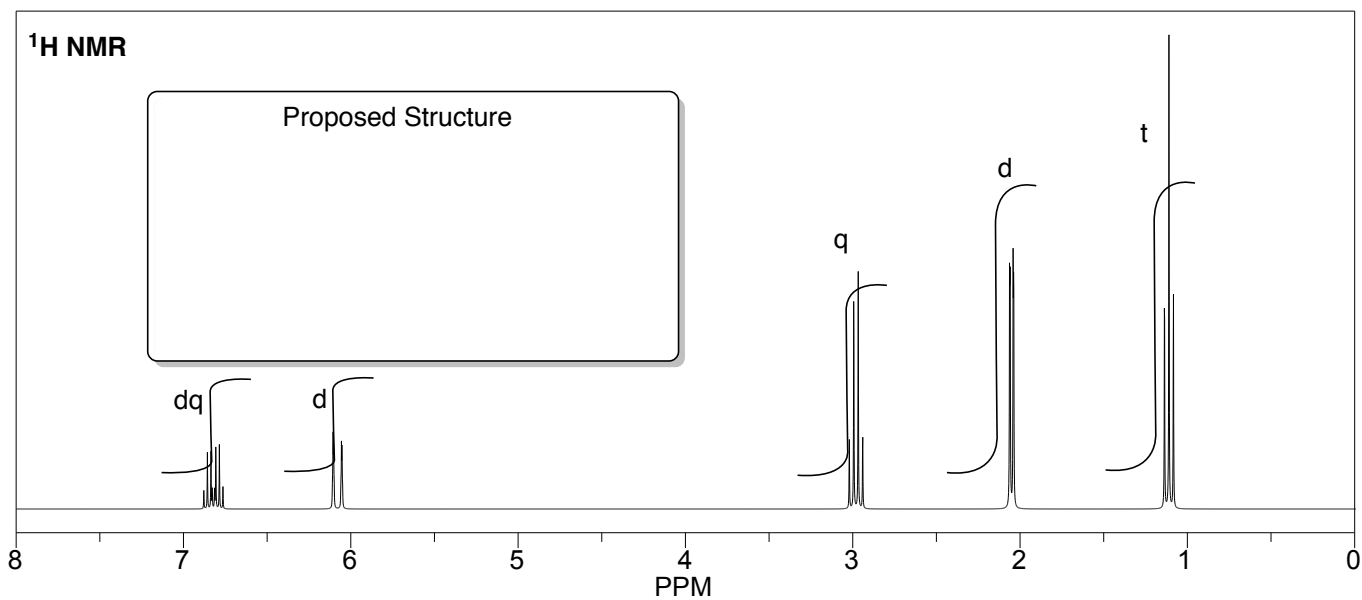
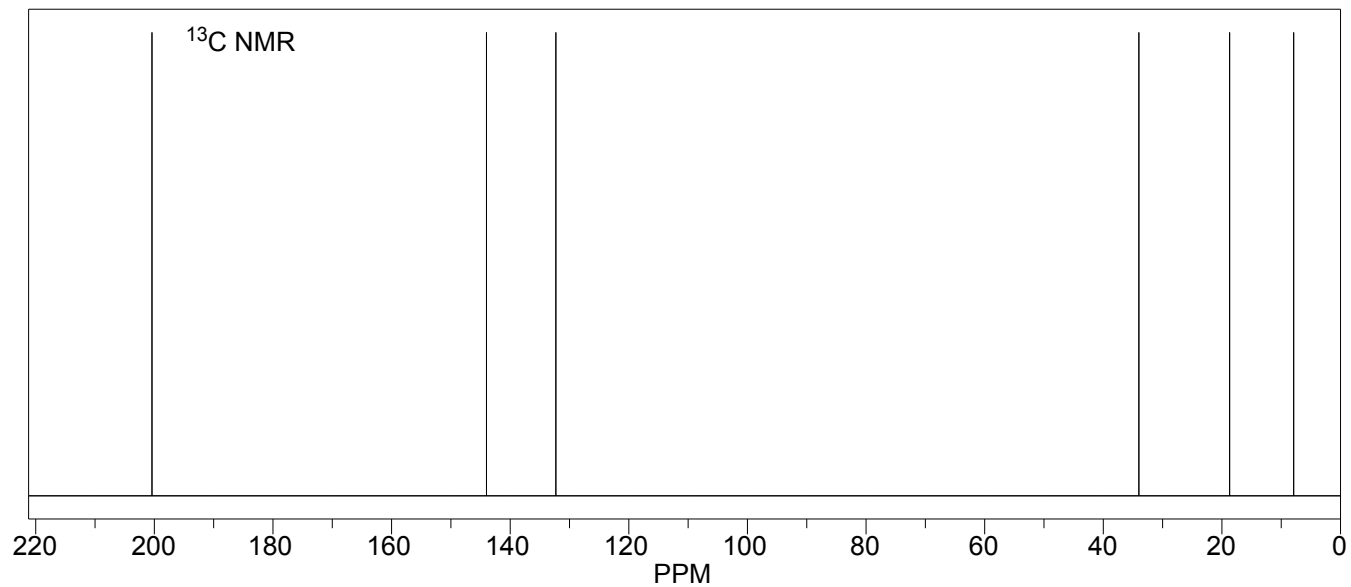
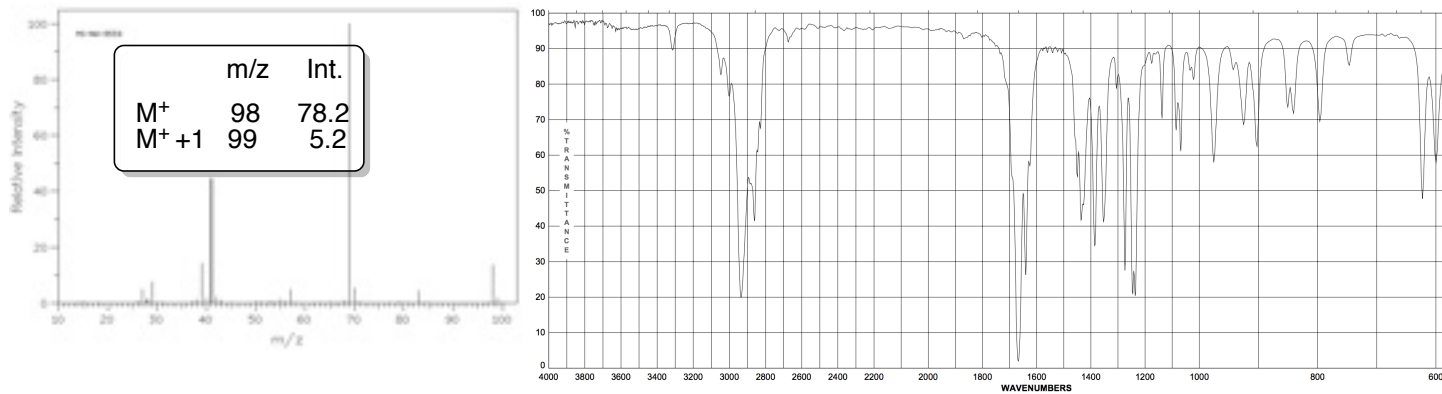


(xx pts) Using the following spectral data, propose a structure. Show your work for partial credit.



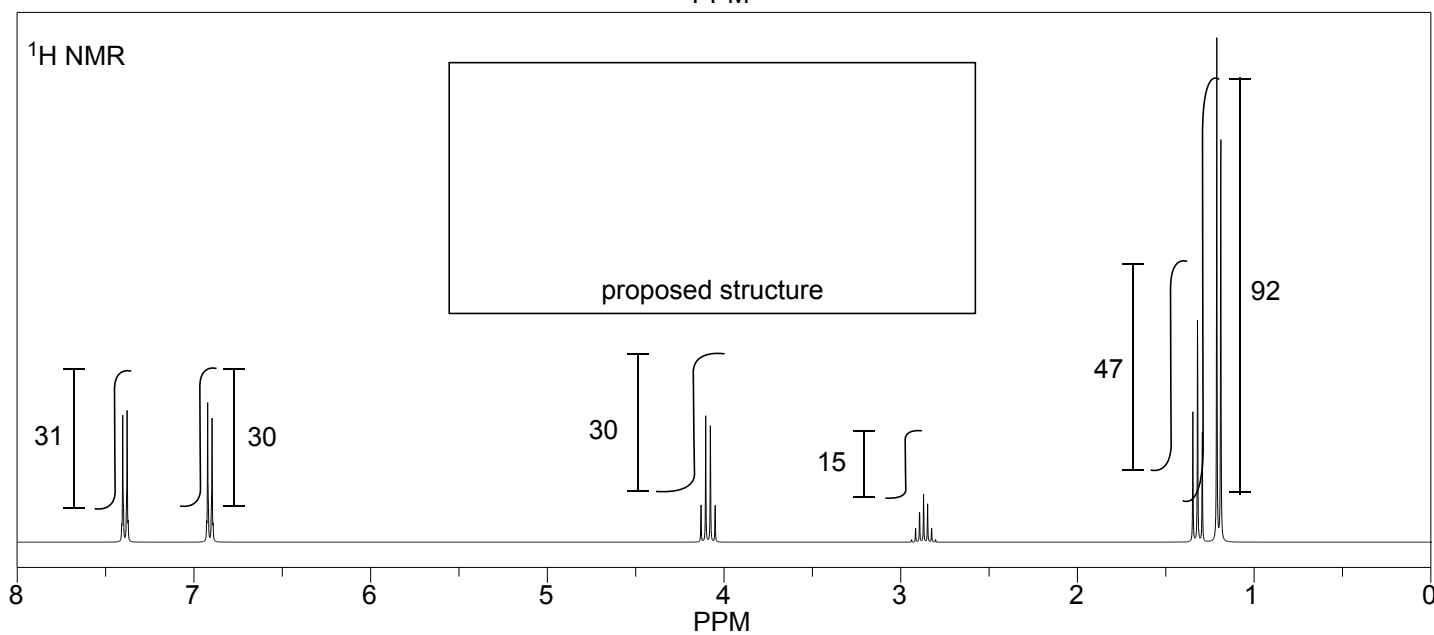
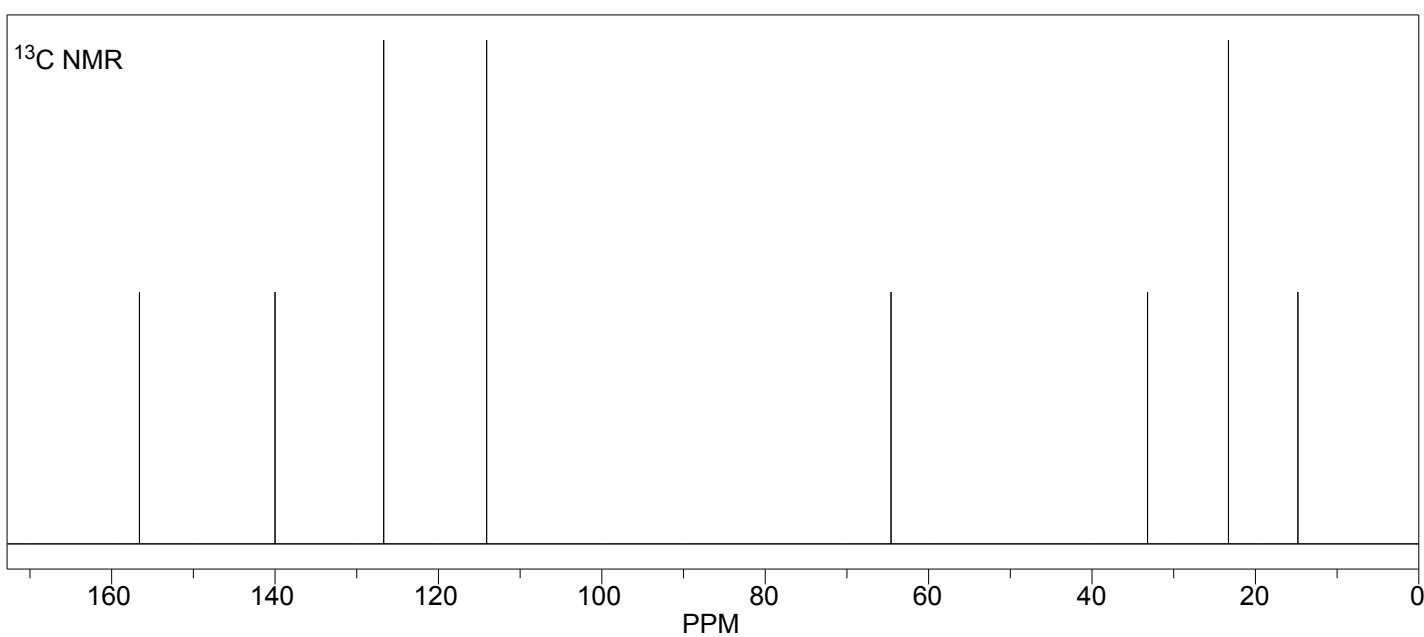
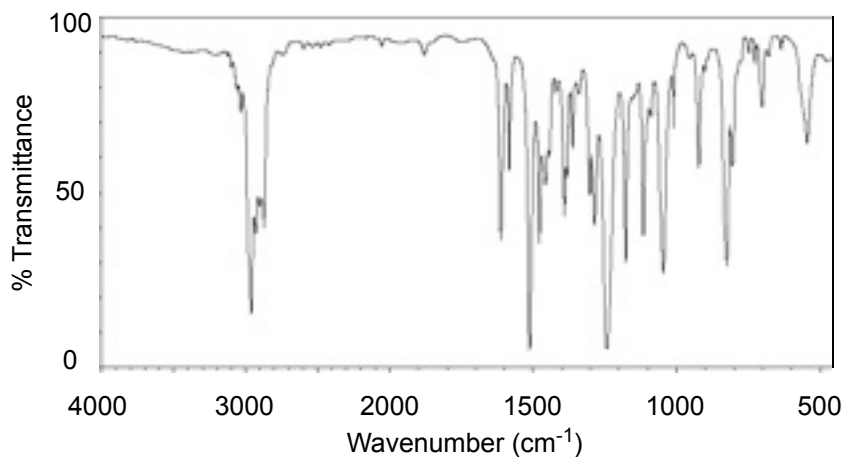
(xx pts) Provide a structure for the unknown compound using the spectral data provided below. Show your molecular formula (MF) and degrees of unsaturation (or DoU) where indicated.

Mass Spectral Data for Unknown:

$M^+ = 164.12 \text{ m/z}$  (40.4%)  
 $M^+ + 1 = 165.12 \text{ m/z}$  (4.9%)  
 $M^+ + 2 = 166.12 \text{ m/z}$  (0.08%)  
base peak = 149.0 (100%)

MF =

DoU = 4



(xx pts) Provide a structure for **unknown compound** for the spectral data provided below. To receive partial credit, you must be sure to assign/label all the NMR spectra and assign the **major IR bands**. Be sure to show your molecular formula (**MF**) and degrees of unsaturation (**DoU**) where indicated.

MF =

DoU =

Mass Spectral Data for **the unknown**:

$M^+$  = 150.10 m/z (19.9%)

$M^+ + 1$  = 151.10 m/z (2.2%)

base peak = 121.0 m/z (100%)

