Due 5_3

OK—I've seen the test. This homework will try to fill in some gaps I found.

1) Make sure you understand magnetic domains. The questions on the test are easy if you understand domains.
2) READ the chapters, especially 23.
3) To teach you this next concept,
   A) Please read p. 648. (We've gone over this.)
   B) Look at the diagram on p. 767. Describe the strength of the magnetic field around the magnets. (Where is it strong; where is it weak, etc).
4) Look at the diagram of the earth's magnetic field on p. 768.
   A) Where is the magnetic strength of the earth's magnetic field the strongest?
   B) Where is it parallel to the earth?
5) Make sure you know these equations: $F = qvB$ and $F = BI\ell$.
6) Know the ways to induce current on p. 796.
7) Read p.814 and 815 well.
8) Q 9 p. 821

9) Q 11 on p. 821

10) What frequency of light has an energy of 4.2 eV?

11) An atom's electrons have a work function of 2.2 eV.
   A) How much energy is necessary to remove an electron with a photon of light?

   B) What frequency of light will accomplish this?

   C) What would be the kinetic energy of the removed electron after this frequency light is absorbed?

   D) If 2 photons of 1.2 eV each are shined into the material, how much energy is absorbed?

   E) Will an electron be expelled from the material?

   F) Why or why not?

   G) If light photon of 3.5 eV is shined on the material, will electrons escape?

   H) Why or why not?

   I) How much kinetic energy will the ejected electron have?

   J) If the intensity of the light increases, what happens?

   K) The above removing of electrons is known as the: _____ _____.

12) What did Rutherford's experiment prove?

13) How?

14) What does the Compton effect prove about light?

15) After a photon strikes an electron, what happens to the photon? (Be specific.)

16) Describe J.J. Thomson's model of the atom.

17) Describe Bohr's model of the electron.

18) What is the difference between absorption spectrum and emission spectrum? (Again, be specific.)

19) What is Heisenberg's uncertainty principle?

20) Describe the quantum mechanical model of the atom.

21) Q 40 p. 857