Chem 130: Chemistry for Funeral Services
Problem Set 3: Due 2/7/06

Name: _____ Date: _____

Each question is worth one point, unless otherwise noted. Show your work, including sketches, wherever calculations are required. Short answer questions should be written in your own words.

1. How is an isotope different than an atom? Can an element have more than one isotope? Why or why not.

2. Write the symbol notation for the hydrogen, deuterium and tritium. Draw a sketch of the nucleus of each isotope.

3. (2 points) Describe the important characteristics of alpha, beta and gamma particles. How good is each one at penetrating materials? Based on that, which one is potentially the most dangerous?

4. Gold-198 undergoes beta decay by emitting a beta particle. Write the complete equation for this nuclear transmutation using proper atomic symbolism. What element is produced?

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5. (2 points) Time, distance and shielding are the primary safety precautions for any interaction with radioactive nuclear material. Explain why each one is important. Give an embalming example of when each one is used.

6. (2 points) There are four common ways of measuring the effect of radiation: exposure, absorbed dose, does equivalent and activity. In your own words, explain each one. Which ones do you need to pay attention to as an embalmer? Explain.