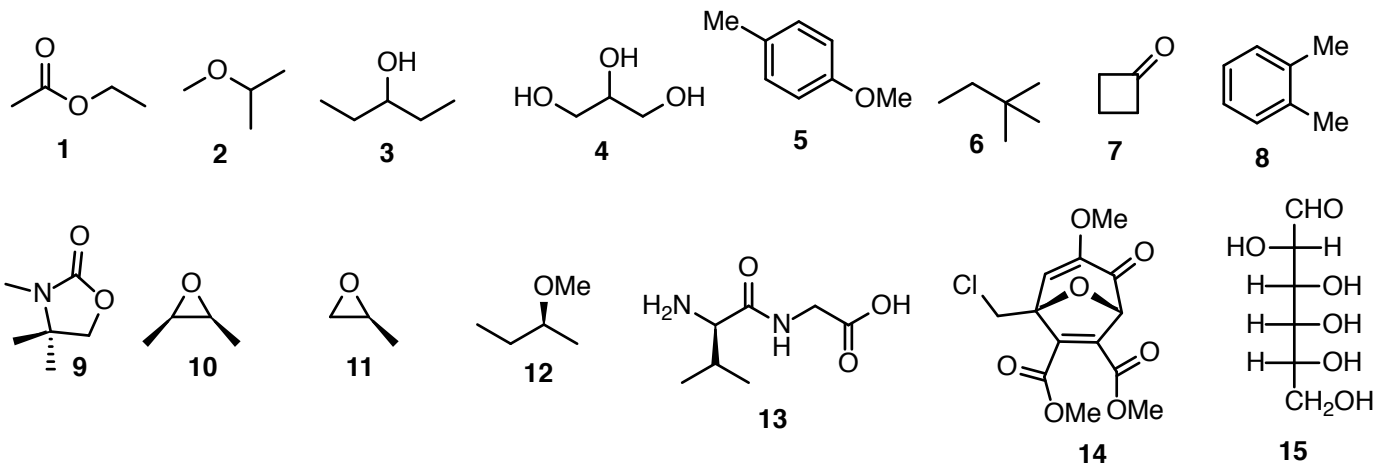


Worksheet 6: NMR Spectroscopy

Skill-Building Goals: Understand the basics of NMR and be able to interpret NMR spectra. NMR theory will be discussed to help understand the physics/chemistry behind chemical shifts and splitting, but ultimately you will be tested based on your ability to predict structures based on an ^1H NMR spectra and associated molecular formula.

1. Refer to the following molecules.



- For each of the following molecules, how many unique sets of protons exist?
- What would be the relative integration of these sets of protons?
- For each of the unique sets of protons, where roughly would you expect the chemical shift to be? Provide a rough range.
- For each of these unique sets of protons, what would you expect the splitting pattern to be?
- Try and use the above information and draw an NMR spectra that represents an approximation of what the spectra would look like.

2. Once you feel comfortable understanding what NMR look like and why they are what they are, refer to the archives on my website for NMR problems that are representative of what will be coming on the 1st exam.