



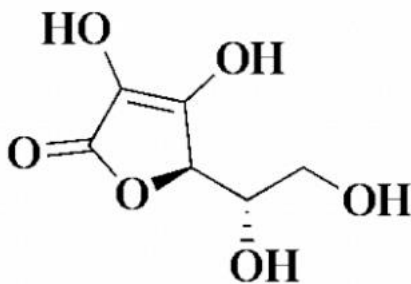
Problem Set 2

Organic Chemistry 1 (Greenberg)

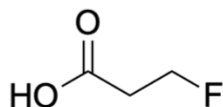
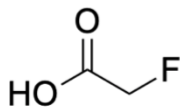
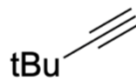
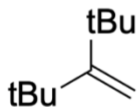
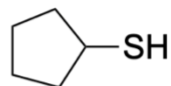
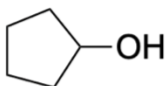
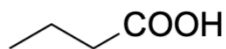
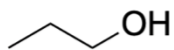
Fall 2025

1. Circle the correct answer for each of the following statements.
 - a. A more acidic compound has a **(more or less)** stabilized conjugate base.
 - b. The higher the pK_a , the **(stronger or weaker)** the acid will be.
 - c. Delocalization of electrons results in **(increased or decreased)** local charge on the involved atoms.
 - d. A proton on a sp hybridized carbon is **(more or less)** acidic than a proton on a sp^3 hybridized carbon.

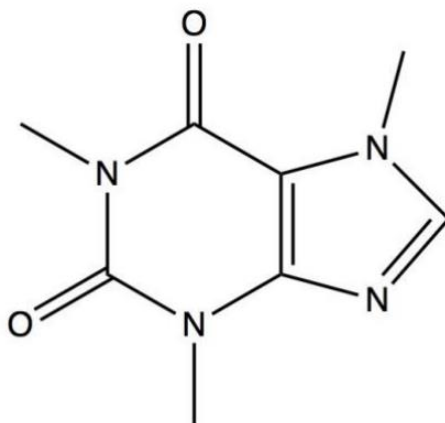
2. Shown below is the structure of Vitamin C. Determine the most acidic proton and explain why this proton is the most acidic.



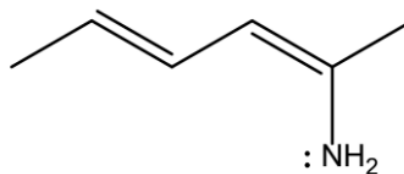
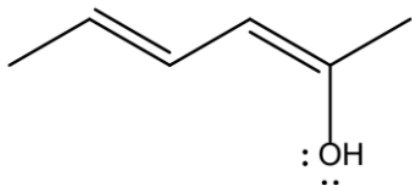
3. For each molecule below, circle the most acidic proton. Then determine which compound in each row is the most acidic and explain why.



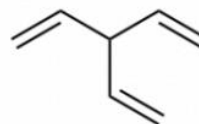
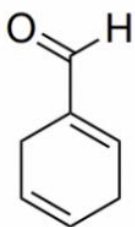
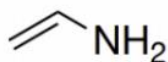
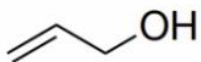
4. Caffeine is a purine derivative used to block adenosine receptors in the brain, helping Hopkins students stay awake to study remotely at home (big sad). What is the hybridization of each nitrogen in this molecule, and in which orbitals are the lone pair electrons held?



5. Consider the two structures below. Is oxygen or nitrogen more willing to delocalize their lone pairs? Prove this by drawing at least one resonance structure for both.



6. Which of the following compounds have a conjugated π systems? Prove this by drawing resonance structure to attempt to show conjugated π systems. What observations can you make about the hybridizations of atoms in and outside of conjugated systems?



Clubs and Orgs Bulletin:

Promote your club! <https://forms.gle/V19BipzLyuAaWMyz8>

A Place to Talk

Need to vent about something or talk through an issue? Come visit an APTT room! Want to encourage your organizations' members to be more compassionate and welcoming? Schedule listening and empathy training by emailing apptexternaltraining@gmail.com.

Learn more: @jhupatt or <https://pages.jh.edu/aptt/>

Johns Hopkins Alzheimer's Disease Research Center (JHADR) Volunteer Program

Are you passionate about spreading knowledge on healthy aging, brain health, memory loss, and Alzheimer's disease? Apply to be a college student volunteer at the Johns Hopkins Alzheimer's Disease Research Center (JHADRC). We are looking for dedicated students to join our team and contribute to our mission of improving the understanding, treatment, and care of memory loss and Alzheimer's disease. Student volunteers will be placed in one of two teams: JHADRC and Memory & Aging Community Advisory Board (MACAB) - focusing on community outreach among older adults

CAN (Curing Alzheimer's Now) Dream Foundation - focusing on providing Alzheimer's education to kids in K-12 settings

Application Form ([link](#)) | Primary (Sun 9/7), Final (Wed 9/17)

Information Session ([link](#)) | Tues 9/2, 6:00 PM

Contact: jhadrc@jhmi.edu

Tip of the Week:

Future Fest 2025 has started! Future Fest is a two week series of events (Sep. 5 - Sep 19) organized by the Life Design Lab to help students explore possible internships and careers. Check out the schedule below (or just stop by the Imagine Center for the free coffee):

Future Fest 2025

Friday September 5- Kickoff				
Saturday September 6- Break Into Big (Bio)Tech & Community Service & Social Impact Explore Tour				
Monday September 8	Tuesday September 9	Wednesday September 10	Thursday September 11	Friday September 12
<ul style="list-style-type: none">Parallel Pathways to MedicineReverse Salary Negotiation ChallengeWSE Career Night	<ul style="list-style-type: none">Networking in the US as an International StudentFuture Proof Yourself Using AI PromptsSoaring in Sophistication: A Blue Jay Dining Experience	<ul style="list-style-type: none">Jumpstart Your Finance JourneyThe Secret Sauce: Skills Learned From the GrillVisa Pathways and Sponsorship Stories	<ul style="list-style-type: none">A Recruiters Recipe for Student Success in Big TechWhat's the Tea on Your Future with Hopkins Black Alumni	<ul style="list-style-type: none">Internship Open HouseBioFestival and Grant CompetitionTasting Notes- A Lab Crawl
Saturday September 13- Prepare for the Fair & FLavors of the Future: D.C. Trek				
Monday September 15	Tuesday September 16	Wednesday September 17	Thursday September 18	Friday September 19
<ul style="list-style-type: none">Virtual STEM FairSavor Your Latine Journey: A Story Seasoned by Your Resume	<ul style="list-style-type: none">Washington D.C. FairImagining Possible Lives as a First YearCrafting Careers in Media & Marketing	<ul style="list-style-type: none">Prepare for the FairBridging Compassion and Innovation: AI Medical Assistant Training with Trusted Care	<ul style="list-style-type: none">Prepare for the FairConsulting, Health, Finance, and Social Impact FairStudent Org Showcase	<ul style="list-style-type: none">BioTech, Tech, and Engineering Homewood Career Fair 