1. Match the following three compounds to their $^{13}$C NMR spectrum.

- o-dichlorobenzene: A. δ 127, 129, 131, 135 ppm
- m-dichlorobenzene: B. δ 128, 131, 133 ppm
- p-dichlorobenzene: C. δ 117, 159 ppm

2. Assign a constitutional isomer of C$_6$H$_4$O$_2$ to each $^{13}$C NMR spectrum.
   a. δ 14, 23, 35 ppm
   b. δ 11.7, 22, 31, 32 ppm
   c. δ 28, 32 ppm

3. A and B, isomers of C$_6$H$_5$Cl, have two and four peaks, respectively, in their $^{13}$C NMR spectra. Draw the structures of A and B.

4. An unknown compound (C$_6$H$_6$O) has a strong absorbance in its IR spectrum at 1745 cm$^{-1}$. Its $^{13}$C NMR spectrum has absorbances at δ 23, 38 and 220 ppm. Give the structure of the unknown compound.

5. The following page gives proton NMR spectra for three isomers of C$_6$H$_5$Br. Determine the structure that gave rise to each spectrum.