Checking an Average Charge in an Iron Oxide

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

Checking an Average Charge in an Iron Oxide

Question 1

Choice (3)

The four oxygens contribute −8. R supplies 1 × (+2) + 2 × (+3) = +8.

Question 2

The iron sites contribute +8 altogether, so their average is +8/3. Neutrality requires their sum to balance the −8 from oxygen.

Question 3

One +2 site and two +3 sites give the required average. An average of +8/3 does not require any individual site to have that value in the supplied model.

Question 4

One of the three iron ions is Fe^{2+}. It loses one electron to become Fe^{3+}. The two original Fe^{3+} ions do not change, so the total loss is one electron per three iron ions.