Post-Lecture #1: Introductions and Review of Rad. Physics

1. You apply 100 Volts to a circuit and measure 20 Amperes of current. What is the resistance of the circuit in Ohms?

2. Describe the two methods by which something (such as an electron) can accelerate. What awesome event occurs when an electron accelerates (or any charged particle)? Hint: a vector has two components, and acceleration is a vector!

3. An unknown particle is accelerated in a 150 V electric potential. After acceleration, it deposited 100% of its kinetic energy into a detector, which was measured to be 300 eV. What was the charge of the particle in Coulombs (answer in scientific notation to the first decimal place)?
Notice any connections here?

4. How does the wavelength of light relate to its frequency? How does the wavelength relate to its energy?

5. A therapist approaches you for help with their X-ray detector idea. Their device can measure the energy of an X-ray, but they cannot figure out how to determine the frequency of the X-ray. Write with words (in detail) what needs to be done to determine the X-ray frequency. Then, manipulate the equations you have learned to show that your stated process is correct. State what questions you might find pertinent to ask the therapist, if any.