1) What is liquid-liquid extraction?

2) What criteria must be met for liquid-liquid extraction to be successful?

3) Why is this method useful for isolating natural products?

4) What is a distribution coefficient?

5) Why are multiple small extractions preferred over a single extraction using a larger

quantity of solvent?

6) What is a drying agent and why is it needed after an extraction?

7) What is sublimation and under what circumstances can if be used for purification?

8) What is a derivative and what is the value of preparing one?

9) What is the main component of tea leaves?

10) What are the components of tea solution besides water?

11) What component is responsible for the brown color of tea?

12) What is the density of methylene chloride compared to that of water?

13) Which substances in tea are most soluble in methylene chloride?

14) What happens if sodium bicarbonate is added to these components?

15) What was the purpose of the sodium carbonate?

16) Why did the crude caffeine have a green tinge?

17) Why was the sublimation performed under a vacuum?

18) What type of reaction took place to form the derivative?

19) Draw the reaction that took place to form the derivative

20) Create a separation scheme for the isolation of caffeine from tea bags

(This is not the same thing as the procedure. It is similar to a dichotomous flow chart.

You may hand write/draw the separation scheme)

21) Show calculations for % weight recovery of crude caffeine from your starting weight

of tea leaves

22) Create a table showing melting points and appearance/color of:

* Crude caffeine
* Sublimated caffeine
* Commercial caffeine
* Prepared derivative
* Expected melting point of derivative (you aren’t expected to know this appearance)