CH-314 Structural Analysis
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Jigsaw 2D

1. [Hore Section 2.2] Determine how many distinct chemical shifts would you expect to find in the ^{13}C spectra of the following isomers of $C_4H_{10}O$. *See also: Jigsaws 2A.1, 2B.3, 2C.2, and 2E.1.*

    a. Butan-1-ol

    b. Butan-2-ol

    c. 2-methylpropan-1-ol

    d. 2-methylpropan-2-ol

2. * [Week 2 Slides 42-43] A sample is instantaneously plunged into a spectrometer (i.e., the spins are randomly oriented at t = 0). After a period τ, a 90° pulse is applied along the y-axis and the signal is measured. For this sample, T_1 = 1.2 s. What percentage of the maximum signal (M_x) is along the x-axis for each of the following τ lengths?

    a. 0 s

    b. 1.2 s

    c. 6 s

    d. 60 s

    e. Plot the intensity of the signal along z as a function of time from 0-60 s.

3. [Hore Section 2.4] Why do protons in aromatic rings resonate at a high chemical shift?