Physical Setting/Chemistry

Three calibration cases • Official criteria with hypotheses for anonymous local work

JUNE 2026 / Q58 / 1 credit criterion

Account for transferred electrons

The guide describes an equality between the number of electrons lost by beryllium and gained by fluorine.

Test this possibility. A student may know which species loses electrons but miss the quantitative relationship.

Ask: Count electrons lost and gained for the whole reaction. How can the totals be checked?

Exam task Official scoring criterion · PDF p. 4

JUNE 2026 / Q68 / 1 credit criterion

Separate element identity from isotope mass

Both europium isotopes have 63 protons. The guide distinguishes their neutron counts.

Test this possibility. A student may interpret the mass-number change as a change in charge or element identity.

Ask: What must stay fixed for both atoms to be europium? What can change?

Exam task Official scoring criterion · PDF p. 6

JUNE 2026 / Q80 / 1 credit criterion

Explain dynamic equilibrium

The guide describes equilibrium through equal forward and reverse reaction rates.

Test this possibility. A local answer claiming equal amounts or stopped reactions suggests a question about rate versus quantity.

Ask: Can two containers have different numbers of particles while particles transfer at equal rates?

Exam task Official scoring criterion · PDF p. 8

Physical Setting/Chemistry

Constructed practice responses • Read independently, then compare with the facilitator interpretation.

CHEM_LEG-2 / Use electron accounting

A neutral chlorine atom has atomic number 17 and mass number 35. It gains one electron. Give protons, neutrons, and electrons before and after. Explain the charge without changing the isotope.

Focal request

For chlorine-35 gaining one electron, say what changes and what stays fixed.

Response A

It has one extra negative charge, so its mass number is now 36.

Response B

It still has 17 protons and 18 neutrons. Its electrons increase from 17 to 18, giving charge −1. Its mass number stays 35.

What the pair distinguishes

A recognizes the charge change but includes the extra electron in mass number. B distinguishes nuclear composition from electron count. Check the same distinction with isotope notation.

A fresh transfer check

Compare neutral chlorine-37 with chlorine-35 carrying one negative charge. Which has more neutrons and which has more electrons?

Evidence of transfer

Tracks protons, neutrons and electrons independently across both changes.