IQM3011 A2 Teacher marking reference

IQM3011 A2 Synthetic Biology 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: IQM3011_2026_Sample_Assessment_2_Paper_1_Candidate_Question_Paper; Candidate_Answer_Booklet; Staff_Mark_Scheme_and_Marking_Map_v3. Sample 2026–27; all questions compulsory; 2 hours; 20 Section A marks and 50 Section B marks.

Separate staff-only point-based commentary applies source criteria only to visible selected responses. Proposed extract allocations are not whole-question or qualification marks.

Teacher reference source based discussion

Use the current staff mark scheme's point rules. The proposed extract decisions below are supported only by the displayed response; they are not whole-question totals or profile grades.

The source awards one mark per correct single-choice response in Section A and specified independent points in Section B. The four excerpts illustrate calculation evidence, sign convention, mechanism and causal reasoning.

Extract A S1 B1 b

The candidate converts 36 mm to 36,000 µm, divides by the actual 3.0 µm, and gives ×12,000. This matches the conversion/method point and the magnification accuracy point: proposed 2/2. The ratio is dimensionless. The response is generated, not evidence of actual exam performance.

No extract-level grade or whole-profile conclusion is assigned.

Extract B S2 B2 c

The candidate states that mass fell by 0.30 g and shows the 12% magnitude calculation relative to initial mass. Under the source rule accepting an explicit 12% loss with relevant working, the evidence supports both criteria: proposed 2/2. No further mark is available for this subpart.

No extract-level grade or whole-profile conclusion is assigned.

Extract C S3 B4 b

The response states that ATP directly powers the sodium–glucose cotransporter. The source instead requires ATP at the basolateral sodium–potassium pump, maintenance of the intracellular sodium gradient, sodium entry through the cotransporter and reduced glucose uptake. None of those source links is present in the excerpt; proposed 0/4. Feedback: trace the indirect pump–gradient–cotransport chain.

No extract-level grade or whole-profile conclusion is assigned.

Extract D S3 B5 d

The response says the volunteer group was small, which limits generalisation, but it does not identify a confounder or alternative cause. The source explicitly says sample size alone does not explain confounding; proposed 0/1. Feedback: identify a factor such as training status that could affect both oxygen delivery and performance.

No extract-level grade or whole-profile conclusion is assigned.

Confidentiality and status

Staff-only reference to a synthetic practice exercise. Do not use these responses as candidate evidence or describe them as a live sitting, validated mark, academic approval, moderation or released assessment outcome. The candidate assessment prohibits AI use.