PREP 3 · LESSONS 5–6

Radioactive decay and nuclear equations

Unstable nuclei · activity and count-rate · alpha, beta and gamma · balancing equations

SCORE / 10

Name _____ Class _____ Due _____

Do Now REMEMBER

From earlier lessons · 1 mark each

1 Name the model of the atom with electrons embedded in a positively charged sphere. [1]

2 State how an electron can move to a higher energy level. [1]

3 State the type of ion formed when an atom loses one or more electrons. [1]

Key ideas LESSONS 5–6

Show your working

4 The activity of a source is measured in | becquerels (Bq) | counts | joules (J) | [1]

5 A detector is placed near a radioactive source. Explain why it records only some of the radiation the source emits. [1]

6 An alpha particle is | two protons and two neutrons | a high-speed electron | electromagnetic radiation | [1]

7 Complete the nuclear equations. Mass numbers and atomic numbers must balance.

a Alpha decay: $^{238}_{92}\mathrm{U} \rightarrow ____ + {}^{4}_{2}\mathrm{He}$ [2]

b Beta decay: $^{14}_{6}\mathrm{C} \rightarrow ____ + {}^{0}_{-1}\mathrm{e}$ [2]

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