Week 1 Worksheet: Spectroscopy Experiment

1. Draw the compound from the given IR and NMR spectra

![IR Spectrum Image]

![NMR Spectrum Image]

2. Match the following compound to its H NMR spectrum

![Compound Image]
3. Which of the following structures has a higher C=O vibration frequency? Explain what a vibration frequency tells you and why one molecule has a higher carbonyl vibration frequency than the other. *Hint: Draw resonance structures for each compound!*

(a) ![Resonance structure for (a)](image)

(b) ![Resonance structure for (b)](image)

Resonance structures for (a):

Resonance structures for (b)