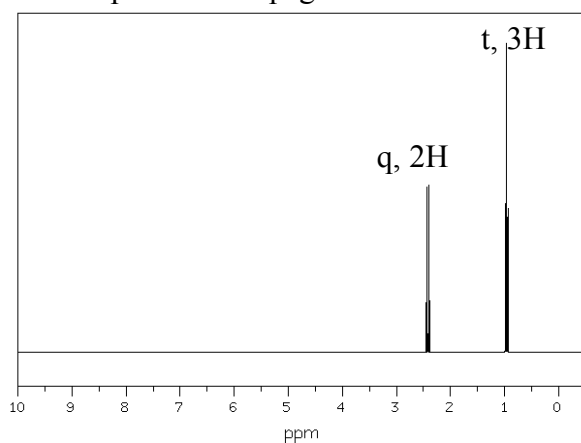


Chem 2061 Fall 2005  
Chapter 13 assignment  
Due Friday, Nov 4

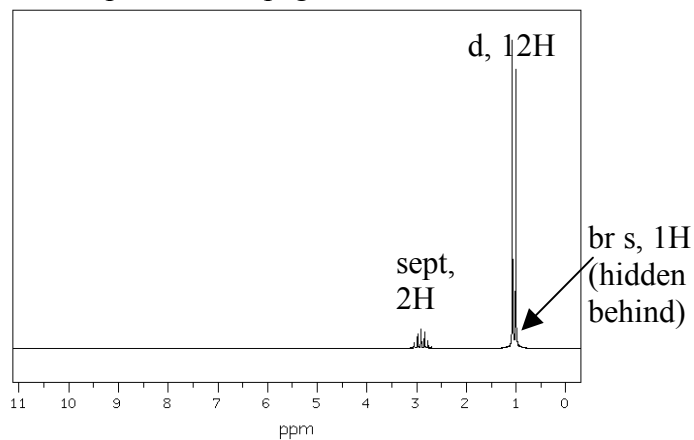
Answer the following questions on a separate sheet of paper.

1. You should have found that the compounds from the last assignment were amines, one tertiary, and one secondary, with the same formula,  $C_6H_{15}N$ . Use the following NMR spectra to positively assign their identities. Draw the structures and identify the inequivalent protons with letters. Then make a table containing the proton letter, chemical shift, number of hydrogens, and multiplicity.

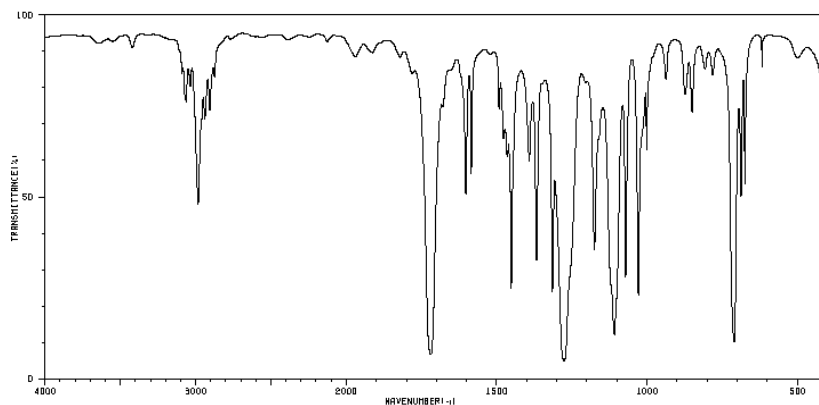
The compound from page 1:



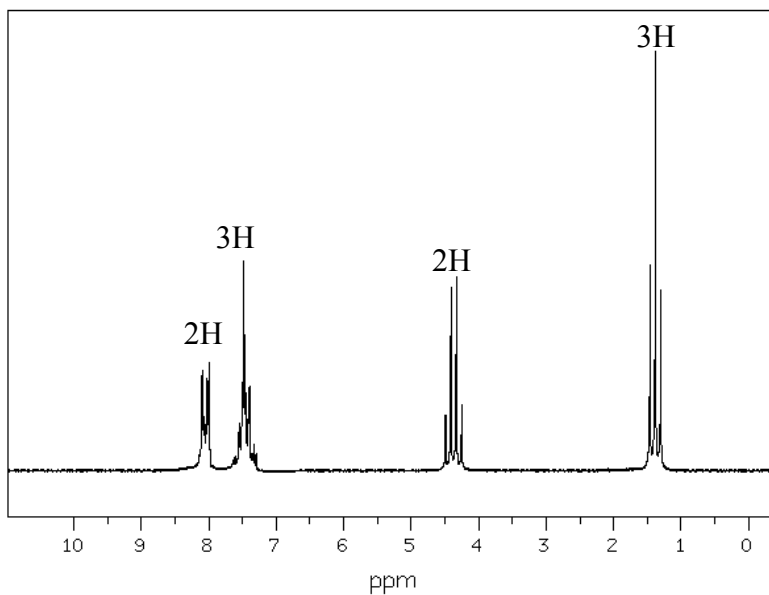
The compound from page 2:



2. Use the following spectra to identify an unknown compound, and construct a table for the NMR resonances like in question 1. Its formula is  $C_9H_{10}O_2$ .



Note the carbonyl stretch around  $1710\text{ cm}^{-1}$ . What type of carbonyl is this usually associated with?



Does the NMR spectrum agree with your prediction of the type of carbonyl? The correct structure must account for the frequency of the carbonyl absorption *and* the NMR resonance with chemical shift 4.3 ppm. Explain your reasoning.