Lesson 34: Solids I

text: 792-809

what to know:
- difference between crystalline and amorphous solids, p-792
- how the structure of condensed phases are studied, §20-1
- symmetry in crystals, §20-2
- crystal systems, crystal lattice, unit cells, primitive cells, nonprimitive cells, face-centered, body-centered and side-centered cells, §20-2

questions:
Questions 9, 11, 19 on page 825 in the text

Lesson 35: Solids II

text: 809-823

handout: Types of solids (20), Properties and types of solids (21)

what to know:
- the types of solids and their characteristic physical properties, §20-3, sup-20 & 21
- effect of defects in solids, §20-4
- liquid crystals & displays, §20-5, p-823

questions:
1. Which of the following statements are true?
   a. Molecular substances have relatively high melting points.
   b. Network covalent solids tend to be soluble in water as well as in nonpolar solvents.
   c. Ionic solids are good conductors of electricity.
   d. NaCl(s) is a better conductor of electricity than silver metal because it is more polar.
   e. The "electron-sea" model is used to explain the electrical conductivity of network covalent solids.

2. Classify the following substances as nonpolar molecular, polar molecular, network covalent, ionic, metallic or amorphous solids. CaCO₃, SiO₂, KNO₃, H₂O(ice), Ca, CO₂, I₂, glass, diamond

3. Classify the following substances:
   a. A solid is hard, brittle and electrically nonconducting. Its melt (the liquid form of the substance) and an aqueous solution containing the substance do conduct electricity.
   b. A solid is soft and has a low melting point. The solid, its melt and an aqueous solution containing the substance are all nonconductors of electricity.
   c. A solid is very hard and has a high melting point. Neither the solid or its melt conducts electricity.

4. Questions 29, 31, 33 on page 826 of the text.