CHEM106: Assignment 13

NMR Spectra

1. Which of the following nuclei would not be NMR active?
2. 15N
3. 1H
4. 16O
5. 13C

2. How many nuclear spin states are allowed for the 1H nucleus?

3. Give two reasons why 13C NMR is less sensitive than 1H NMR.

4. What is the value of the chemical shift δ for an absorption at 1200 Hz from tetramethylsilane (TMS) using an NMR spectrometer with an operating frequency of 300 MHz?

5. Arrange the following compounds in order of decreasing chemical shift for the hydrogens highlighted in boldface (largest δ value first, smallest value last).

* 1. CH3CH2C**H**3
  2. CH3OC**H**2CH3
  3. Cl2CHC**H**2CH3
  4. ClCH2C**H**2CH3

6. Which proton(s) of the compound below would appear as a triplet in the 1H NMR spectrum?

CH3CH2CH2-O-CH(CH3)2