other for protonation.

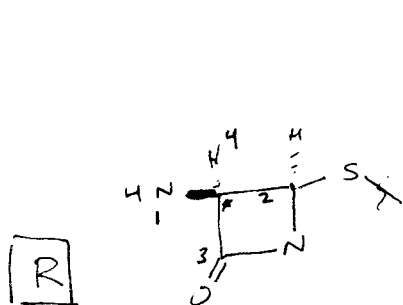


- Draw resonance forms of protonated imidazole.

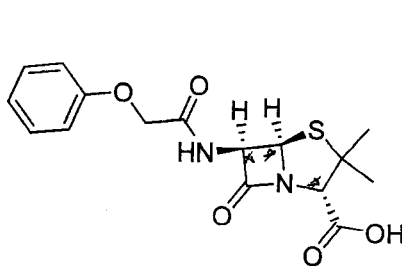


Chapter 4

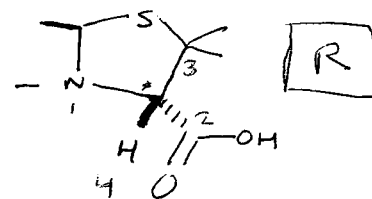
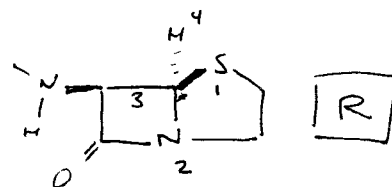
2. How many stereogenic carbons does Penicillin V have? What are their configurations?



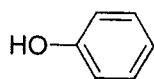
Sulfur is the first point of difference and is a higher atomic number than oxygen (even though there are more oxygens)



Penicillin V



3. Use the pKa's listed for the following questions.



phenol

pKa = 10



methanol

pKa = 16



acetone

pKa = 18



acetylene

pKa = 25

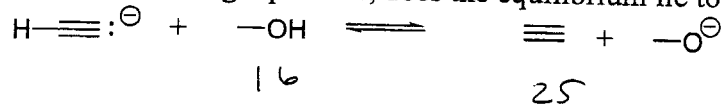
- a. Why is phenol more acidic than methanol and acetone?

phenol has more resonance stabilization
 \therefore more willing to give up a proton

Carbon is more reluctant than oxygen to give up a proton
 - so even though acetone will have resonance stabilization methanol is more acidic - oxygen will give up that proton even w/o resonance.

Chapter 4

- b. For the following equations, does the equilibrium lie to the right or left?

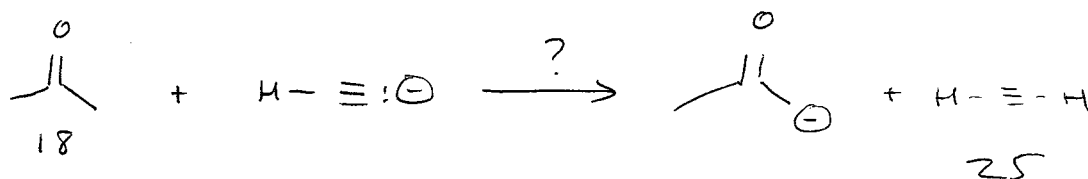


—————→ Right



←———— Left

- c. Can acetone protonate acetylide anion? Write the reaction- label the acid, base, conj acid and conj base.



stronger acid gives more protons

∴ yes