

Information Technology

2016 Chief Assessor’s Report

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## Overview

Chief Assessors’ reports give an overview of how students performed in their school and external assessments in relation to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outline. They provide information and advice regarding the assessment types, the application of the performance standards in school and external assessments, the quality of student performance, and any relevant statistical information.

## School Assessment

Assessment Type 1: Folio

**The more successful responses**

* used appropriate referencing techniques (e.g. Harvard) when developing written responses
* referred to examples and scenarios to demonstrate understanding
* used task design that was aligned with the specific factors of the assessment design criteria
* used tasks in which questions or responses were labelled with the relevant specific feature of the assessment design criteria (e.g. KU4)
* included tasks that required higher-order thinking, thus allowing students to achieve at the A level
* provided differentiated assessment by including a range of tasks and submission types — test, written, oral, presentation, and/or multimodal.

**The less successful responses**

* recited rote-learnt facts, as opposed to demonstrating knowledge and understanding
* were produced when tasks provided limited opportunity to achieve the higher bands in the performance standards.

**General information**

Teachers should indicate how grades have been established relative to the performance standards, using comments and other means to show where the performance standards have been met, and to what level. Teachers who designed questions using terminology from the performance standards established clear direction for students. This also allows moderators to clearly see how a grade has been determined.

Assessment Type 2: Skills and Applications Tasks

**The more successful responses**

* provided students the opportunity to demonstrate both analysis and development
* used tasks with annotated skills checklists to demonstrate assessment of student skills
* were based on tasks which mapped skills/questions/responses to the performance standards.

**The less successful responses**

* appeared to be mini-projects
* were produced when tasks provided excess scaffolding, limiting the opportunity to achieve at the higher levels of the performance standards.

**General information**

Students are required to complete *three* skills and applications tasks (SATs) — *one*in the option topic for which the Assessment Type 3: Project is done, and *two* in the option topic for which no project is completed. Each SAT should clearly identify opportunities to achieve at the upper level of the performance standards in the Assessment Design Criteria: Analysis and Evaluation and Development and Validation.

Assessment Type 3: Project

**The more successful responses**

* clearly identified three or four outcomes of varying difficulty levels
* included a clear validation plan for each outcome
* used a validation plan to create validation videos, with oral or written explanations, which showed how the code achieved the outcome
* provided clear documentation demonstrating the systems development life cycle (SDLC)
* were produced when the task identified how the teacher had established the final grade according to the performance standards.

**The less successful responses**

* used validation videos to show how the interface of the project worked
* lacked validation and evaluation.

**General information**

The project is an open-ended task that requires students to develop a solution using the stages of the SDLC, as outlined in the subject outline. The project is to assess the Assessment Design Criteria: Knowledge and Understanding, Analysis and Evaluation, and Development and Validation.

## External Assessment

Assessment Type 4: Examination

Students undertake a 2-hour written examination containing compulsory questions on the core topics, and questions on each of the five option topics, for which students answer questions about the two option topics that they have studied.

**Part A: Core Topics**

*Question 1: Information Systems*

This question was answered well by many students, with evidence of excellent understanding of the principles of computer-based information systems.

There was a wide spread in students’ results. Many students scored 16 or more out of 20 marks, with the mean being 12.5, the best-answered question of the examination.

**The more successful** responses

* showed careful reading of the question, enabling the application of knowledge to the scenario.

The less successful responses

* did not show understanding of key terms, such as ‘feedback’, ‘validate’, ‘efficiency’, and ‘effectiveness’
* did not answer the question, relying on a general statement; for example, in part (g), not applying training to the system involved, and in part (h), not instancing a statistical outcome to improve business.

*Question 2: Computer Systems*

This question was answered satisfactorily by many students, with evidence of excellent understanding of the principles of computer systems; however, many less successful students relied heavily on general statements not applied to the scenario.

There was a wide spread in students’ results. Some students scored 13 or more out of 17 marks, with the mean being 8.7. Many scored 5 marks or less.

**The more** successfulresponses

* showed careful reading of the question, enabling the application of knowledge to the scenario; in particular, they were able to describe the flow of data in part (d)(iii), and network application in part (e)(i).

**The less** successful **responses**

* did not show understanding of the differences between ROM, RAM, and secondary memory
* did not identify that part (d)(iii) was about the role of the control unit in directing the flow of data, relying on general statements of function not related to the scenario
* did not use appropriate network terminology to answer part (e)(i).

*Question 3: Communication Systems*

This question was poorly answered by many students, who showed little evidence of understanding of the principles of communication systems. The more successful students were able to demonstrate understanding of the implications of aspects of communication systems design.

There was a wide spread in students’ results. Only a few scored 20 or more out of 25 marks, with the mean being 11.6. Many scored 8 marks or less.

**The more** successful **responses**

* were able to demonstrate understanding of the implications of technical details in the questions; in particular, they were able to describe characteristics of Internet connections, and the implications of different structures, and to discuss transmission media and home networks.

The less successful responses

* tended to restate the question, and to rely on writing many points that were not relevant or far too general in their answers in an unsuccessful attempt to gain marks
* did not identify key technical details, such as the difference between bandwidth and speed, or the physical characteristics of transmission media
* did not understand the use of encryption keys and, in particular, the function of public and private keys in encryption and decryption.

*Question 4: Social Responsibility*

This question produced a very even spread of marks from 8 marks out of 8 to 3 marks out of 8, with a mean of 4.4. Over a third of the students scored 5 marks or more.

**The more** successful **responses**

* were able to demonstrate understanding of security issues related to public and private networks; they were able to state issues and suggest methods to minimise risks, securing the network rather than the laptop itself.

The less successful responses

* tended to state risks without countermeasures
* did not identify risks to the network
* diverged from the question into more general security issues.

**Part B: Option Topics**

Although it is clearly stated in the examination itself and in the subject outline that only two questions should be answered in Part B, a significant number of students still answered more than the required number. These students tended to be unsuccessful in all the option topic questions. Teachers should emphasise to their students the form of the examination, using the front page published in September.

*Question 5: Relational Databases*

This question was the second-most popular of the option topics and also produced the second-highest mean score: 13.7 marks out of 25. The distribution of marks was slightly negatively skewed.

**The** more **successful responses**

* were able to demonstrate understanding of relational database structure, relationships, and data redundancy as they related to this scenario
* could explain the implications of database structure and suggest a query to extract data from the database.

The less successful responses

* tended not to recognise that a phone number is not really a number
* tended to confuse relationships when describing entities
* did not carefully read the question on privacy, or did not relate security to the scenario.

*Question 6: Application Programming*

This question for the most popular option topic produced a mean score of 13.5 marks out of 25, with a flat distribution of scores across the range.

**The more successful responses**

* were able to demonstrate understanding of pseudocode and desk-checking procedure
* recognised and could propose appropriate coding using control structures.

The less successful responses

* tended to not recognise the flow of data in the pseudocode supplied
* tended to not recognise or be able to use control structures such as looping
* could identify a recommended practice, but could not give reasons for it.

*Question 7: Multimedia Programming*

This was the most successfully attempted option topic, with a mean score of 14.2 marks out of 25 and a very flat distribution of scores across the range of marks.

**The more successful responses**

* were able to demonstrate understanding of the placement and movement of screen objects and hence discuss how collisions could be determined by considering coordinates
* were able to use an array and selection constructs
* could give detail about adapting the game to different platforms, and had a good understanding of intellectual property.

The less successful responses

* could suggest input and output methods, but did not provide further information
* could suggest code to deduct points and end a game, but could not suggest more advanced code using arrays and selection constructs
* incorrectly interpreted the intellectual property question as an ethics question and were very general in answers about adapting to different platforms.

*Question 8: Website Programming*

This option topic produced a mean score of 12.5 marks out of 25 and a very flat distribution of scores across the range of marks.

Virtually all students attempting this question could identify basic elements of a website, including ways to help users. Most also were able to provide reasoned opinions when assessing the educational value of the site in the scenario.

**The more successful responses**

* were able to demonstrate understanding of CSS (cascading style sheets) for achieving consistency and intuitive control of web pages
* were able to use an array and selection constructs such as selection and iteration
* could discuss and suggest strengths and weaknesses of sliders and how a user’s mouse action, such as hover or click, might generate a screen response.

The less successful responses

* incorrectly suggested pressing ‘Submit’ would generate the point of intersection
* could state what CSS is, but could not discuss why or how it can be used in websites
* were unable to use an array or selection constructs such as selection and iteration.

*Question 9: Dynamic Websites*

This option topic produced the lowest mean score in the examination: 9.7 marks out of 25 and a very flat distribution of scores across the range of marks. Fortunately, perhaps, it was attempted by only a few students (approximately 14%). Those who had attempted all questions were the least successful, thus lowering the mean.

Virtually all students attempting this question could identify dynamic and non‑dynamic (static) elements of a dynamic website, and the function of the database server.

**The more successful responses**

* were able to demonstrate understanding of CSS for achieving consistency and intuitive control of web pages across platforms
* were able to use technically correct language to describe the flow of data in dynamic websites, where PHP or ASP code is executed, and validation processes
* were able to use correct syntax (or a reasonable approximation) in part (e) to report calculated fields, i.e. the last week and cost summary
* discussed latency and standardisation of images across platforms
* were aware of the *Privacy Act 1988* and the *Privacy (Credit Reporting) Code 2014*, and implications for data on dynamic websites.

The less successful responses

* incorrectly suggested encryption as a reason PHP/ASP code was safe, showing little understanding of dynamic processes
* could suggest only one criterion in part (e) and no summary of costs
* missed the point of the validation question and were very general in nature when discussing images and legal and ethical responsibilities.

**General information (examination notes)**

Teachers should discuss with students the purpose and nature of the notes they are allowed to carry into the examination. The examination is not intended to be answered directly from notes — marks are awarded for application of knowledge to scenarios in the examination. The notes should be used to ensure correct terminology and definitions can be applied to those scenarios as appropriate.

Correct use of notes may also prevent students from attempting all questions on option topics.

## Operational Advice

* School assessment tasks are set and marked by teachers. Teachers’ assessment decisions are reviewed by moderators. Teacher grades/marks should be evident on all student school assessment work.
* If changes to assessment items are made, they should be detailed in the learning and assessment plan (LAP) addendum.
* If the assessment items for a student nominated in the sample are not available, this should be noted in the Variations — Moderation Materials form.
* Materials must be presented in a form accessible to moderators. It is the responsibility of the teacher to ensure sufficient evidence can be shown to moderators to validate teacher grades. Where working code requires a particular environment (e.g. particular language environments), screen dumps and validation videos should be used.
* Teachers may choose whether to present electronic materials on a class storage device or individually. In both cases, work should be clearly labelled and separated into assessment types.
* The documentation for the project in Assessment Type 3 has a word-count limit of 1500 words. Although code is not included in the word-count, there is little point in including pages of code. A better approach is to identify important processing and discuss the code that achieves the outcome.

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