A.1 Atomic Structure & Radioactivity

Practice Worksheet — name: _____ date: _____

FORMULAS FOR THIS TOPIC

MASS NUMBER $A = Z + N$

SECTION A — MULTIPLE CHOICE

A1. Which type of radioactive decay emits a helium nucleus?

- (A) Alpha decay
- (B) Beta decay
- (C) Gamma decay
- (D) Neutron decay

A2. Carbon-12 and Carbon-14 are isotopes. What do they have in common?

- (A) Same number of neutrons
- (B) Same number of protons
- (C) Same mass number
- (D) Same radioactive stability

SECTION B — SHORT ANSWER

B1. Define the term half-life.

B2. Compare the penetrating powers of alpha, beta, and gamma radiation.

ANSWER KEY

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Section A

A1: Alpha decay

A2: Same number of protons

Section B

B1: Half-life is the time required for half of the radioactive nuclei in a sample to decay.

B2: Alpha particles have low penetrating power and can be stopped by paper. Beta particles are stopped by thin aluminum. Gamma rays are highly penetrating and require thick lead or concrete to block.