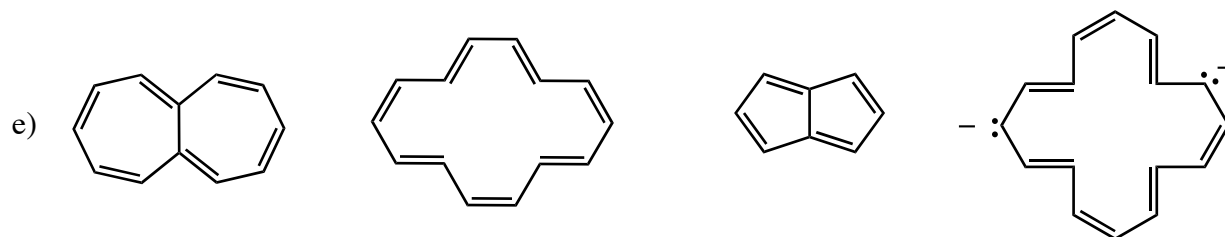
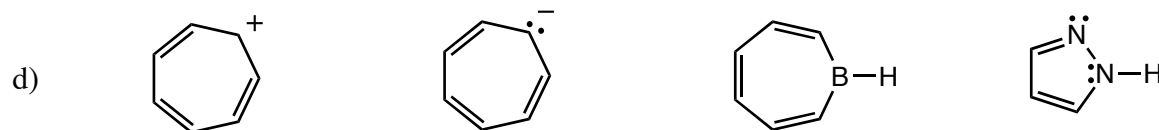
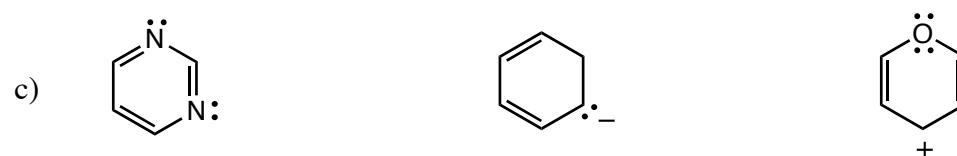
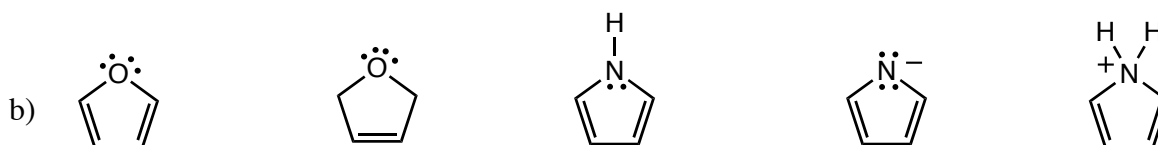


# Homework for Chapter 17.5

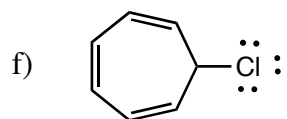
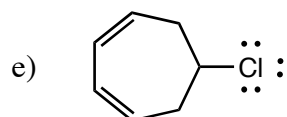
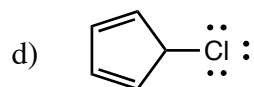
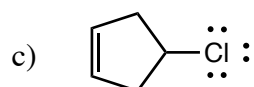
## Chem 2320

Name \_\_\_\_\_

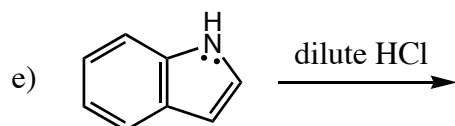
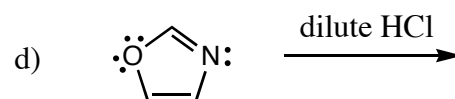
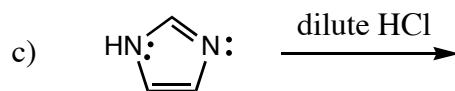
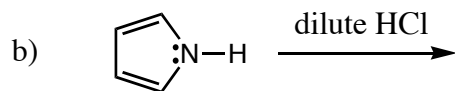
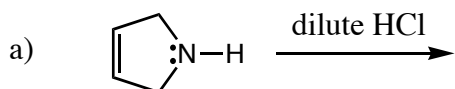
1. Give the number of pi electrons in each of the following compounds, and classify them as aromatic, nonaromatic, or antiaromatic. Assume all compounds are planar.



2. Which of the following compounds would you expect to undergo dissociation, and which will not? Draw the dissociated product, indicate whether it will form, and note any that will be unusually stable.



3. Which of the following compounds will show decreased reactivity as a base? Draw the protonated product, and then explain whether it will be more acidic than usual.



4. Draw structures for the following compounds.

a) benzyl alcohol

b) allyl phenyl ether

c) benzyl bromide

d) m-bromotoluene

e) o-nitroaniline

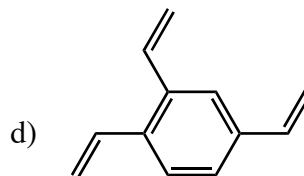
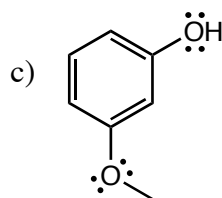
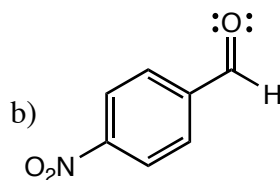
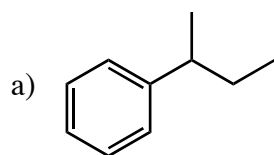
f) p-methoxyacetophenone

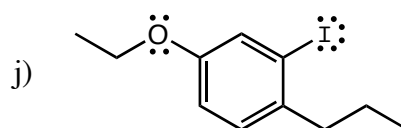
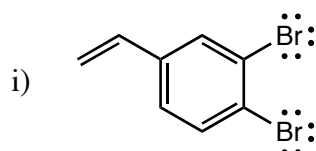
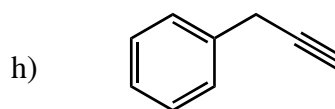
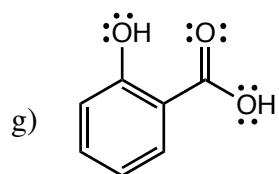
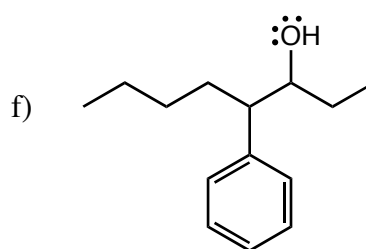
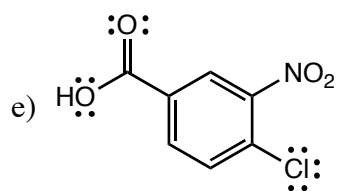
e) 3,5-dimethoxybenzaldehyde

f) 3-bromostyrene

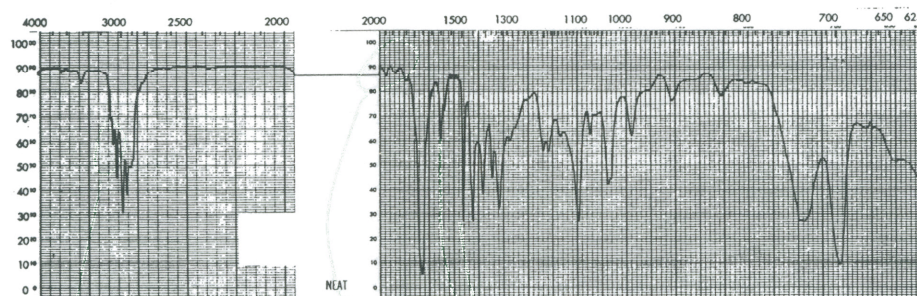
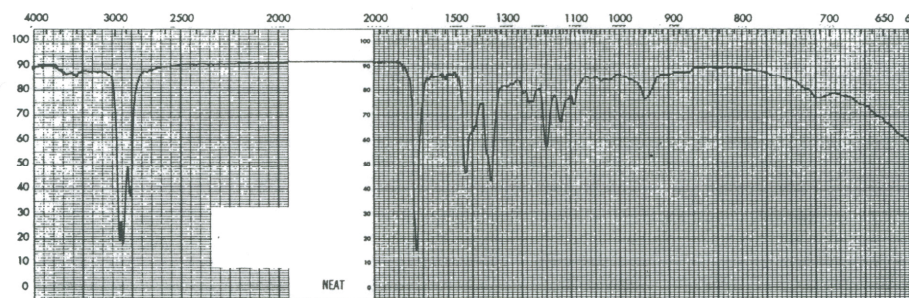
g) 1-chloro-3-ethoxybenzene

5. Name the following compounds.





6. Which of the following spectra indicate an aromatic compound? Label the bands which indicate the presence of a benzene ring.



7. Determine the structure of a the following compounds. Justify your answer by matching the H's in your structure with the H's in the list (a, b, c, etc).

a) Molecular formula  $C_8H_7OCl$  and the following  $^1H$  NMR spectrum.

- a - 7.9 ppm (2H, d)
- b - 7.6 ppm (1H, t)
- c - 7.4 ppm (2H, t)
- d - 4.7 ppm (2H, s)

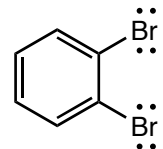
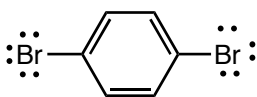
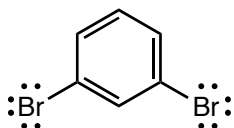
b) molecular formula  $C_8H_{10}O$  and the following  $^1H$  NMR spectrum

- a - 7.3 ppm (5H, m)
- b - 3.8 ppm (2H, t)
- c - 2.8 ppm (2H, t)
- d - 2.0 ppm (1H, broad s)

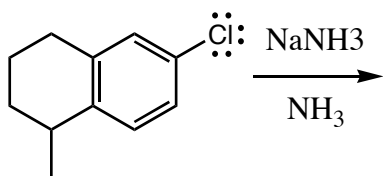
c) molecular formula  $C_8H_9NO_2$  and the following  $^1H$  NMR spectrum.

- a - 7.7 ppm (2H, d)
- b - 7.2 ppm (2H, d)
- c - 2.3 ppm (2H, q)
- d - 1.5 ppm (3H, t)

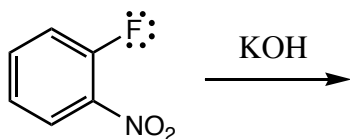
8. How would the  $^{13}C$  NMR of each of the following compounds be different?



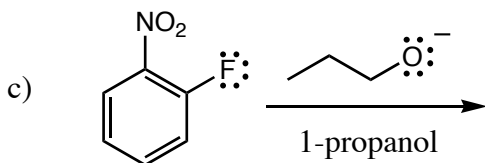
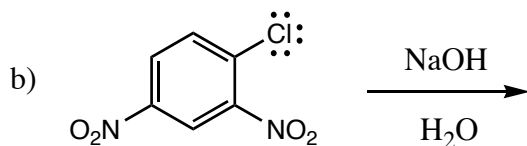
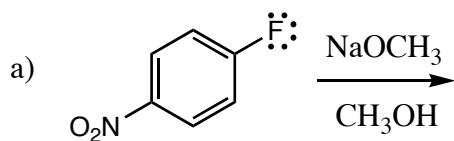
9. The following reaction has three different products. Show how each could be made from a benzyne intermediate.

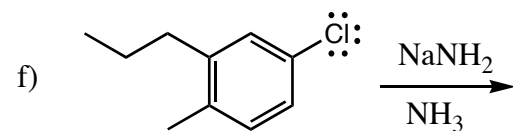
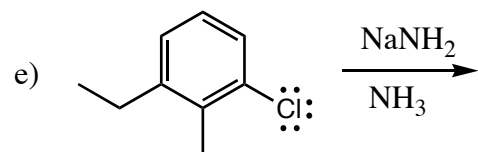
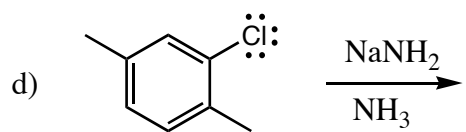


10. Show the mechanism of the following reaction.



11. Give the products of the following reactions.





12. Explain why the following reactions do not give the product shown.

