Checking Two Emission Lines With a Finer Scan

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

Checking Two Emission Lines With a Finer Scan

Question 1

Choice (1)

P emits one line at 590 nm. Q emits two equal lines 2 nm apart, so the coarse scanner averages them to 590 nm.

Question 2

R’s two lines are 10 nm apart, wider than the 3 nm merging limit. The coarse scanner displays both lines separately even though their arithmetic mean is 590 nm.

Question 3

Q gives a coarse average of 590 nm and separate lines at 589 and 591 nm on the fine scan. The coarse reading alone could also fit the single line of P.

Question 4

Q emits photons at 589 and 591 nm. The 590 nm value is the coarse scanner’s average, not an emitted line in the model.