

## 6.1: Basic Theory Concept Questions

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The questions below are also listed on the webpage that links to the Basic Theory section. These questions can be handed out in class or given as a homework assignment. Students should be able to answer these questions using the Basic Theory section of this module as an instructional resource. I would also recommend assigning the excellent web resource created by Joe Hornak, since it contains embedded animations that help clarify many difficult to understand processes in NMR. This site can be accessed at <http://www.cis.rit.edu/htbooks/nmr/>.

- What is spin?
- How does absorption of energy generate an NMR spectrum?
- Why is NMR less sensitive than UV-visible spectroscopy?
- What is chemical shift and how does it relate to resonance frequency?
- What is precession?
- How does precession produce the macroscopic magnetization ( $M_0$ )?
- How can the nuclear spins be manipulated to generate the NMR spectrum?
- What is the tip angle?
- What is a Free Induction Decay?
- How do  $T_1$  and  $T_2$  relaxation affect NMR spectra?

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