

## Organic Chemistry Laboratory

Lab Quiz #1

NAME \_\_\_\_\_

1. Draw a standard setup for fractional distillation. Explain what the *distillate* is.

2. A substance X is heated in a MelTemp, and at 95 °C it begins to soften. At 98 °C the first drop of liquid appears, and the sample completely melts by 104 °C.

(a) How would you normally report the melting point of this substance (give numbers)?

(b) Do you think the sample is pure? Explain your answer.

3. A substance Y is found to have the following solubility characteristics:

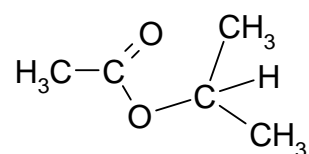
Solvent	Water	Ethanol	Toluene	Pet. ether
Solubility of Y (cold solvent)	Insoluble	Partly soluble	Insoluble	Insoluble
Solubility of Y (hot solvent)	Insoluble	Soluble	Soluble	Insoluble

(a) Which is the best solvent for recrystallization? Explain your answer.

(b) When your selected solvent is used, crystals do not form upon cooling the sample. How might you get crystals to form?

4. A substance Z is found to have a melting point of 132-133 °C, which is the same melting point as both urea and cinnamic acid. Given samples of pure urea and cinnamic acid, how could you tell (using M.P.) if Z was one of these two compounds?

5. The following refers to an NMR analysis. In the structure:



(a) How many types of hydrogen are present?

(b) How many types of carbon are present?

(c) What would be the integration ratio of the hydrogens in this molecule