Beta Decay Worksheet

Scoring guide · one credit per question · review written work against each rubric

Beta Decay

Question 1

Choice (1)

One neutron changes into a proton, so total nucleons stay the same and proton count increases by one.

Question 2

The neutron becomes a proton. The nucleus loses one neutron and gains one proton, so the total number of nucleons is unchanged.

Question 3

24 = A + 0, so A = 24. The atomic-number balance is 11 = Z + (−1), giving Z = 12.

Question 4

Choice (1)

An element is identified by the proton count in its nucleus.

Identifying Daughter Nuclei

Question 5

Choice (1)

Mg has Z = 12, the daughter atomic number in P.

Question 6

The mass-number balance is 90 = 90 + 0. The atomic-number balance is 38 = 39 + (−1).

Question 7

Choice (4)

Both parent and daughter have A = 40. The proton and neutron counts change by one in opposite directions.

Question 8

In P, the nucleus changes from 11 to 12 protons, becoming magnesium. In ordinary ion formation, the nucleus retains 11 protons. Only the atom’s electron count changes.