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Chemistry_Questions_0068

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1. **020 Chapter #030**

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?

Student Response

a. 0.0024 g

b. 0.078 g

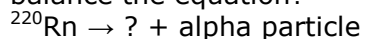
c. 0.25 g

d. 0.50 g

e. None of these choices is correct.

2. **020 Chapter #013**

In the equation below, what particle or type of radiation needs to be included to balance the equation?



Student Response

a. Ra-224

b. Rn-224

c. Rn-216

d. At-220

e. Po-216

3. **020 Chapter #001**

Alpha particles are identical to:

Student Response

- a. protons.
- b. helium atoms.
- c. hydrogen atoms.
- d. helium nuclei.
- e. electrons.

4. 020 Chapter #020

The energy equivalent of 1 amu is:

Student Response

- a. 5.0×10^{-19} J
- b. 5.4×10^{43} J
- c. 6.6×10^9 J
- d. 1.5×10^{-10} J

5. 020 Chapter #080

No alpha decay is observed for isotopes of elements with $Z < 83$.

Student Response

- a. TRUE
- b. FALSE

6. 020 Chapter #040

A sample of a radioisotope shows an activity of 999 disintegrations per minute due to beta decay. If after 1.10 years the activity is 952 disintegrations per minute, what is the half-life of this radioisotope?

Student Response

- a. 4.38×10^{-2} yr
- b. 11.4 yr
- c. 0.25 yr
- d. 15.8 yr

e. 9.1 yr

7. **020 Chapter #060**

What element is the stable end-product of the uranium radioactive decay series?

Student
Response

a. Th

b. Pu

c. Ra

d. Au

e. Pb

8. **020 Chapter #050**

Identify the missing species in the following nuclear transmutation.
 $\text{U-238} + ? \rightarrow 1 \text{ neutron} + \text{Fm-249}$

Student
Response

a. ${}_{8}^{11}\text{O}$

b. ${}_{8}^{12}\text{Li}$

c. ${}_{13}^{16}\text{Al}$

d. ${}_{8}^{12}\text{Li}$

e. ${}_{8}^{12}\text{O}$

9. **020 Chapter #070**

The dose unit of ionizing radiation is called the *rad*. The rad is defined in terms of:

Student Response

a. the half-life of a radioisotope.

b. the energy deposited per gram of an object.

c. the biological damage produced.

d. the accumulation of fission products.

e. the number of ions per centimeter.

10. 020 Chapter #010

In the equation below, what particle or type of radiation needs to be included to balance the equation? $^{208}\text{Po} \rightarrow ? + ^{208}\text{At}$

Student
Response

a. gamma

b. alpha

c. proton

d. beta

e. positron
