



CARIBBEAN EXAMINATIONS COUNCIL

CAPE® INFORMATION TECHNOLOGY UNIT 1



Subject Report

May/June 2023

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CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

MAY/JUNE 2023

**INFORMATION TECHNOLOGY
UNIT 1**

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Table of Contents

INTRODUCTION	1
PAPER 01 — MULTIPLE CHOICE	2
PAPER 02 — STRUCTURED ESSAY	3
Question 1.....	3
Question 2.....	7
Question 3.....	11
Question 4.....	15
Question 5.....	19
Question 6.....	22
PAPER 031 — SCHOOL BASED ASSESSMENT	26

INTRODUCTION

This guide has been compiled using candidates' responses to the 2023 May/June examination in CAPE Information Technology. Unit 1, Information Technology Theory, consists of three modules, which are as follows.

Module 1 — Fundamentals of Information Technology

Module 2 — Information Systems

Module 3 — Information and Problem-Solving

The examination comprises the following papers.

Paper 01 — Multiple Choice

Paper 02 — Structured Essay

Paper 031 — School-Based Assessment (SBA)

Paper 032 — Alternative to School-Based Assessment (Private Candidates)

In May/June 2023, 1445 candidates were entered for CAPE Unit 1 Information Technology. Approximately 94 per cent of candidates obtained acceptable grades (Grades I to V), compared with 91.42 per cent of candidates in 2022.

Approximately 61.13 per cent of candidates gained Grades I–III, compared with 50.87 per cent in 2022. In the 2023 Unit 1 examination, approximately 16 per cent of candidates earned Grade I, compared with 11.45 per cent of candidates in 2022.

PAPER 01 — MULTIPLE CHOICE

Paper 01 consists of 45 multiple-choice items (15 items per module). All questions are compulsory and candidates are expected to be knowledgeable of the entire syllabus. Questions may be presented using diagrams, data, graphs, prose or other stimulus material.

In 2023, the highest score gained by any candidate was 90. The mean score was 67.65 (75.17 per cent) and the standard deviation 16.98.

PAPER 02 — STRUCTURED ESSAY

Paper 02 consists of six questions. These questions are divided into three sections (each section is based on one module). There are two questions in each section. Candidates are required to answer all questions. The paper is worth 90 marks; each module is worth 30 marks (15 marks per question).

Each question presents a situation based on concepts in the module being tested and consists of three or four sub-questions. Candidates will be awarded marks for knowledge and comprehension, application and analysis and synthesis, and evaluation.

Question 1

Part (a) (i)

This question tested candidates' knowledge of the historical timeline of two devices. Candidates were expected to state, after observing two images, which device was first in the historical timeline of Information Technology. Most candidates correctly stated that Device 2 was first.

Candidate's Responses to Part (a) (i)

- (a) (i) Which device was first in the historical timeline of Information Technology?

Device 2 - Floppy Disk

[1 mark]

Examiner's Comments

The candidate correctly identified the device which was first in the historical timeline of computer hardware.

Part (a) (ii)

For this question, candidates were required to state whether Device 2 was suitable for the task given in the scenario. Most candidates were able to give satisfactory reasons why Device 2 was not suitable. These reasons included limited storage or that the device is no longer manufactured.

Candidate's Responses to Part (a) (ii)

- (ii) State whether Device 2 is suitable for Yeudi's job. Give TWO reasons for your answer.

Device is not suitable for his job because:

1) A floppy disk cannot hold large amounts of data and Yeudi's job requires him to store a lot of information which includes a spreadsheet, powerpoint and @ recording.

2) ~~It~~ is slow and doesn't process information as fast as the CD-Rom [3 marks]

Examiner's Comments
The candidate correctly stated which device was more suitable for the task.

Part (a) (iii)

Candidates were required to recommend two other devices that would be more suitable for the task given in the scenario. Most candidates responded by naming devices such as the *flash drive* and the *hard disk drive*.

Candidate's Responses to Part (a) (iii)

- (iii) Recommend TWO other devices that would be more suitable for Yeudi's task.

1) ~~Thumb drive~~ Thumb drive

2) SSD - solid state drive

[2 marks]

Examiner's Comments
The candidate correctly recommended two other devices that would be more suitable for the task given in the scenario.

Part (a) (iv)

Candidates were asked to identify the five components of the information processing cycle, using examples from the given scenario. Most candidates were able to score three out of five marks. Although most candidates were able to identify examples of input, storage and output, they failed to satisfactorily identify examples for feedback and processing.

Candidate's Responses to Part (a) (iv)

- (iv) Using examples from the scenario on page 4, identify the FIVE components of the information processing cycle.

Input - putting in the data in the different program
Processing - turning the data into information
Output - powerpoint presentation, tables/charts, recording
Storage - Floppy disk, CD-Rom
Feedback - ~~the~~

Examiner's Comments

The candidate provided suitable examples of the five components of the information processing cycle.

Part (b)

Candidates were required to outline one advantage and one disadvantage of using a website as opposed to using Device 1. Common advantages of using the website mentioned included it is available 24/7, it has a wider audience reach and it is more easily accessible. The disadvantages given included that it was only accessible to people with an internet connection, the data might be seen by unauthorized persons, it may present a security risk. Some candidates listed only an advantage or disadvantage. It should be noted that most candidates were able to relate their response to the scenario.

Candidate's Responses to Part (b)

- (b) Yeudi was considering using the company's website or Device 1 to share information on shareholders. Outline ONE advantage and ONE disadvantage of using the company's website instead of Device 1.

Advantage An advantage of using ~~the~~ the website is that it is ~~an~~ easier to navigate and more organized. All the information would be organized into different sections of the website and ~~it~~ be easier for ~~the~~ people to find information. It would be easier to navigate as opposed to using a CD-ROM to access the information. It also allows for storage of large amounts of information.

*Disadvantage A disadvantage of using a website is that an internet connection is needed to access the information. Users who don't have an internet connection or a device to access the internet will not be able to use the website.

Examiner's Comments

The candidate correctly outlined one advantage and one disadvantage of using a website as opposed to using another device.

Question 2

Part (a)

This question assessed Objective 8 from Module 1. Candidates were required to state two examples of data and one example of information, based on the given scenario. Most candidates identified the time the order was made or the cost of each item ordered as examples of data. Examples such as the total cost of the items or the total number of items ordered were given as examples of information.

Candidate's Responses to Part (a)

- (a) Identify TWO examples of data and ONE example of information from the receipt in Figure 2.

Data *Two examples of data are the receipt number (60140) and the ~~price~~ individual price of items eg. Large fries for \$6.00.*

Information *An example of information is the total required, i.e. \$49.50*

Examiner's Comments

The candidate correctly identified examples of data and information.

Part (b)

Candidates were required to use examples from the given scenario to match the data with the data types. The categories of data type given were numeric, aural and visual. Several candidates were unable to distinguish between the different types of data.

Candidate's Responses to Part (b)

- (b) A customer approaches the drive-thru and selects items from the menu. On approaching the speaker, the cashier prompts the customer to place the order. The customer then proceeds to the drive-thru window to pay using a debit card and then collects the order.

Complete the table below by using examples from the scenario above to match the data with the correct data types.

Data Type	Data
Numeric	The amount ^{cost} of each items on the menu ✓
Aural	The customer placing the order through speaker ✓
Visual	The customer seeing and selecting items from the menu ✓

[3 marks]

Examiner's Comments

The candidate correctly provided examples of data to match the requested data types.

Part (c)

Candidates were required to provide an alternative combination of an order so that a \$40 limit would not be exceeded. Most candidates responded well. Candidates were able to arrive at an order that totalled less than \$40. Some candidates were not awarded full marks, as they excluded the tax amount in their given combination which caused the total to exceed \$40.

Candidate's Responses to Part (c)

- (c) The customer who placed Order 21 only has \$40. Based on the prices of the items on the receipt, describe ONE other combination of the order to meet the \$40 limit.

Assuming that the tax ~~rate~~^{is} is 7.61%, another combination can include 3 large fries,  burger and 2 fizzy drinks. This would have a subtotal of \$35.25, the total with tax would be \$37.95,  which meets the \$40 limit. [2 marks]

Examiner's Comments

The candidate provided another combination of items that did not exceed the \$40 limit.

Part (d)

Candidates were required to use the information given in the scenario to determine whether a customer should use a cross-platform messaging tool or a social-media tool to post a review. In general, many candidates were able to score full marks. Some candidates lost marks because they provided a poor justification for their selected tool.

Candidate's Responses to Part (d)

- (d) The customer who placed Order 21 received poor service at the drive-thru. The customer decided to express his/her displeasure. Discuss whether the customer should use a cross-platform messaging tool or a social media tool to post his/her review. Justify your answer.

Due to the constant evolution of our society and due to the fact that many members of this generation are chronically online, the customer should utilize a social  media tool to post his/her review. This is simply because a higher volume  of persons utilize social media platforms so the review would receive more  action, and the drive-thru will be pressured into  compensating the person and preventing the same thing from happening again to avoid losing customers. [3 marks]

Examiner's Comments

The candidate was able to justify why a social-media tool should be used to post the review.

Part (e)

Candidates were required to identify which type of data (qualitative or quantitative) was more appropriate for each example given. Candidates were able to correctly identify that Part (i) was an example of qualitative data. However, most of them did not provide a reason to support their response. Similarly, candidates were able to correctly identify that Part (ii) was an example of data that was quantitative but they did not explain their response.

Candidate's Responses to Part (e) (i)

(e) Identify which type of data (qualitative or quantitative) is MOST appropriate for EACH of the following examples. Give a reason for EACH of your answers.

(i) Customers have been recommending the beef burgers to their friends.

This type of data would be qualitative. This is because it would include qualitative details like flavour and appearance to appeal to the individual's want to purchase the beef burger.

[2 marks]

Examiner's Comments

The candidate correctly identified that in the scenario, qualitative data was used.

Candidate's Responses to Part (e) (ii)

(ii) The end-of-day sales have shown that 86.5% of the customers are requesting beef burgers and large fries.

This type of data would be quantitative. This is because it utilises numbers, statistics and facts to generate a % of persons who request the beef burgers and large fries.

[2 marks]

Examiner's Comments

The candidate correctly identified that in the scenario, quantitative data was used.

Question 3

Part (a)

This question assessed Objective 1 from Module 2. Candidates were required to identify an information system suitable for a clerical officer and a minister of government. Many candidates were unable to state a suitable information system.

Candidate's Responses to Part (a) (i)

(i) Clerical officer

Transaction processing system - this would be suitable
for a clerk to automatically process various data
related transactions such as payment for textbooks etc.

[2 marks]

Examiner's Comments

The candidate correctly identified an information system suitable for use by a clerical officer.

Candidate's Responses to Part (a) (ii)

(ii) Minister of Education

Executive information system - this would be suitable
to provide tailored long term information about different
areas of the ministry of education, so that executive
decisions can be made by the Minister

[2 marks]

Examiner's Comments

The candidate correctly identified an information system that would be suitable for use by a minister of government.

Part (b) (i)

Candidates were required to differentiate between structured and unstructured information. Most candidates were unable to achieve full marks.

Candidate's Responses to Part (b) (i)

- (i) Explain the difference between structured information and unstructured information.

Structured information as the name suggests, always follows a specific form eg. spreadsheet tabular information while unstructured information does not follow a particular format eg. images

[2 marks]

Examiner's Comments

The candidate correctly differentiated between structured and unstructured information.

Part (b) (ii)

Candidates were required to state three characteristics of an applicant who may not be able to use the form shown in the figure. Many candidates were able to satisfactorily provide appropriate characteristics which included: visual impairment, dominant hand being injured or inability to understand English, among others.

Candidate's Responses to Part (b) (ii)

- (ii) State THREE characteristics of an applicant who may NOT be able to use the form shown in Figure 3.

1) Visually impaired
2) Differently Able (ie cannot type)
3) illiterate

Examiner's Comments

The candidate stated three correct characteristics that may prevent an applicant from using the form presented.

Part (b) (iii)

Candidates were required to identify two types of human-computer interfaces (HCI), other than a form, that could improve the effectiveness of data collection. Responses such as GUI or menu-driven interface or natural language were appropriate. Most candidates provided a satisfactory answer.

Candidate's Responses to Part (b) (iii)

- (iii) Identify TWO types of human-computer interfaces (HCI), **other than a form**, that could be used to improve the effectiveness of data collection.

1) Natural Language ✓
2) Graphical User Interface ✓

Examiner's Comments

The candidate correctly identified two types of human-computer interfaces (HCI) other than a form.

Part (b) (iv)

This question assessed Objective 7 from Module 2. Candidates were required to describe two aspects of HCI design that if implemented efficiently would enable users to effectively use the HCI. Most candidates either gave two appropriate design aspects without descriptions or gave one design aspect with an appropriate description.

Candidate's Responses to Part (b) (iv)

- (iv) Describe TWO design aspects of any HCI that if implemented efficiently will enable any user to effectively use the HCI.

The Natural Language HCI allows for the user to use words as though they were speaking to the interface, to fill in the data. eg. saying 'my name is Ryan Joe' will fill that information in automatically (no typing required).
With GUI, windows, icons, and menus, pointers will allow for the easy navigation of the interface by anyone, even if you are a beginner at using computer systems.

Examiner's Comments

The candidate correctly described aspects of HCI design that would permit users to effectively use HCI.

Question 4

Part (a) (i)

Candidates were examined on their knowledge of the advantages of using a wireless network as opposed to a wired network. In most of the responses given, candidates identified accessibility, cost and flexibility.

Candidate's Responses to Part (a) (i)

A newspaper company wants to connect all the devices in its newly built office, using a computer network. They were advised to create a wireless network instead of a wired network.

- (a) (i) State ONE advantage of using a wireless network over a wired network.

Cost - The company will not need to pay for wiring of the network.

[1 mark]

Examiner's Comments

The candidate correctly stated one advantage of using a wireless network versus a wired network.

Part (a) (ii)

This question assessed candidates' ability to describe the function of a virtual private network. Some candidates provided a poor description of the function of a VPN. Other candidates either focused on the VPN's ability to secure connections or hide a user's location while securely accessing content.

Candidate's Responses to Part (a) (ii)

- (ii) Describe the function of a virtual private network (VPN).

As Protocols upon a device ✓ connection - A VPN
is a virtual private network which creates a private
network for a device to connect to protecting from
cyber ✓ attacks

[2 marks]

Examiner's Comments

The candidate correctly described the function of a virtual private network (VPN).

Part (a) (iii)

Candidates' knowledge of commands to troubleshoot computer networks was tested. Most candidates were able to identify the ping command as the correct command for testing reachability of a host on a network. Many candidates were unable to correctly identify a command that finds a user's IP address.

Candidate's Responses to Part (a) (iii)

- (iii) In order to troubleshoot a variety of wireless network issues, commands are used to help identify the problem. Complete the table below by writing the appropriate command to match the description provided.

Command	Description
ping ✓	a computer network administration software utility used to test the reachability of a host on the Internet
Ip config ✓	a program that lets a computer user find an IP address

[2 marks]

Examiner's Comments

The candidate completed the table correctly by listing the commands that can be used to troubleshoot the issues described.

Part (b) (i)

Candidates were required to define the term *protocol*. Some of them stated that protocols were defined rules or procedures. Others were able to complete their definition by mentioning that protocols govern the behaviour of connections and/or transmissions of data over a computer network.

Candidate's Responses to Part (b) (i)

(b) Protocols are an important component of computer networks.

(i) Define the term 'protocol'.

The rules and standards enforced to maintain the integrity of a network. A protocol can be standardised locally, regionally, globally and within an organization.

[2 marks]

Examiner's Comments

The candidate gave a correct definition of a protocol.

Part (b) (ii)

Candidates were required to state an example of a protocol. Candidates correctly stated FTP or TCP/IP.

Candidate's Responses to Part (b) (ii)

(ii) State ONE example of a protocol.

~~TCP/IP~~ VOIP - Voice over Internet protocol.

[1 mark]

Examiner's Comments

The candidate gave a correct example of a protocol.

Part (c)

This question assessed candidates' knowledge of Objective 19 of Module 2. It tested candidates' knowledge and skill in implementing HTML code for generating a specific webpage. Some candidates were able to show a basic understanding and use of HTML tags; however, many candidates were unable to properly organize their HTML code to give the correct layout for their solution.

Candidate's Responses to Part (c)

- (c) Figure 4 shows a fully labelled diagram of ALL the components of a webpage that HTML code is required to generate.

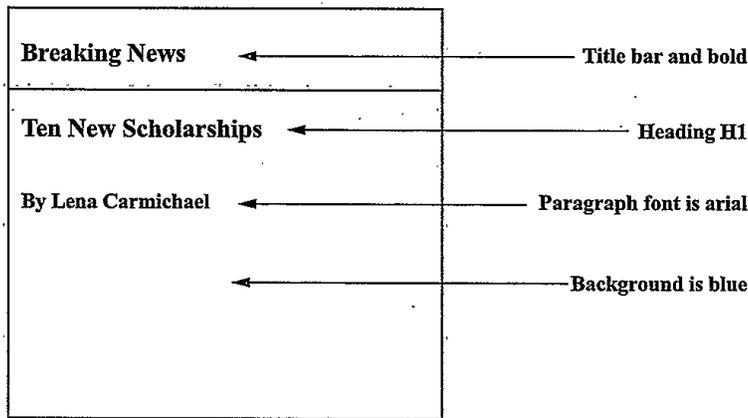


Figure 4. Components of a webpage

- Title bar 1
- Bold/Strong 1
- Background color 1
- H1 header 1
- Font 1
- Correct Layout 2

Write HTML code that would generate the webpage in Figure

```

<!DOCTYPE html>
<html>
<body style="color: blue;">
<p style="font-weight: bold;"> Breaking News </p>
<h1> Ten New Scholarships </h1>
<p style="font-family: arial;"> By Lena Carmichael </p> [7 marks]
</body>
</html>
  
```

Total 15 marks

Examiner's Comments

The candidate gave the correct HTML code.

Question 5

Part (a) (i)

Candidates were assessed on their knowledge of un-refereed sources of information. They were required to give two examples of such sources. Most candidates cited blogs and other farmers as examples of un-refereed sources.

Candidate's Responses to Part (a) (i)

Ringo is a chicken farmer. Over the last two years he has suffered losses of his chickens because of a 'mystery' disease. He was advised by some friends to use un-refereed sources about the disease.

- (a) (i) Identify TWO examples of an un-refereed source.

Two examples are blogs and wikis.

Examiner's Comments

The candidate demonstrated that he/she had a good understanding of un-refereed information sources by giving two correct answers.

Part (a) (ii)

This question examined candidates' knowledge of the advantages of using an un-refereed source of information. In their responses, most candidates cited that solutions given by such sources are usually practical or can be garnered quickly. They also stated that other farmers would be able to share relevant solutions.

Candidate's Responses to Part (a) (ii)

- (ii) Discuss the advantage of Ringo using an un-refereed source of information instead of a refereed source.

- Ringo is able to post questions and receive feedback quickly.

- A large variety of responses and knowledge of remedies for the disease.

Examiner's Comments

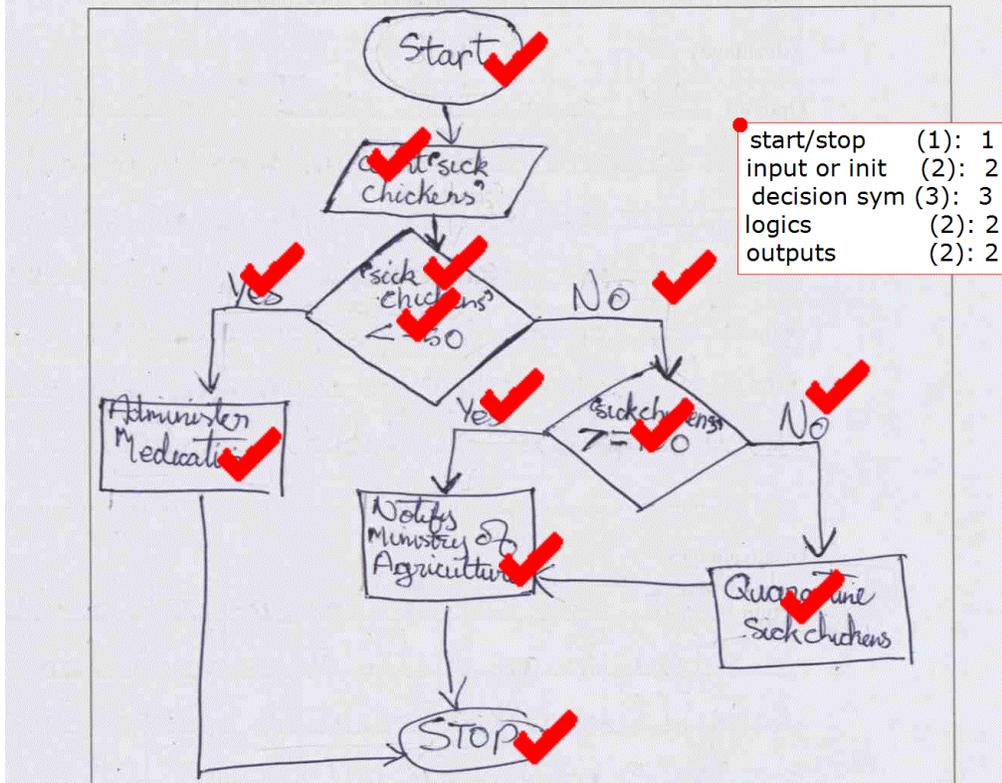
The candidate understood the usefulness of an un-refereed source and gave two (of a possible three) clear discussion points. Like many other candidates, the candidate did not develop a third point.

Part (b)

This question assessed Objective 11 of Module 3. It tested candidates' knowledge and skill in developing algorithms to solve problems. Specifically, candidates were required to produce a flowchart. Most candidates were able to draw correct symbols and labels for the terminator, input/output and process. Some candidates were able to correctly place their decision symbols with the required conditions. On the other hand, candidates appeared to have difficulty using the appropriate flowchart symbols to depict the stage of the solution. Branching to alternate actions was not consistently demonstrated.

Candidate's Responses to Part (b)

(b) Draw a flowchart to illustrate the procedures that Ringo should follow.



Examiner's Comments

The candidate demonstrated that he/she had a good understanding of the scenario to be documented. The candidate used the correct symbols, data flows, logic, input and output for the procedural flowchart.

Question 6

Part (a)

This question assessed candidates' knowledge of concepts related to information systems. It was based on Objective 6 of Module 3. Candidates were presented with two approaches for the implementation of a new information system in the various outlets of a store. They were required to give an advantage and a disadvantage of using each approach. Most candidates were able to identify one advantage of each approach. One advantage given for Option 1 was *problems with implementation will be limited to one store*. One advantage given for Option 2 was *no time delays in the implementation since it will be done outside of operating hours*. Many candidates were able to identify one disadvantage for each option. One disadvantage given for Option 1 was *the time to implement the new IS will be longer*. For Option 2, a disadvantage given was that *an issue with the implementation will affect all the stores at once*.

Candidate's Responses to Part (a)

- (a) State ONE advantage and ONE disadvantage of each of the options.

Advantages

Option 1 This allows for bugs and errors in the IS to be worked out before implementing them into other stores which would relieve hinderances that would occur and would ultimately affect the running of the business.

Option 2 The transition process is much less time consuming and doesn't affect business during work hours.

Disadvantages

Option 1 The transition process is much longer and very time consuming and implementation takes place during business hours which can affect the running of the store.

Option 2 This can result in errors in the I.S. making ~~them~~ themselves present in the stores because no test run was done which could affect the smooth running of the business.

Examiner's Comments

The candidate demonstrated a good understanding of the issues surrounding time staggered versus immediate implementation of information systems in multiple sites. He/she was also able to provide explain the advantage and disadvantage given for each scenario.

Part (b)

Candidates were examined on their knowledge of charts or diagrams that would be suitable for managing the implementation of the information system for a store. Some candidates were able to provide the correct response, while others were unable to state that a Gantt chart is used for identifying timelines during the implementation of a system (scheduling).

Candidate's Responses to Part (b)

- (b) State the name of one diagram or chart that would be useful to manage the implementation in Option 1. Give ONE reason for your answer.

A Gantt Chart would be useful as it displays
the timeline of ^{tasks} events that are required to be
completed in order to accomplish a goal.

Examiner's Comments

The candidate correctly stated and justified the choice of the type of chart required.

Part (c)

Candidates were required to produce a decision table that comprises four quadrants: conditions, actions, rules and action entries. While some candidates were able to correctly identify the conditions and actions to be performed, others were unable to provide the outcomes for the actions. Teachers are encouraged to provide more examples to help students understand and practise how to construct decision tables. Too many candidates could not identify the conditions, actions and rules correctly; candidates appeared to have minimal understanding of these concepts. Most candidates were unable to identify the two conditions: experienced worker (Y)/new worker(N) and new store (Y)/old store (N).

Candidate's Responses to Part (c)

- (c) Since the new store opens for later hours, a decision table has been prepared.
- If a cashier is experienced and is working at the new store, then training is in the evening; otherwise, training is in the morning.
 - If a cashier is new and is working at the new store, then that cashier must pair with someone who is already trained; otherwise, training is in the morning.

Construct a decision table using the information provided above.

CASHIER	STORE	TRAINING
Experienced ✓	New ✓	Evening ✓
Experienced ✓	Old ✓	Morning ✓
New ✓	New ✓	Pair with someone who is already trained ✓
New ✓	Old ✓	Morning ✓

Conditions(2): 2
 Actions(3): 3
 Rules(4): 4
 9

Examiner's Comments

The candidate correctly identified all the required elements and correctly drew a decision table with two conditions, three actions and four rules.

The School Based Assessment (SBA) is set out as a two-year project. In the first year, students are taught the techniques utilized by a system analyst. These include

- defining a problem
- collecting and analysing data to determine the root cause of the problem
- identifying possible solutions
- evaluating the possible solutions
- choosing the most feasible solution
- justifying the choice.

In the second year, students focus on implementing a solution either as a database application or as a website.

The teacher's role is pivotal in the early stages of the project, particularly in helping students identify the problem. While encouraging creativity in problem-solving, it is essential that teachers emphasize to students that the primary focus is on the ability to address real-world issues systematically.

Though grammar and spelling are not assessed directly, students studying at the CAPE level should adhere to a high standard when preparing presentations. Students have ample time to complete the SBA and with guidance from teachers/tutors, they should strive to improve their grammar and spelling, making use of available tools like spell and grammar checks and even AI-driven solutions.

It should also be noted that while the syllabus suggests generous word limits for the SBA (1500 to 2000 for Unit 1 and 500 to 700 for Unit 2), there is no provision in the mark scheme for a word limit. Students should, however, be encouraged to utilize the relevant tool in the word processor to keep the word count within the suggested limits.

Students have the option to collaborate and submit group projects. Working in groups can prepare students for future endeavours but it is important to maintain an optimal group size. A recommended group size for the SBA is three students. Each student should be responsible for gathering and analysing data from one of the tools used. The other sections of the SBA can then be completed collaboratively.

SUMMARY OF MODERATION RESULTS

In 2023, 377 SBAs were submitted for moderation. The following table shows that there was some consistency in the moderated SBA scores in 2022 and 2023 (two unique cohorts of students). Below is a table which shows the moderated scores for these two years.

	2023	2022
Maximum score	60	60
Minimum score	0	0
Average score	37.9	39.9
Modal score	42	42
Percentage > 30	82	83
Percentage > 50	14	23

Students performing below par on the SBA remains a matter of serious concern. Several factors contributed to candidates producing subpar SBAs. For example, many projects were either incomplete or the folders submitted were empty. Moderation marks can only be confirmed for work that was seen and evaluated by the moderator. Another factor was students addressing issues beyond the scope of the SBA. For instance, students tried to reduce violence in their school using IT. Other students aimed to tackle school security concerns through IT solutions and a few students sought to address pandemic-related problems by utilizing IT to enforce protocols. While these endeavors are noble, they do not align easily with the IT solutions envisioned within the scope of the SBA.

SPECIFIC WEAKNESSES SEEN IN THE MODERATED PROJECTS

Problem Definition (2 marks)

In a properly defined problem the following must be identified.

- Who or what is experiencing the symptoms
- The symptom that forms the basis of the investigation
- The possible outcome if the symptoms are not rectified and the urgency of the intervention

Students were awarded 2 marks if they identified two or more of the criteria above.

Weaknesses identified in this section were as follows.

- Most students introduced several issues. This caused the scope of the project to be widened.
- Many students defined the problem using gender specific pronouns, for example, 'he uses a manual system'. By doing so, these students introduced bias into their analysis.

To address these issues, it is suggested that students use the word symptom instead of problem at this stage. Therefore, what is given as the problem would be a symptom of the problem that is to be determined in the analysis section. An example of such is lost revenue or drop off in sales etc. A properly defined problem also defines the scope of the project so that the student can focus on only one symptom.

An example of a fully defined problem is as follows. The key components are underlined.

Mr. Doe is the proprietor of the XYZ supermarket, over the last three months, his business has fallen off tremendously, if his fortunes do not improve in the next six months, he will be forced to close the supermarket which would put his three employees on the unemployment line.

Gantt Chart (2 marks)

The use of a Gantt chart allows the systems analyst to manage his/her time and project. Students can be encouraged to use this tool to plan the SBAs they may have to complete so that they would understand the utility of the Gantt chart. It is important that students use realistic time periods to complete each section of the SBA. Students should also be encouraged to construct two Gantt charts; the first chart shows proposed dates/times/durations and the second chart shows the actual dates/times/durations. They are then free to submit either chart.

A properly constructed chart must include the following.

- A title.
- Properly labelled axes (tasks on the vertical axis and dates on the horizontal axis).
- A description of the task must be included rather than phrases such as Task 1, Task 2, ...etc.
- Actual dates may be included or labels such as Day 1, Day 2 or Week 1, Week 2 on the horizontal axis.
- It is acceptable to include other tasks but it is not acceptable to omit any of the six main tasks. For example, a student may include in the analysis section the breakdown for the time spent on the interview, the observation and the questionnaires. A student can also include information on the time it took to format and put everything together (in the case of a group project) before final submission.

Analysis of the Problem (3 marks)

Definitions of the various tools are not necessary. It is also unnecessary to generate graphs for each question on the questionnaire. For example, it is not necessary to create a graph which shows how many respondents were female and how many were male. Candidates are not being assessed on their ability to generate a variety of graphs and charts.

After defining the problem, the systems analyst then carries out his investigation into the business by collecting data. It is expected that students give a definitive statement that indicates the cause of the symptom identified, for example,

...after reviewing the data collected from the ABC Company over the last six weeks, it can be seen that the reason for poor sales performance is that the floor space has been poorly laid out/too few cashiers working during peak times/low appeal of products on sale/mark up is too high.

(Problems purposely stated that are not necessarily solvable by IT to prove the point that poor performance may not be due to using a manual system).

In some instances, candidates did not structure the questions on the questionnaire appropriately. For example, students asked leading questions such as 'do you think the supermarket would benefit from introducing technology?'. A more appropriate question might be *what disappoints you in your interaction with this supermarket? (tick all that apply)* or respondents can be asked open-ended questions such as *what would you suggest to management to improve your (the customer's) experience?*

Candidates continue to experience problems in conducting observations. Times for the observation must be chosen wisely. For example, an observation into the operations of a school's book rental service can only be carried out at the end of the academic year since this is when most of the textbooks in circulation are returned; however, the observation of cashiers in a supermarket can be carried out anytime the supermarket is operating. Further, few customers may shop at the supermarket on mornings because most people are at work but Thursday or Friday evenings may be busiest because that is when weekly paid workers are paid. Therefore, a complete observation of a supermarket may be spread over four weeks, on different days at different times of the day to get a complete picture of the operation. Students may also want to visit the supermarket before they begin to record their observations so that the employees can become accustomed to them being there. At the end of the observation, an example of what the analyst can say is

From observing the operations of the supermarket over the last two weeks, it is evident that the poor layout of the floor is responsible for the dissatisfaction experienced by cashiers. This problem is more obvious during peak hours.

In other words, A statement must be made that summarizes the data gathered and identifies the cause of the problem. Many students were unable to do this because they had already identified the problem as 'the use of a manual system' in the problem definition section.

Identification of Possible Solutions (2 marks)

For the Unit 1 SBA, students must propose a minimum of two potential Information Technology (IT) solutions. Most students successfully suggested two comprehensive IT-based solutions. However, a few students proposed two software solutions or two internet-based solutions such as recommending both a spreadsheet and a database management system or creating a website and utilizing social media. These were treated as one solution. Alternatively, students could propose a specific named software package alongside another IT component like Accpac combined with a spreadsheet or creating a webpage and setting up an Instagram account.

It is important to note that when students suggest solutions such as the installation of cameras to address indiscriminate pilfering, the solution will only be considered if the student incorporates some form of Information and Communication Technology (ICT). For instance, an acceptable solution would involve storing digital images offsite using wireless internet as the transmission medium. Any non-IT-based solutions provided by the students will not be taken into consideration during moderation.

Evaluation of Possible Solutions (3 marks)

This section was well done by students. Those who did well did a side-by-side comparison of similar aspects of their proposed solutions (for example a side-by-side evaluation of processors in different systems) and not just a comparison of the prices. This section is not where SWOT analysis is used. Students who proposed a non-IT solution received no marks for their evaluation of the solution. Some students presented a side-by-side evaluation using similar criteria in the Identification of Possible Solutions section.

Solution (2 marks)

Students were required to choose the most feasible solution based on the evaluations of their proposed solutions. There was no penalty for choosing the least feasible solution based on the evaluation, especially if the choice was justified in the next section. Students received one mark if they proposed a database and spreadsheet (one software solution) or if they proposed a spreadsheet and purchasing a new filing cabinet (one IT based solution)

Justification of Solution (4 marks)

Students continue to misunderstand what is required. Many students lauded the benefits of the new system and completely missed the requirements of this section. Students are required to identify any issue that may arise from implementing the new system and then suggest a strategy to minimize the effect of the issue. An example of an issue that may arise is that users may not be familiar with the system and

make mistakes. A strategy to counter this would be to provide training for the employees in using the system. Students will be awarded four marks if they identify two issues that could arise from implementing the solution and then suggest strategies that could be used to mitigate these issues.

Presentation and Communication of information (2 marks)

Teachers/tutors are encouraged to itemize how they award marks. Very often, it is not readily apparent why the candidate is being awarded the full two marks.

A project can be described as organized and well-structured if

- it includes a table of contents and page numbers
- it includes a cover page that shows the subject, candidate's name, candidate's number, teacher's name, centre name and number
- it includes headings (underlined) and subheadings (indented)
- the document is prepared using Justify as the layout for the entire document
- the body of the document is prepared using Times New Roman 12pt
- the references are listed alphabetically by surname and online references listed alphabetically by document title.

Some students submitted projects that included a table of contents but the page numbers were missing. Such candidates were not awarded the marks. However, students who submitted a table of contents and page numbers that were not synced received the mark.