CH 222 Chapter Ten Study Guide

- Be able to explain the Kinetic Molecular Theory (KMT) when describing the differences between solids, liquids and gases.

- Know the different intermolecular forces (dipole-dipole, induced dipole-induced dipole, etc.) in liquids and solids. Know their relative magnitudes - which one is strongest, which is weakest, etc.

- Be able to describe the major intermolecular forces acting upon a molecule or atom or a group of molecules or atoms.

- Know the requirements for hydrogen bonding - a hydrogen atom bonded to oxygen, nitrogen or fluorine.

- Be able to explain the process of evaporation and condensation of a liquid or its vapor.

- Be able to use the enthalpy of vaporization in calculations.

- Define and use the concept of the equilibrium vapor pressure of a liquid and its relation to the boiling point of a liquid. Know what is meant by normal boiling point.

- Know how to utilize the following concepts: cohesive forces, adhesive forces, surface tension, and viscosity.

- Be able to characterize different types of solids: metallic, ionic, molecular, network and amorphous.

- Be able to describe the three types of cubic units cells: simple cubic (or primitive), body centered cubic and face-centered cubic. Metals can utilize all three, but only the sc and fcc arrangements can occur for ionic compounds.

- Be comfortable with deriving the formula of an ionic compound from its unit cell. Know how many net atoms can exist in a given cubic cell.

- Be able to define the enthalpy of fusion and be able to use this in a calculation.

- Be able to identify the different points and regions of a phase diagram.

- Be able to solve and understand the assigned problems in problem set #4 & #5.