

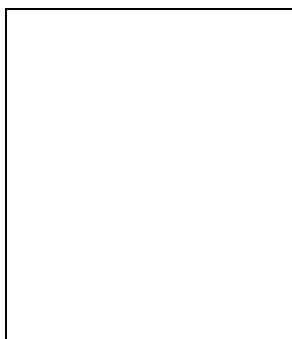
Chem 1014  
In-Class Problem Set #4  
Week of September 20, 1999  
Fall 1999

Name \_\_\_\_\_

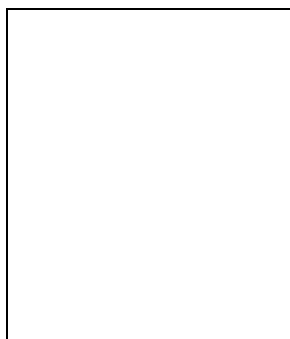
TA Name \_\_\_\_\_

Lab Section # \_\_\_\_\_

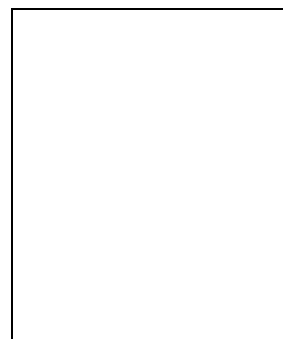
1. In each box below draw the atomic level diagram of the system as described below the box.



A gaseous solution  
of an element and a  
compound.



Liquid nitrogen.



A solid compound.

2. Would you expect the black ink in a 'felt' type pen to be a pure substance?  
Briefly describe an experiment to support your answer.

3. In a container of a gas with a fixed volume no gas can escape or enter the container. If the gas in the container is cooled to a low enough temperature it condenses and forms a liquid. Briefly, explain what is happening as the gas is cooled, and why condensation occurs.

4. Give an example of a homogeneous mixture and a heterogeneous mixture. Describe the difference between a homogeneous mixture and a heterogeneous mixture.