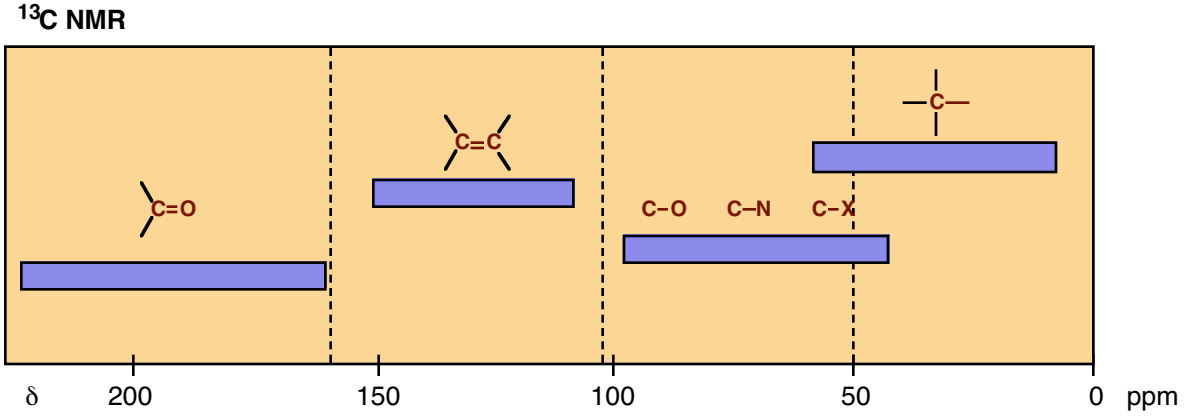
These notes can be obtained at: http://www.ndsu.nodak.edu/instruct/grcook/chem342/notes.shtml

Chapter 13: Nuclear Magnetic Resonance Spectroscopy

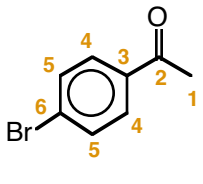
^{13}C NMR Spectroscopy

Gives the number of chemically different carbons in the molecule.

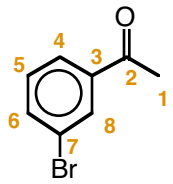
Most carbons show resonances in the range of 0 to 220 ppm. There are four regions which one can find different kind of carbons.



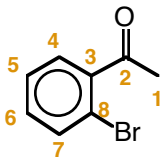
Carbons which are related by symmetry are chemically equivalent and show up as one peak.



symmetrical
6 peaks



not symmetrical
8 peaks



not symmetrical
8 peaks

A DEPT spectra (Distortionless Enhancement by Polarization Transfer) can tell you how many different H's are attached to each carbon. Three spectra are displayed. One shows all the different carbons in the molecule, one shows only the carbons with ONE hydrogen attached. The third shows all carbons with an odd number of H's attached as a positive peak (CH and CH_3) and carbons with an even number (CH_2) as a negative peak.