Atoms, Molecules and Reactions (Fall 2011)

Quantum Mechanics Homework – Week 1

Due on Wednesday of Week 1

Please use separate sheets to answer these questions. Please staple your answer sheets and add a cover page. On the cover page please write your name and "Fall Quarter, Week 1, Quantum Mechanics Homework".

Please cite your sources using the MLA style.

1. Using any source, write short answers to the following questions in your own words. Be sure to indicate if each of the following describes the wave nature or the particle nature of light. Draw diagrams where necessary.
    - Young's double slit experiment
    - interference of light
    - diffraction of light
    - photoelectric effect
    - Compton effect
    - work function

2. Describe the plum pudding model of the atom. When was this work done and who did this work?
3. Describe the Rutherford model of the atom and the experiment that led to it. When was this work done?
4. Draw a diagram of the Bohr model of the hydrogen atom showing the four lowest energy levels. Next to it draw the corresponding ladder-type energy diagram with the 4 lowest energy levels. Add labels where needed.
5. State the Bohr postulates of the structure of the atom. When was this work done?