

Name: _____

Lab Section: _____

1. Draw the structure of the compound in the box below that you identified by interpretation of the IR, NMR and mass spectra provided to you that corresponds to your unknown. Fill in the table with the appropriate physical data for this compound. Include the source(s) used to acquire this information. (20 points)

<i>Compound Name</i>	
<i>Unknown #</i>	
<i>Molecular Formula</i>	
<i>Molecular Weight</i>	
<i>Boiling Point</i>	
<i>Melting Point</i>	
<i>Source(s)</i>	

2. Fill in the table below with the data collected during analysis and interpretation of the IR spectrum of your unknown. (15 points)

Peak #	Absorbance Range (cm ⁻¹)	Intensity	Bond Type and Functional Group

3. Fill in the table below with the data collected during analysis and interpretation of the mass spectrum of your unknown. (15 points)

	m/z	Relative abundance (%)	Halogen present? <i>(If yes, indicate Cl or Br)</i>
M⁺ <i>(parent peak)</i>			
M⁺+2			

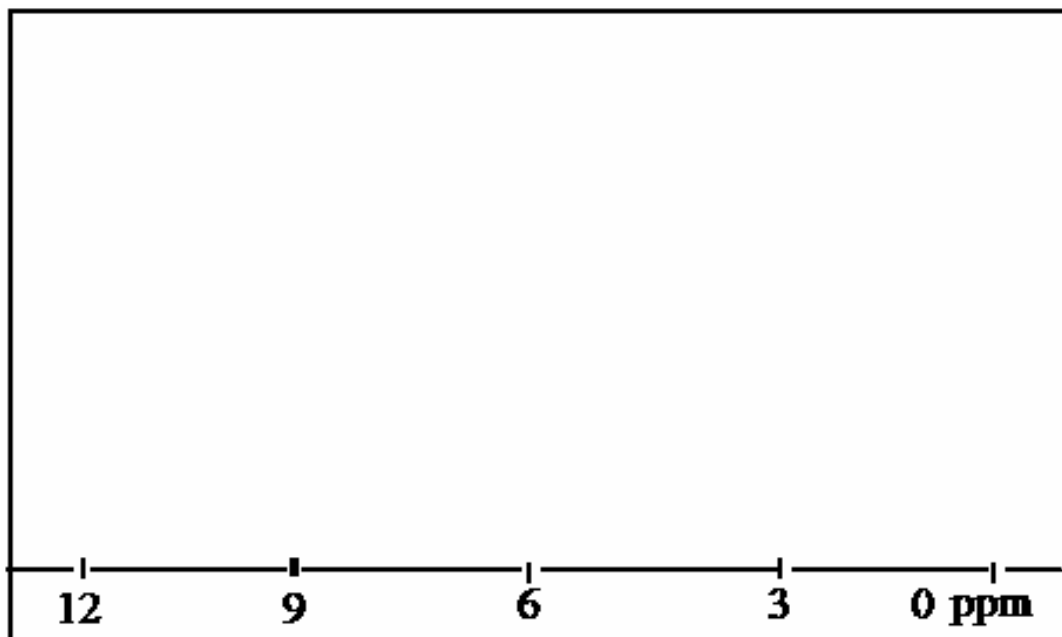
4. Fill in the table below with the data collected during crude analysis and interpretation of the NMR spectrum of your unknown. (15 points)

Peak #	Chemical Shift	Multiplicity	Proton Type

5. Draw the structure of one *other* compound from the master unknown list with the same molecular weight as the compound you identified in question 1 as your unknown (Use the box below). Show all hydrogen atoms in the structure. Group and label the hydrogen atoms in the structure (i.e., H_a, H_b etc...). Fill in the table with each hydrogen type labeled in the structure, its predicted chemical shift and its predicted multiplicity. Sketch a predicted spectrum of the compound from the data in the table. Use the spectrum template provided (next page) to sketch your spectrum. (25 points)

Hydrogen Type	Chemical Shift	Multiplicity





You will receive 10 points on this assignment for attendance and participation in the spectroscopy workshop