CARIBBEAN EXAMINATIONS COUNCIL

CAPE® INFORMATION TECHNOLOGY UNIT 2

Subject Report

May/June 2023

CARIBBEAN EXAMINATIONS COUNCIL

REPORT ON CANDIDATES' WORK IN THE

CARIBBEAN ADVANCED PROFICIENCY EXAMINATION ®

MAY/JUNE 2023

INFORMATION TECHNOLOGY
UNIT 2

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INTRODUCTION

This guide has been compiled using candidates' responses to the 2023 May/June examination in CAPE Information Technology. Unit 2, Application and Implication, consists of three modules, which are as follows.

Module 1 —Information Management
Module 2 — Use of Information Technology Tools
Module 3 — Social, Organizational and Personal Issues

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, 985 candidates were entered for CAPE Unit 2 Information Technology. Approximately 96 per cent of candidates obtained acceptable grades (Grades I to V). This figure was consistent with that of 2022.

Approximately 66 per cent of candidates gained Grades I–III, compared with 64.29 per cent in 2022. In the 2023 Unit 2 examination, approximately 14 per cent of candidates earned Grade I, compared with 16.71 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 88. The mean score was 59.76 (66.40 per cent) and the standard deviation 13.62.

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)

Candidates were required to identify one example of each term given in a table. Most candidates were able to accurately identify the terms.

Candidate's Responses to Part (a)

(a)   For each of the following terms, identify ONE example from the information in the table above.

Term	Example
Field	OLDE orders NO ✓ ✓
Record	1 ✓
Name of file	ORDErs ✓

[3 marks]

> **Examiner's Comments**
>
> The candidate correctly identified an example of a field and a record. The candidate was also able to give the correct name of the file.

Part (b) (i)

Candidates were required to explain which file organization is most suitable for the given processes. For Part (b) (i), they were required to do so for recording an order on a notepad. Candidates seemed not to realize that the word notepad meant a physical notepad. They thought the word referred to an electronic device.

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

(b). The sales representative writes each order on a notepad before entering it in a database management system (DBMS). The DBMS is also used to retrieve other orders. Explain which file organization is most suitable for the following processes.

(i) Capturing the order on the notepad

Capturing ~~Data~~ order on a not would not be suitable for following process because they can be lost and it would take too much Human work to sort out data on note pad

Examiner's Comments

The candidate correctly explained which file organization was most suitable for capturing an order on a notepad.

Part (b) (ii)

For Part (b) (ii), candidates were required to explain which file organization is most suitable for accessing an order from a DBMS. Many candidates had difficulty identifying a suitable file organization method.

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

(b). The sales representative writes each order on a notepad before entering it in a database management system (DBMS). The DBMS is also used to retrieve other orders. Explain which file organization is most suitable for the following processes.

(ii) Accessing an order from the DBMS

Accessing an order from the DBMS would be suitable because the system would help to store match and organize the data into necessary information.

[4 marks]

Examiner's Comments

The candidate correctly explained which file organization was most suitable for accessing an order from a DBMS.

Part (c)

Candidates were required to state one disadvantage of using the given methods for receiving orders. Overall, they were able to correctly identify a disadvantage of using a notepad and a DBMS.

Candidate's Responses to Part (c)

(c)   State ONE disadvantage of using EACH of the following methods for receiving the orders.

Notepad ...can........be.......misplaced//destroyed...easily...........

....

....

DBMS ....if......the......user......is......not.......techno—....very.............
.........comfortable....with...computers.,...recording......the....orders
...in...a...database..may..be.....very...slow.............................

[2 marks]

Examiner's Comments

The candidate gave two correct disadvantages of using each method.

Part (d) (i)

For Part (d), candidates were given a table which consisted of the orders and inventory of a company. In Part (d) (i), they were required to identify which customers would not have their orders filled and to give reasons for their answers. Overall, candidates were able to identify which customers would not receive their orders and give appropriate reasons why.

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

(i)   Identify which customers would NOT have their orders filled. Give a reason for your answers.

Customer with Cust ID 930 would not have their order filled because the quantity of Golden apple they desire is there. Customer with cust ID 828 order would not be filled because there the the amount limited ons of goods they desire is not there.

[4 marks]

Part (d) (ii)

In Part (d) (ii), candidates were required to outline how omissions in entering orders in the DBMS could impact the company. Candidates were able to explain the impact of incorrectly entered data on the company.

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

(ii)   Outline how omissions in entering orders in the DBMS could impact the company.

Omissions in entering orders in the DBMS could impact the company negatively because when it the for company to carry out stock inventory amount or financial audit it will give the company incorrect amount of sale and use of stocks; and this will cause major confusion in the company   **[2 marks]**

Part (a)

For this part, candidates were required to draw an entity-relationship diagram showing the relationship between each pair of entities, based on a given scenario. Though most candidates were able to identify at least three entities, some of them did not correctly identify the relationship between the entities. Most candidates did not demonstrate that they understood the concept of cardinality.

Candidate's Responses to Part (a)
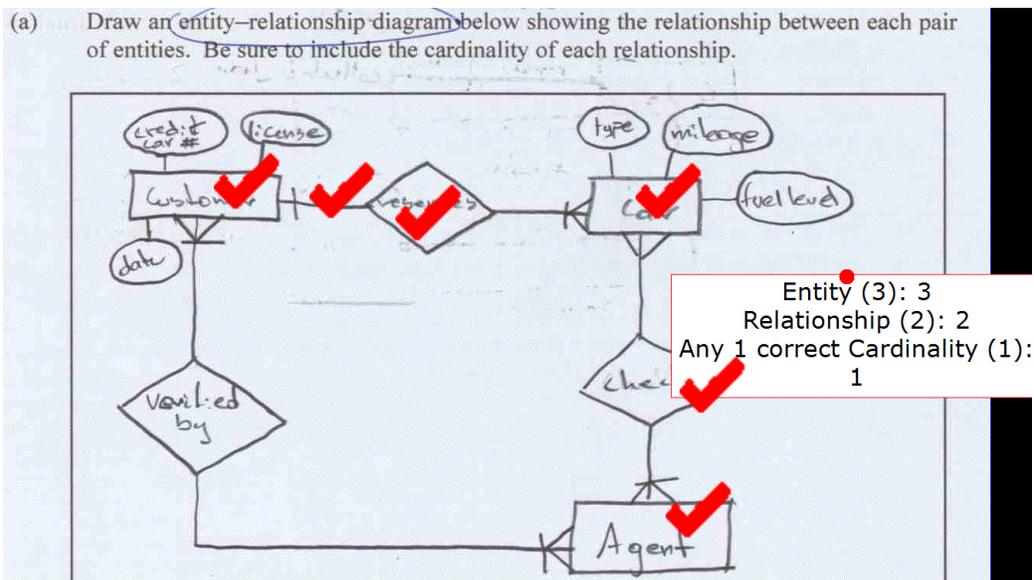
Examiner's Comments	

The candidate drew an accurate entity relationship diagram showing the relationship and cardinalities between the pairs of entities.

Part (b)

Candidates were required to draw a level 1 data flow diagram using only three processes. Some candidates could not demonstrate the association among the three processes.

Candidate's Responses to Part (b)

(b)　　Draw a level 1 data flow diagram using **only** the following **THREE** processes.

　　　(i)　　Reserve Car
　　　(ii)　　Collect Car
　　　(iii)　　Return Car
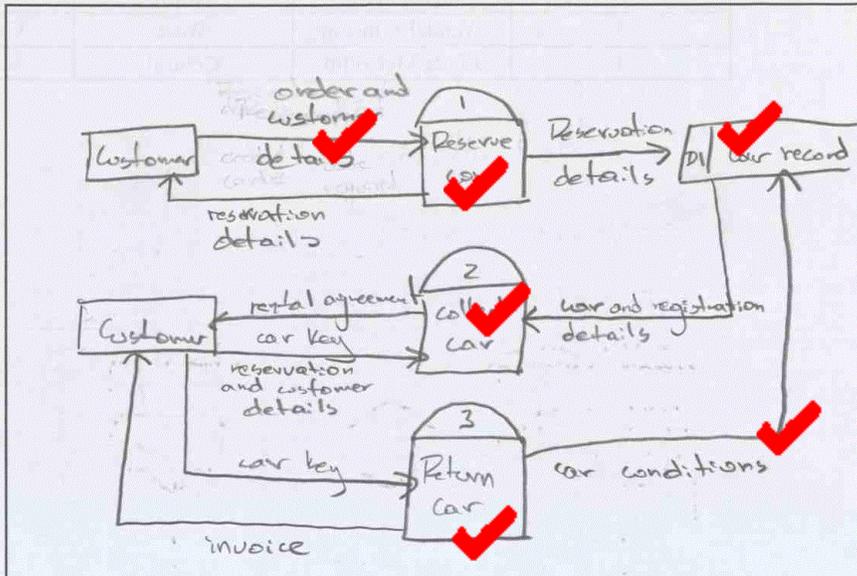
Examiner's Comments

The candidate accurately drew a level 1 data flow diagram using the three given processes.

Part (c)

Candidates were required to apply normalization rules to convert the information a table into 2NF. Many candidates were unable to correctly apply the rules.

Candidate's Responses to Part (c)

(c)   Apply normalization rules to the RENTAL table below to convert it into the 2NF.

Customer ID	Customer Name	Location ID	Rental Location
1	John Bourne	North	Sun Town
2	Susan Perry	Central	Main Street
2	Susan Perry	North	Sun Town
3	Wendel Winston	West	Corner City
4	Linda McCollin	Central	Main Street

CUSTOMER((CustomerID , (CustomerName) location ID)

LOCATION: (Location ID , Rental Location)

RENTAL INFO: ((Customer ID , location ID))

CUSTOMER

Customer ID	✔ Customer Name
1	John B.
2	Susan P
3	Wendel W.
4	Linda M.

Location Table (2): 2
Customer Table (1): 1

LOCATION ✔

Location ID	Rental Location
North	Sun town
Central	Main Street ✔
West	Corner city

RENTAL INFO

Customer ID	Location ID
1	North
2	Central
3	West
4	Central
2	North

[3 marks]

Total 15 marks

Examiner's Comments

The candidate correctly applied normalization rules to convert a table to 2NF.

Question 3

_____

Part (a)

Candidates were expected to recommend a productivity tool that could be used to track the orders and to give two reasons for the recommendation. Database and Spreadsheet were the most common responses given by candidates.

Candidate's Responses to Part (a)

(a) Recommend a more suitable productivity tool which Malika can use to keep track of cake orders. Give TWO reasons for your recommendation.

MS Access would be a more suitable productivity tool to keep track of her cake orders as databases enable Records and files to maintain Referential integrity and mitigate redundancies as well as insertion, deletion and update anomalies. Databases would also enable Malika to perform queries on relational databases which increases efficiency and process management speed, instead of using the flat file as she's currently using.

[3 marks]

Examiner's Comments

The candidate recommended a suitable productivity tool to keep track of orders.

Part (b)

Candidates were asked to explain which two headings in a given table would cause the data to be unreliable. Candidates lost marks for not being able to identify the headings or for being able to identify the headings but not explaining why they made the data unreliable.

Candidate's Responses to Part (b)

(b)   Malika was unable to use the information collected in Table 2 to complete the orders.
       Explain which headings in Table 2 would have caused the information to be unreliable.

Firstly, the contact information for customer name 'Rachel' is different for both orders. Secondly, the prices for the cake part payment are different for the same eating cake type. Lastly, one of the fields for the "Delivery or pickup" type is erroneous as it doesn't match whether is gonna be picked up or delivered this unreliable, inaccurate data with lack of integrity would lead to information being unreliable

[4 marks]

> **Examiner's Comments**
>
> The candidate correctly explained which headings would have caused information to be unreliable.

Part (c)

Candidates were expected to state and describe how any two cross-messaging platforms could be used to promote a cake business. Candidates lost marks for not describing how each tool could be effectively used or for stating only one tool.

Candidate's Responses to Part (c)

(c)   Describe TWO apps in cross–platform messaging that Malika could use to communicate
       with others to advertise her cake baking business.

Facebook ✓ or Instagram ✓ as both
platforms have program in place
for a sending messages ✓ among users Malika
could use to contact her
customers as well as posting
pictures ✓ and videos to advertise
cakes she has made to get
more customers.

[4 marks]

Examiner's Comments

The candidate correctly described two cross-platform messaging apps that could be used for advertising.

Part (d)

Candidates were expected to identify one advantage and one disadvantage of the use of Android and MacOS Operating Systems. While most candidates did fairly well, a few candidates based their responses on the device (for example, referencing storage) rather than the Operating System.

Candidate's Responses to Part (d)

(d)   Malika is keen on purchasing a device for her business. Identify ONE advantage and ONE disadvantage of using a device from EACH of the following operating systems.

Android   *Advantage: cheaper, Open Source Software that enables usage and manipulation of software to suit the needs of the user. Disadvantage: Intelligent security which leads to vulnerability to software attacks. Eg: viruses*

[2 marks]

MacOS   *Advantage: Efficient high security and sophisticated software protection. Disadvantage: Apple devices do run at a higher cost which may not be cost effective*

[2 marks]

Examiner's Comments

The candidate correctly identified one advantage and one disadvantage of using Android and MacOS operating systems.

Question 4

Part (a)

This question assessed Objective 12 from Module 2. Candidates were required to correctly state two benefits and one challenge of using virtual reality. They were also required to state two benefits and one challenge associated with using presentation software. Most candidates were able to provide a correct answer.

Candidate's Responses to Part (a)

Professor Thomas uses virtual reality and presentation software to deliver a lesson on volcanoes. His students report that they are enjoying the experience more from his classes.

(a)   State TWO benefits and ONE challenge of using EACH of the following methods to provide a different experience for the students.

Virtual reality

Benefits Two benefits of ~~start~~ virtual reality is that it is f and the students will get a real life vision of ~~wha~~ what it looks like and fels to feel or see a volcano.

Challenge One challenge is that some student may ~~fac~~ experience side-effects such as nausea or diziness because they may not be used to the virtual reality setting.

[3 marks]

Presentation software

Benefits Presentation software provides visual representation of a topic using videos or images to capture your audience attention and ~~so~~ it also allows for audio to be played during presentations.

Challenge A challenge is ~~your~~ you cannot fit ~~atot~~ a lot of information in one slide.

[3 marks]

Examiner's Comments

The candidate demonstrated that he/she had a good understanding of virtual reality and presentation software. The candidate was able to state two benefits and one challenge associated each experience.

Part (b) (i)

Candidates were required to identify three sources for finding information to do research, based on the scenario given. Responses from the candidates included websites, libraries and newspapers.

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

(b)   Students are given an assignment to research a volcano in the region.

     (i)   Identify THREE sources of information that would be useful for this assignment.

Three information sources that would be useful are books, websites or the internet and old newspapers.

[3 marks]

> **Examiner's Comments**
>
> The candidate correctly identified three sources that would be useful for gathering information on a volcano in the region.

Part (b) (ii)

This question required candidates to provide two suitable formats for displaying or presenting research to an audience. The responses from candidates were satisfactory, as they identified formats such as video, audio or text.

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

(ii)   State TWO suitable formats that students could use to display or present the assignment to the class.

The students can use a slide show that includes images and they can also use videos to present their assignment.

[2 marks]

Part (b) (iii)

Candidates were required to explain two criteria that could be used to confirm whether the sources for research were reliable. Most candidates were able to identify and explain either a person who had witnessed the event or a person who has the applicable credentials for discussing the matter.

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

(iii)   Explain TWO criteria the professor would use to confirm whether the sources on the students' reports are reliable.

One criteria the professor would use is level of scholarship to determine if the author of the source is qualified enough to ~~talk~~ write about the volcanoes. Another criteria is if the source was refereed by other ~~individuals~~ individuals who are experts in the related field.

Question 5

Part (a)

Candidates did not seem to understand the content related to licensing agreements and the benefits of such to an organization. Candidates were also unable to identify examples of licensing agreements appropriate to the stated industry.

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

(a)   The employees at ViceVybz music company use specific software to produce, edit and record the music.

     (i)   Explain what a licensing agreement allows the company to do.

A licensing agreement allows for for the Company to legally use the ⦰ software in respective to the requirements

                                                     [2 marks]

Examiner's Comments

The candidate correctly explained what a licensing agreement allows the company to do.

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

(ii)   Describe ONE licensing agreement which is suitable for the music company.

Multiple use licensing agreement – This allows for the software to be used by multiple sound Employees their for operation making it too more efficient.

                                                    [2 marks]

Examiner's Comments

The candidate correctly described one of several possible types of licensing agreements.

Part (b)

Overall, candidates were able to discuss the copyright infringements that possibly occurred, based on the given scenario. They were also able to examine the way the organization could be impacted by using digital media that was created by an artiste without seeking permission.

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

(b) The company's music producer discovers that a new artiste used a large portion of a song from a previous artiste.

(i) Outline TWO possible laws which the new artiste could have violated.

Copyright laws — this is when someone uses the media or product of one person and passes it off as their own. By using a large portion of a previous artiste song without paying to use it, it violates copyright laws.

Trademark if the song has a specific line that is recognized as a trademark, the new artist using that may go against the law.

[4 marks]

Examiner's Comments
The candidate demonstrated that he/she understood intellectual property rights by correctly outlining two laws that could have been violated.

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

(ii)   Describe TWO implications for the company using the digital media of the previous
        artiste without seeking permission.

1. legal action ✓ using digital
media of another artiste without
their permission can lead to the
company being sued or fined ✓
2. lack of confidence in the
company — clients may withdraw
their enrollment with the company
as they are seen as thieves ✓ and
would not want to associate [4 marks]
themselves with the company.

Examiner's Comments

The candidate correctly described two implications for the company of using digital media without
seeking permission.

Part (c)

Candidates were required to discuss some of the social implications of allowing young audiences to access
and listen to music on digital platforms. Responses varied and while many candidates were able to identify
at least three appropriate implications, others could not articulate their responses to demonstrate good
analysis of the context or assess potential information technology risks to the individual and society.

Candidate's Responses to Part (c)

(c) The company usually streams the music using a popular online platform which does not have any policy restrictions.

State THREE social implications of young unsupervised audiences listening to music on this online platform.

Young unsupervised audiences listening to music on this platform are ① exposed to Mature conten, not Socially suitable for their age: ② Children are more likely to face bullying and Cyber Harrasment. ③ Children are more likely to be attacked by pedofiles on the online platforms.

[3 marks]

Examiner's Comments

The candidate demonstrated that he/she had understood the social implications of young unsupervised audiences listening to music on the online platform by providing three correct points.

Question 6

Part (a)

Candidates were able to identify three action points in a disaster recovery plan. However, more discussion in this area is needed to help candidates to understand that a disaster recovery plan should be created by doing the following.

- Identifying likely hazards and risk factors that can threaten the company's survival, including physical and digital risks
- Analysing the likely impact of identified risks on a business
- Determining a backup option for data and software applications
- Documenting all the steps to take before, during and after a disaster
- Testing the recovery plan
- Subjecting the plan to regular tests to ensure that the plan can achieve its objectives

Candidate's Responses to Part (a)

(a)   Several Caribbean countries have experienced natural disasters such as hurricanes and earthquakes. Describe THREE action points which should be included in a disaster recovery plan, with respect to a company's data.

— Data Back up - should be done to multiple def devices for recovery when lost. e.g. storing data on more than one computer, in different locations.
— uploading to cloud - since the cloud is not affected by external damage it can be re data can be redownloaded.
— Important data should be stored in vaults or safehouses to prevent damage. (data on flashdrive and hard discs can be locked away of in water/fire proof safes.

[6 marks]

Part (b)

Most candidates were able to identify two environmental risks and their associated impact. These impacts often included the following.

- Toxic chemicals can be released into the air from the equipment
- Toxic metals can cause water pollution

Candidate's Responses to Part (b)

(b) A large telemarketing company did not secure its hardware during a natural disaster. Describe TWO major environmental risks and how EACH risk can impact the environment.

> − Fire − a large scale fire can break out if if the hardware plugged into current makes contact with water. This can cause fire to spread throughout the area.
> − Pollution − hardware components are non biodegradable and therefore can block drainage clays, chemicals in the battery can run into water bodies.

[4 marks]

Part (c) (i)

Candidates were required to discuss the use of personal email addresses and personal devices after a disaster. Most candidates were able to mention at least two policies that should be implemented by the company, including

- prohibiting excessive use of personal emails and personal devices

- securing personal devices and emails from external people having access.

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

After the disaster, the employees who were working remotely used personal devices and personal email addresses to send business emails to clients.

(i) State THREE policies or practices that the company should implement relating to employees' use of personal devices and personal email addresses.

The company can encrypt data to ensure only the user and reciever can get the message. The company can ensure password are not commonly use words and The company can also tell the employees to only open trustworthy emails on their device

[3 marks]

Examiner's Comments

The candidate demonstrated a good understanding of the issues by stating examples of three policies that can be implemented to protect the company's interest.

Part (c) (ii)

Candidates were able to correctly identify the negative impact that using personal devices and email addresses can have on a company. These include invasion of privacy, inappropriate sharing of company data and the increased susceptibility to viruses that could be introduced via email.

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

(ii)   Explain how the actions of these employees can negatively impact the company.

The actions of these employees can negatively impact the company because Employees are a liability when it comes to company data. Employees can be hacked or blackmail and give away companies classified information without even knowing.

[2 marks]

Examiner's Comments

The candidate demonstrated that he/she understood how employee actions could negatively impact the company by giving a clear explanation of two negative outcomes.

PAPER 031 — SCHOOL BASED ASSESSMENT

The Unit 2 SBA is a continuation of the Unit 1 SBA. In Unit 1, students were required to identify a problem in their environment and suggest several Information and Communication Technology (ICT) based solutions, evaluate them and then justify the selected solution. For Unit 2, students are required to produce the database application or the webpage that was the identified solution to the problem.

Some students inserted the full Unit 1 SBA in their report. While it is understood that the information is applicable to the Unit 2 project, including such information introduces extraneous data that adds nothing to the Unit 2 report. The suggested word count for this SBA is 500 to 700 words. There is no penalty for exceeding this limit, however students should be encouraged by their teachers/tutors to make every attempt to stay within the suggested word limit.

Students and teachers are encouraged to pay attention to the requirements of the Report section of the SBA.

Of concern during moderation, is the number of projects submitted that appear to be incomplete because no files or screenshots of the student's work were submitted along with the project. Teachers/tutors should be aware that at moderation, marks can only be awarded for what is submitted. Teachers/tutors should make a very special effort to confirm that all relevant sections of the projects chosen for moderation are included in the folder to be uploaded. At the same time, students should be encouraged to take screenshots of every form/table/query/webpage and page of HTML code of their project and include it with the report. In this way, if the application or webpage fails to load or open, there is still evidence of the work done. Students should also be encouraged to include appropriate test data and the results as evidence that their application or webpage works.

SUMMARY OF MODERATION RESULTS

In 2023, 289 projects were submitted for moderation.

The following table provides a comparative summary with the results for 2022.

	2022	2023
Maximum score	60	60
Minimum score	0	0
Average score	44.1	47.1
Modal score	51	51
Percentage > 30	85.5	92
Percentage > 50	43.4	55

While the overall performance of students was encouraging, 23 of them (8 per cent of students) who were unable to gain 50 per cent of the marks. It should be noted that most of these candidates did not submit a fully working application or webpage nor did they submit screenshots as visual evidence of work done. In some cases, the report section was also not well done either.

SPECIFIC WEAKNESSES SEEN IN THE MODERATED PROJECTS

The Report (8 marks)

The report consists of the following sections.

Problem Definition (1 mark)

This section is a continuation of what was provided in the Unit 1 report. It is therefore expected that a student would use the problem statement from their Unit 1 SBA. In the problem definition section, the students should identify the symptom of the problem. In the statement the student should identify the person or entity being impacted and an outcome if the symptom is allowed to persist. The following is an example of a Problem Definition.

> Mr Brown, owner, and operator of XYZ supermarket is concerned that he has been unable to recoup his expenses in the last six months of operation. He fears that unless this is remedied quickly, he may be forced to close the supermarket rendering his five employees unemployed.

The following should be noted about the example of the Problem Definition.
- Mr Brown is identified as the person being impacted.
- The symptom is identified (he is losing money). There may be several other issues, but we are working on this one because it is a priority for Mr. Brown.
- An outcome is identified if the symptom is allowed persist.

Analysis of the Problem (2 marks)

Overall, students did this section was poorly. Some of the weaknesses identified were as follows.
- Some students only gave definitions of the tools used.
- Many students identified several issues in the Problem Definition section and then experienced difficulty trying to identify a cause of the issues.
- Many students gave some analysis of the tools used but failed to identify the root cause of the problem.
- Most students did not summarize their findings in the analysis section because they had already identified the problem as the use of a manual system in the Problem Definition.
- There were a few cases where the student identified the problem as the use of a manual system in the Problem Definition section but based on the data gathered some other factor was identified as the root cause of the problem.

Students are not required to submit evidence of the tools used. Marks are given for mentioning the tools used to gather the data. For the second mark, candidates must summarize the data and identify the root cause of the problem. An example of what is required is as follows.

> Of note, Mr Browne's answer to the question, "What measures do you think you could introduce to make your business more competitive?" was quite telling. He admitted that all his competitors had introduced some measure of computerization in their businesses and they were doing quite well and he thinks the time has come for him to also get on that train.

A summary from an observation could be as follows.

> The supermarket owner needs to receive all his orders on Wednesdays and have them priced and on the shelves by midday Thursday. He also needs to ensure that all his cashiers are working on Thursdays and Fridays in the afternoon in order to ensure that his customers have a hassle-free experience.

After all the summaries from what the group members' have gathered based on their use of the different tools used have been submitted (especially useful if different members of the group each used a different tool to collect data), a statement that summarizes all the data collected must be made. This statement must point to the root cause of the symptom observed. The following is an example of how the statement should be written.

> 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.

Identification and Justification of IT Tools Used in the Solution (2 marks)

Most candidates performed poorly in this section. They failed to meet the specific requirement for identifying the tools used to produce their solution. While some students received credit for listing the tools used to complete the report, only those who accurately identified the specific tool used to develop their solution, such as a Database Management System (DBMS), were awarded two marks. Furthermore, to achieve the full two marks, students were required to justify their choice of the DBMS by highlighting a unique feature of the tool, for example, its ability to enforce data integrity.

It is important to note that students were not awarded marks for giving hardware tools such as computers, keyboards and mice because such items constitute basic computer system components and are commonly utilized when implementing any IT solution. Similarly, browsers were generally not credited unless a student could demonstrate a specific advantage of using a particular browser over others. However, if students used specialist equipment like scanners, they were credited both for identification and justification, provided that the given reason genuinely justified the use of such equipment in their solution.

Assessment of the Implications of the Solution (3 marks)

Many students performed poorly in this section. They either overlooked the requirement to address the implications of the solution and instead focused solely on its benefits or they were unaware of the meaning of implications altogether. Some students managed to identify potential impacts that could arise from implementing the solution but they failed to provide adequate strategies to tackle these issues effectively.

On the other hand, students who excelled in this section followed a structured approach. They began with a SWOT analysis, identifying the system's strengths, weaknesses, opportunities and threats. They then proceeded to list possible issues that could arise and to pair each issue with corresponding strategies to address them. To achieve full marks, students were expected to identify and discuss at least one issue and then provide a comprehensive strategy to mitigate it. For instance, a student might recognize cybersecurity risks as a critical issue when implementing an IT-based solution and then suggest and discuss employing endpoint protection for devices, providing specialized training to enhance staff's cyber hygiene or implementing a network architecture that promotes segmentation. A thorough discussion of any of these strategies, outlining what the strategy entails and how it effectively addresses the issue, would suffice for students to earn full marks.

Implementation of the IT based solution (12 marks)

Appropriate Use of IT Tools (1 mark)

This requirement was linked to the Identification and Justification of IT Tools Used in the Solution section. All students who submitted evidence of a working solution (application, webpages or screenshots of such) were awarded the mark. This section was well done by students.

Human Computer Interface (2 marks)

This section was well done by most students. Those students who did poorly were those who submitted a database solution but did not include a switchboard or those who submitted a webpage as their solution but there was no home page or link to a homepage.

Appropriate use of features of tools (2 marks)

This section was also well done by most students. Those students who performed poorly did not submit a working solution nor did they submit screenshots of their solution. If they mentioned the tools they used in the Identification and Justification of IT Tools Used in the Solution section, they were awarded one mark for giving some relevant features.

Working Solution (7 marks)

Candidates were required to implement one of the following types of solutions.

Database

The modal score for students who submitted a database solution was five. In most instances, students lost marks because they did not show relationships between the tables or they did not provide evidence of integrity checks. These could have been easily shown by submitting screenshots as evidence.

Some students submitted a password protected database but failed to submit the password or they submitted a password that failed. In such cases, the solution was assessed if screenshots were submitted along with the report.

Students lost one mark for the Features Working section if they failed to submit a switchboard with their application. In the Solution Solves the Problem section, students were awarded marks if it was sufficiently related to the Problem Definition. Students were awarded one mark if the problem was not properly defined. While not a requirement in the mark scheme, students should be encouraged to include (for completeness) their steps in normalizing their data.

Website

The modal score for students who submitted a website as their solution was six. Students often lost marks for their navigational features and design and layout. For navigational features, some students submitted screenshots of their HTML code highlighting the links to the other pages. Providing such was sufficient for students to gain the two marks. A mark was lost if the student submitted screenshots of the webpages and no HTML code.

Students who lost a mark for their design and layout usually lost it for using inappropriate font sizes and styles. In these instances, a cursive style font was used and the size of it made it difficult to read. In some cases, the font colour used was so similar to the colour of the page background that the text was rendered invisible.