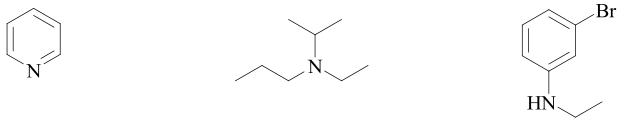
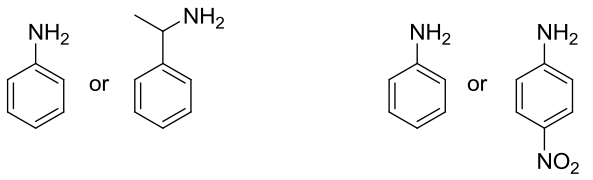
Chemistry 248 Hanson **sample EXAM 4**

1. Name the following compounds (shown on the right)



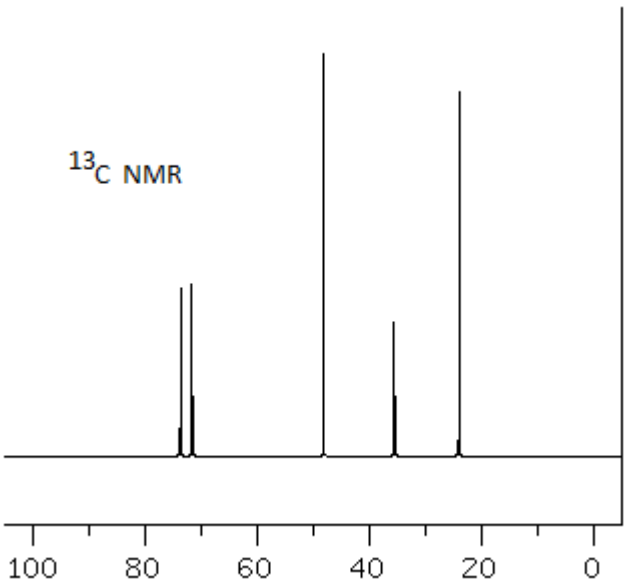
2. Give an example of…

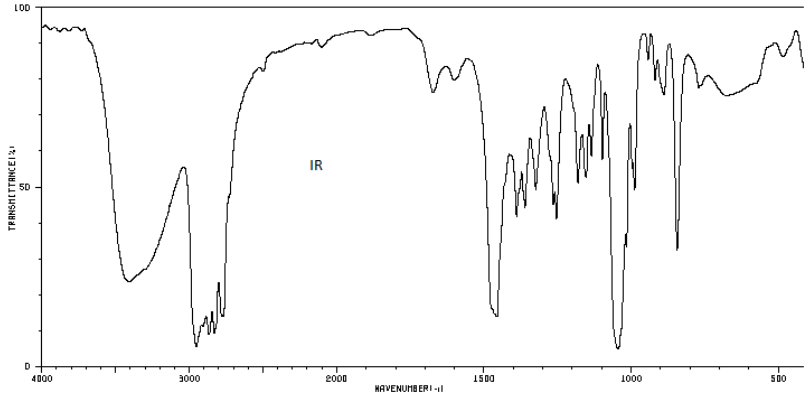
a) a heterocyclic amine that is not aromatic
b) an amine that will be mostly unprotonated at pH 7
c) a quaternary ammonium salt
d) a Hofmann elimination
e) a β-amino alcohol
f) oxidative addition

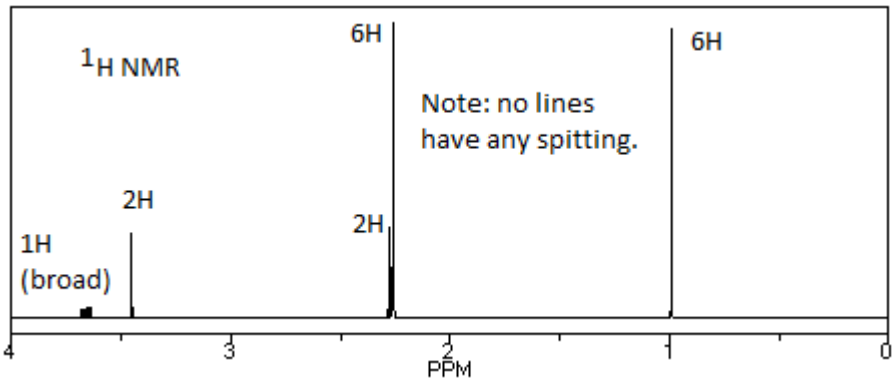


3. In each case, indicate the stronger base.

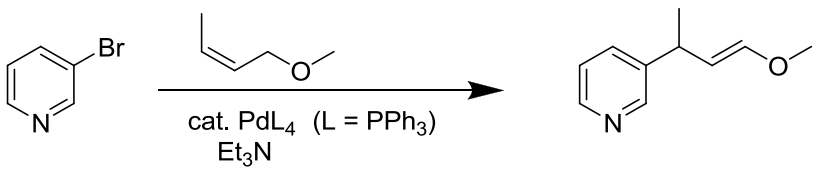
4. A compound has the formula $C_7H_{17}NO$ and the spectra shown below. Determine the structure of the compound. For credit, show on the spectra the evidence for parts of the structure. Do not worry so much if you cannot figure out the exact structure, but of course, for full credit, you will need to get that right.







5. Propose a mechanism for the following reaction:



6. On the next page, design short syntheses (2-5 steps) for each of the following compounds from the given starting material and any other compounds or reagents. Be sure to show all reagents for full credit.