Isotopes and Average Atomic Mass Worksheet

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

Isotopes and Average Atomic Mass

Question 1

Choice (3)

The weighted sum is (0.25)(10.0 u) + (0.75)(12.0 u) = 11.5 u.

Question 2

The weighted average must lie between 34.0 u and 36.0 u, inclusive. A mixture of those masses cannot have a mean above the larger mass.

Question 3

Choice (4)

The percentages total 100.0 percent, so the second percentage is 100.0 − 18.0 = 82.0.

Question 4

Each isotope contributes half the total atoms. The mean is (0.500)(20.0 u) + (0.500)(22.0 u) = 21.0 u.

Model Isotope Analyzer

Question 5

Choice (3)

R has the largest fraction of the heavier isotope, 70 percent.

Question 6

The mean is (0.30)(62.0 u) + (0.70)(64.0 u) = 63.4 u.

Question 7

Ninety percent of the atoms have mass 62.0 u, so the weighted mean lies closer to that mass. The mean is 62.2 u.

Question 8

Choice (2)

An average halfway between 62.0 and 64.0 u requires equal fractions of the two isotopes, as in Q.