Emission Spectra and Electron Transitions Worksheet

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

Emission Spectra and Electron Transitions

Question 1

Choice (1)

When an electron drops to a lower level, the energy difference can leave as a photon.

Question 2

The atom releases 6.0 − 2.0 = 4.0 eV as the photon.

Question 3

Their electrons have different allowed energy levels. Different gaps produce photons with different energies and wavelengths.

Question 4

Choice (2)

A longer wavelength corresponds to lower frequency and lower photon energy.

Matching a Model Line Spectrum

Question 5

Choice (2)

All three unknown lines occur at the same positions as B.

Question 6

610 nm − 480 nm = 130 nm.

Question 7

Choice (3)

The 610 nm line has the longest wavelength of the three.

Question 8

Different spectra can share a single line. Matching the entire observed pattern gives more evidence that the unknown and reference have the same allowed transitions.