IA

Internal assessment

CHAPTER ASSIGNMENT · 28 MARKS

Name _____ Class _____ No. _____ Date _____

> Answer every question in the space given. Show your working. You may use the chapter page to help you.

Questions from *Computer Science for the IB Diploma*, 1st edition (2025), Paul Baumgarten, Ioana Ganea, Carl Turland (Hachette Learning), for classroom use.

Criterion A — Problem Specification Questions (pp. 506–508)

1. When formulating your IA Problem Scenario, answer the following guiding questions from the IBDP Computer Science Teacher Support Material:

   (a) What is the current situation and who is affected by the problem?

   (b) What causes the problem, and what are the objectives or general requirements for the computational solution?

   (c) Are there existing computational solutions and, if so, why are they not effective? What are their shortcomings?

   (d) Why is it valuable or significant to construct a computational solution for the problem, and what are the time or resource limitations?

2 Complete the Computational Context planning table for your proposed IA solution:

Context	Chosen	Alternatives considered	Justification
Main language			
Hardware environment			
Libraries / frameworks			
OS			
Data environment			

3 State 8 to 10 SMART (Specific, Measurable, Achievable, Relevant, Time-bound) and testable success criteria for your proposed IA solution. [4]

Criterion B — Planning & Decomposition Prompts (pp. 511–512)

1 Construct a decomposition of your IA problem scenario into smaller, manageable sub-problems or components (e.g. using a structure chart or UML class relationship diagram) that address each of your success criteria from Criterion A. [2]

2. Construct a chronological plan (e.g. Gantt or Agile chart) addressing all five stages of the design cycle (Planning, Designing, Developing, Testing, Evaluating) for each decomposed component. [2]

Criterion C — System Overview & Testing Strategy Prompts (pp. 515–518)

1. Construct a holistic system model (including UI mock-ups, UML class diagrams / ERDs / data flow diagrams, and key component algorithms in pseudocode or flowcharts) with sufficient clarity to enable a third party to re-create the product. [4]

2. Construct a Functional Testing table and a Structural Testing table (covering Valid, Invalid and Extreme test data) aligned with your Criterion A success criteria:

Success Criterion / Algorithm	Test Type	Test Data	Expected Outcome
	Valid		
	Invalid		
	Extreme		

[2]

Criterion D & E — Development, Evaluation & Ethical Guidelines (pp. 527–536)

1. For five to seven of your most advanced algorithmic techniques or data structures in Criterion D, explain how the technique was implemented, contrast it against alternative valid approaches to justify your choice, and reference the functional and structural test cases that verify its correctness. [12]

2. In Criterion E, evaluate the extent to which each success criterion from Criterion A was met (with reference to your test results) and justify specific, actionable improvements for a future version 2.0 of your product. [4]

3. State the four mandatory ethical guidelines from the IBDP Computer Science Guide that must be applied when undertaking research and developing your Internal Assessment solution.

End of assignment · Check your answers against the chapter at gurujazzy.com/subjects/ib-computer-science/internal-assessment/