Chapter 10 Test Review

- What type of nuclear decay releases energy but not a particle?
- A. alpha decay
- B. beta decay
- C. gamma decay
- D. electron decay

C

- What is the process in which an unstable atomic nucleus emits charged particles or energy or both?
- A. radioactivity
- B. oxidation
- C. decomposition
- D. none of the above

A

- Which of the following statements is true?
- A. Chemical reaction rates vary with the conditions of the reaction, but nuclear decay rates do not.
- B. Nuclear decay rates vary with conditions, but chemical reaction rates do not.
- C. Both chemical reaction rates and nuclear decay rates vary with the conditions of the reaction.
- D. Neither chemical reactions rates nor nuclear decay rates vary with the conditions of the reaction.

A

- Many people work near a source of nuclear radiation. To detect the amount of exposure they have to radiation, they most likely will use a
- A. Geiger counter.
- B. film badge.
- C. radon kit.
- D. lead shield.

B

- The half-life of tritium, of hydrogen-3, is 12.32 years. After about 24.6 years, how much of a sample of tritium will remain unchanged?
- A. 1/8
- B. 1/4
- C. 1/3
- D. 1/2

B

- The half-life of a radioisotope is the amount of time it takes for
- A. half the sample to decay.
- B. all the sample to decay.
- C. the age of an artifact to be calculated.
- D. detectable radiation to be absorbed by a sample.

A

- Which of the following particles is smaller than the rest?
- A. electron
- B. proton
- C. neutron
- D. alpha particle

A

- In what state must matter exist for fusion reactions to take place?
- A. solid
- B. liquid
- C. gas
- D. plasma

D

- During nuclear fission, great amounts of energy are produced from
- A. very small amounts of mass.
- B. tremendous amounts of mass.
- C. a series of chemical reactions.
- D. particle accelerators.

A

- A rock containing a radioisotope is broken down into a powder, greatly increasing its surface area. At the same time, the temperature of the sample is lowered 25°C. The half-life of the radioisotope will _____.

Stay the same

- A sample of a radioisotope had a mass of 100.0g. After exactly 24 days, 6.25g of the sample remain unchanged. The half-life of the isotope is _____ days.

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- In nuclear reactions, _____ is converted into energy.

mass