Distinguishing Excitation From Ionization

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

Distinguishing Excitation From Ionization

Question 1

Choice (3)

The collector counts electrons that left atoms. The Q reading directly records six such electrons.

Question 2

P gives 14 × 3 = 42 units and Q gives 6 × 7 = 42 units. Each atom can absorb energy from only one photon, so individual 3-unit photons cannot remove an electron in P.

Question 3

An electron can return from a higher energy level to a lower one and release a photon without leaving the atom. The collector records only electrons that escape.

Question 4

The collector still gets none. Each photon has 3 units, which is below the 6-unit threshold for removing an electron. The total energy is larger but cannot combine on one atom under the stated model.