Chemistry 115 Name

Dr. Cary Willard

Quiz 8a (20 points) May 8, 2013

1. (3 points)Write the symbol for an alpha particle, a beta particle, and a gamma ray. Be sure to include both the atomic number and the mass number.

Alpha particle $$

Beta particle $ or $

Gamma ray $$

1. (3 points) Write the nuclear equation for the alpha decay of $$

$$\rightarrow $$

1. (3 points) Write the nuclear equation for the beta decay of$$

$$$$

1. (4 points) Complete and balance the nuclear equation below by supplying the missing particle(s):

$$\rightarrow $$

1. (4 points) Strontium-90 has a half life of 28 years. If a sample was tested in 2013 and found to have a mass of 480 mg, in what year would the same sample have a mass of 30 mg?

$$480 mg\overset{1}{\overbrace{\rightarrow }}240 mg\overset{2}{\overbrace{\rightarrow }}120 mg\overset{3}{\overbrace{\rightarrow }}60 mg\overset{4}{\overbrace{\rightarrow }}30 mg$$

The sample would require 4 half lives or 112 years. This means the sample would decay to 30 mg in 2125.

1. (3 points) Clearly distinguish between fusion and fission?

Fusion is the process where two nuclei are slammed into each other to make a new particle and fission is the process where a single nucleus is allowed to break apart into two or more smaller particles.

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Quiz 8b (20 points) May 8, 2013

1. (3 points)Write the symbol for an alpha particle, a beta particle, and a gamma ray. Be sure to include both the atomic number and the mass number.

Alpha particle $$

Beta particle $ or $

Gamma ray $$

1. (3 points) Write the nuclear equation for the alpha decay of $$

$$\rightarrow $$

1. (3 points) Write the nuclear equation for the beta decay of $$

$$$$

1. (4 points) Complete and balance the nuclear equation below by supplying the missing particle(s):

$$\rightarrow $$

1. (4 points) Strontium-90 has a half life of 28 years. If a sample was tested in 2013 and found to have a mass of 240 mg, in what year would the same sample have a mass of 30 mg?

$$240 mg\overset{1}{\overbrace{\rightarrow }}120 mg\overset{2}{\overbrace{\rightarrow }}60 mg\overset{3}{\overbrace{\rightarrow }}30 mg$$

The sample would require 3 half lives or 84 years. This means the sample would decay to 30 mg in 2097.

1. (3 points) Clearly distinguish between fusion and fission?

Fusion is the process where two nuclei are slammed into each other to make a new particle and fission is the process where a single nucleus is allowed to break apart into two or more smaller particles.