Objectives for Quiz #1

1. Understand basic safety procedures for the lab
2. Understand the main uses & aspects of melting point in organic chemistry:
    - Effect of impurities on MP
    - The importance of sample size and heating rate in accuracy of MP
    - The technique of mixed melting point
    - How to use MP to eveluate purity and to identify an unknown
3. Understand the main uses & aspects of recrystallization
    - Be able to describe what happens at the microscopic scale during recrystn.
    - Explain the value of recrystallization, why it works
    - What solubility properties indicate an ideal solvent?
    - What is oil formation? [When the solute comes out of solution as an impure oil, usually when the oil MP is below the temp at which solute comes out]
    - How to perform a vacuum filtration
    - Explain terms such as solute, filtrate, boiling chip, Buchner funnel, washing (on the filter), aspirator
4. Understand the main uses & aspects of distillation
    - Draw or describe the standard apparatus for simple & fractional distillation
    - Describe what happens to a sample as it is distilled
    - Explain the difference between simple & fractional distillation, and when each type of distillation is used
    - Understand why the thermometer reads the temperatures it does (e.g. why it may be 30 ^{o}C while the sample is boiling)
    - Explain terms such as stillhead, condensate ring (or liquid ring), column packing, condenser, distillate, still bottoms
5. Understand the main uses & aspects of gas chromatography
    - Understand retention time, and its use in relating peaks to particular substances
    - Understand peak area and its use in determining what % of a particular substance is present in a mixture
    - Describe the basic design of a GC, and how you inject onto a GC
6. Understand the basic principles of NMR spectroscopy, as well as the following aspects: chemical shift (^{1}H & ^{13}C), equivalence (^{1}H & ^{13}C) and integration (^{1}H only).

You will not be expected to memorize "trivia," for example amounts of substances used, boiling points etc. However, you should be able to outline any of the procedures from experiments 1-4.