+ WS 6.8 Review

Determine the missing particle, and *label the following* as ec, natural decay, induced, fission, or fusion.

1. $^{243}_{97}Bk + {}^{1}_{1}p \rightarrow {}^{96}_{40}Zr + {}^{50}_{22}Ti +$ ☐ _____

2. ☐ $+ {}^{0}_{-1}e \rightarrow {}^{26}_{14}Si$ _____

3. $^{108}Ag + {}^{1}_{0}n \rightarrow$ ☐ $+ {}^{109}Ru$ _____ (hint: look-up atomic #'s)

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4. A francium-224 atom gets hit by a deutron (must have been a drive-by).
   What type of reaction is it? _____What isotope is produced? _____

5. A Pa-235 undergoes a series of alpha and/or beta decays to eventually become a Fr-227.
   How many alpha decays? _____ beta decays? _____

6. Zn-65 has a half-life of 244 days. What percent will decay in 1year?

7. If a newly cut piece of wood gives a C-14 Geiger tube reading of 150 cpm, and a wooden artifact gives reading of 65 cpm, how old is the artifact?

8. Explain 2 reasons why C-14 dating cannot be used to date the age of your pet cat.
   ("I don't have a pet cat" is not an acceptable answer)

9. Burns to the skin is an example of [acute / chronic / genetic] damage by radiation.

10. Calculate the energy change (per mole) for the following... Use the table on WS 6.7...

$$^{59}_{27}Co + {}^{1}_{1}p \rightarrow {}^{58}_{28}Ni + \mathbf{2}\ {}^{1}_{0}n$$

Ans (IRO+ 3): Fe-56 P-26 Kr-98 Ra-226 fission induced induced ec 37.1 64.5 6930 1.04 E 12