IQM3012 A2 Teacher marking reference

IQM3012 A2 Synthetic Chemistry Paper 1 Responses

This reference supports discussion of the selected exercise extracts. Marks and bands are proposed documentary judgements, subject to human subject review.

Controlling sources: IQM3012_2026_Sample_Assessment_2_Paper_1 Candidate Question Paper, Candidate Answer Booklet, Chemistry Data and Formulae Booklet, and current Staff Mark Scheme and Marking Map v3. Sample 2026–27; all items compulsory; 2 hours; 20 Section A + 50 Section B marks.

Separate point-supported commentary applies current source criteria only to the visible selected extracts; it does not infer a whole-question or qualification outcome.

Teacher reference selected response discussion

The comments apply source criteria only to the exact selected subparts below. They are not whole-question, whole-profile or qualification marks. Use the proposed points as internal practice, not final human marking.

No Section A assessment-objective mapping was located in the supplied source set. The marking key preserves the MCQ answers without inventing AO allocations.

Extract A S1 B1 b

The response shows n=2.65/106.0=0.0250 mol; 250.0 cm^3=0.2500 dm^3; c=0.0250/0.2500=0.100 mol dm^{-3}. All three source points are evidenced: amount; volume/concentration method; accurate result with units. Proposed subpart mark: 3/3.

Extract B S2 B1 c

The candidate correctly determines 0.00250 mol Na_2CO_3 in the aliquot, then uses a 1:1 ratio to give 0.00250 mol HCl and 0.125 mol dm^{-3}. Award the aliquot point only. The acid-to-carbonate ratio is 2:1; the subsequent value is not valid follow-through from an incorrect stoichiometric relationship. Proposed subpart mark: 1/3.

Extract C S3 B4 a

Oxidation: $Br^- \rightarrow Br_2 + 2e^-$ has the correct oxidation species relationship but is not balanced for bromine or electrons. Reduction: $Cl_2 + 2e^- \rightarrow 2Cl^-$ is balanced. Award the oxidation relationship point and both reduction points; the electron-balance oxidation point is not evidenced. Proposed subpart mark: 3/4.

Extract D S3 B5 c

The candidate states the correct 679 kJ mol^{-1} breaking and 864 kJ mol^{-1} formation totals, but subtracts in reverse and reports +185 kJ mol^{-1}. Award the two energy-total points; withhold the signed answer point. Proposed subpart mark: 2/3.

Confidentiality and status

This is a staff-only reference for generated synthetic practice. It is not a live answer key or evidence of candidate performance, exam administration, human moderation, qualification approval or release. The controlled paper prohibits AI and unauthorised electronic assistance.