**CHEM 102 Recitation Ch 20 Name**

**Q1**. What nuclide is necessary to balance the following fission reaction?

U + n **→** 3 n + Ba + \_\_\_\_\_\_

A) Br B) Kr C) Rb D)Kr E) Sr

**Q2**. As a result of *β* decay, the produced nucleus is:

A) one atomic number lower than the original element.

B) one atomic number higher than the original element.

C) two atomic numbers higher than the original element.

D) two atomic numbers lower than the original element.

**Q3.** The first three steps in the thorium-232 () decay series (in order) are alpha, beta and beta emissions. What is the element that is produced after these three steps?

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| A) B)  C)  D) |

**Q4.** Cesium-134 is a β emitter with a half-life of 2.0 years. How much of a 2.50-g sample of cesium-134 will remain after 10 years? [0.078 g]

**Q5.** If 12% of a certain radioisotope decays in 5.2 years, what is the half-life of this isotope? [28 yr]

**Q6.** Consider the decay series A → B → C → D where A, B and C are radioactive isotopes with half-lives of 4.50 seconds, 15.0 days and 1.00 seconds, respectively. The isotope D is not radioactive. Starting with only 1.00 mol of A, what is the number of moles of D after 30 days? [0.75 mol]