

THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



**CANDIDATES' ITEM RESPONSE ANALYSIS
REPORT FOR THE CERTIFICATE OF SECONDARY
EDUCATION EXAMINATION (CSEE) 2018**

036 INFORMATION AND COMPUTER STUDIES

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FOREWORD

The National Examinations Council of Tanzania is pleased to issue the Candidates' Item-Response Analysis (CIRA) report in Information and Computer Studies for the Certificate of Secondary Education Examination (CSEE) 2018. The analysis provides feedback to the students', teachers, parents, policy makers and other education stakeholders on how the candidates' attempted the questions.

The Certificate of Secondary Education Examinations marks the end of the four years of secondary education. It is a summative evaluation which, shows, among other things, the effectiveness of the education system in general and education delivery system in particular. Essentially, the candidates' responses are strong indicator of what the education system has been able or unable to offer to the candidates in their four years of ordinary secondary education.

The analysis presented in this report is intended to contribute towards understanding of the reasons for the candidates' good and poor performance. The reasons for good performance include sufficient knowledge of the content in the topics tested and correct interpretation of the questions. The reasons for candidates' poor performance include wrong interpretation of the requirements of the questions, lack of practical skills in responding to the questions and inadequate knowledge on the tested topics.

The feedback provided in this report will enable educational administrators, school managers, teachers and the students to identify measures to be taken in order to improve the candidates' performance in future examinations.

Finally, the Council would like to thank everyone who participated in the preparation of this report.



Dr. Charles E. Msonde
EXECUTIVE SECRETARY

1.0 INTRODUCTION

This report presents an evaluation of candidates' performance in the 2018 Information and Computer Studies Certificates of Secondary Education Examination. The examination assessed the knowledge and competencies acquired by the candidates. The examination was set according to the examination format which was developed in accordance with the 2005 Information and Computer Studies syllabus for Ordinary Secondary Education.

The examination had two papers, Information and Computer Studies 1 (Theory) and Information and Computer Studies 2 (Practical). The theory paper had three (3) sections A, B and C. Section A consisted of three (3) objective questions with ten items each. Section B had six (6) short answer questions. All questions in sections A and B were compulsory. Section C had three (3) optional essay type questions. The candidates were asked to attempt two (2) questions. The practical paper had three (3) questions with 25 marks each. The candidates were required to attempt two (2) questions.

A total of 2,820 candidates sat for the Information and Computer Studies examination in 2018. Out of these candidates, 2,368 (86.1%) passed the examination and 382 (13.9 %) failed. In 2017, a total of 2,420 candidates sat for Information and Computer Studies examination. Of these candidates, 2,084 (87.1%) passed the examination and 336 (12.9%) failed. This means that there was a slight decrease in performance by 1 percent in 2018.

This report provides feedback to our stakeholders on candidates' performance, showing both candidates' strengths and weaknesses. The candidates' performance in each question/topic has been categorized using the ranges of 0 to 29 (poor performance), 30 to 64 (average performance) and 65 to 100 (good performance). These intervals stand for the percentage of the candidates who scored from 30 percent or more of the marks allocated to the question. In this report, the candidates' performance is presented in different charts/tables in which the red colour stands for poor performance, the yellow colour for average performance and the green colour for good performance.

The analysis of the candidates' performance is done by showing the requirements of the questions, what the candidates wrote and the mistakes they made while attempting the questions. Furthermore, the extracts from

candidates' responses are included for easy reference. Finally, the report presents conclusions and recommendations.

2.0 ANALYSIS OF THE CANDIDATES' PERFORMANCE PER QUESTION IN PAPER 1

2.1 Question 1: Multiple Choice Items

This question consisted of ten (10) multiple choice items which were composed from the following topics: *The Computer, Computer Handling, Computer Software, Word Processing, Spreadsheet, and Computer Network and Communication*. The candidates were required to choose the correct answer among the given five alternatives (A-E). The question carried 10 marks.

The results of the analysis showed that all 2,820 (100%) candidates attempted this question. Of which, 479 (17%) candidates' scored from 0 to 2 marks and 2135 (75.7%) from 3 to 6 marks. Only 26 (7.3%) candidates scored from 7 to 10 marks. Figure 1 presents the candidates' performance in this question.

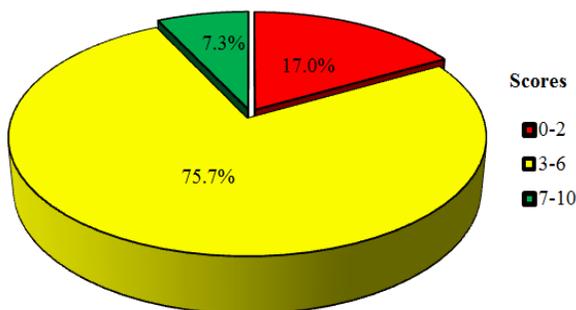


Figure 1: *The candidates' performance in question 1.*

The performance of the candidates in this question was good, since 83 percent of the candidates scored more than 2 marks, as shown in Figure 1. A higher proportion of the candidates (83%) chose the correct answer from the items. This showed that the candidates understood the requirement of the question. However, a few candidates (17.0%) performed poorly. The analysis carried out on candidates' responses revealed that, the candidates who failed to score high marks had difficulty answering items; (ii), (v) and (vii).

Item (ii) stated that: *The increase of voltage above 110% of the normal voltage is called*

- A over voltage*
- B high voltage*
- C Sag*
- D alternation*
- E surge*

The correct answer was *E, surge* but most of the candidates chose other alternatives. The candidates' who opted alternative *A, over voltage* and *B, high voltage* associated the words 'increase of voltage' used in the stem with the words "over" and "high" which were used as distractors. Alternative *D, alternation* was also not correct because it refers to the increase and decrease of voltage. Others chose *C Sag* which is the sudden drop in voltage. This indicates that the candidates had difficulty differentiating the technical terms 'Sag' and 'Surge'.

Item (v) was as follows: *Software which is installed when a new hardware is connected to the computer system is called*

- A Utility program*
- B Operating system*
- C Firmware*
- D Driver*
- E Application software*

The correct answer was alternative *D, Driver* which is the software used to support the connection of the new peripheral devices such as printer to the computer. The candidates who chose wrong answer failed to realize that *A, Utility program* is a special program that performs commonly used services that make certain aspects of computing function smoothly. Alternative *B, Operating system* consists of a set of complex programs that work together to control the execution of user programs and acts as an interface between the user and the computer. Alternative *C, Firmware* is a combination of both the software and hardware recorded permanently on electronic chips. Lastly, alternative *E, application software* refers to the program which helps a user to accomplish specific tasks. This shows that the candidates lacked critical understanding on the function of drivers in the computer.

Item (vii) stated that, *which of the following error in excel is displayed due to invalid intersection of cells?*

- A #N/A*
- B #NUM!*
- C #NUL!*
- D #VALUE*
- E #REF*

The correct answer was *C, #NUL!* which describes an error due to the formula references an invalid intersection of cells. Other alternatives were incorrect because *A, #N/A* means a value is unavailable to a function or formula. *B, #NUM!* shows a problem with a number in a formulae or function provided. *D, "#VALUE!"* indicates wrong type argument or wrong operand used while *E, #REF* occurs due to invalid cell referencing as a result of deleting cells that are referenced to. The answers indicate that, the candidates did not know the error code in spreadsheets. This could be due to lack of practical skills.

2.2 Question 2: Matching Items

In this question, the candidates were required to match the functions of network devices in List A to their corresponding network device in List B by writing the letter of the correct response beside the item number in the answer booklet provided. The question was intended to measure the candidate's ability to identify the functions of different network devices.

List A	List B
(i) A device that is used in twisted pair cable as terminator.	A RJ45
(ii) A device that connects computers in the network and relay signals from one computer to another.	B Antennae
(iii) A device that connects two nodes point to point as if they were linked by a direct cable between them.	C Bridge
(iv) A device that converts signals from analog to digital and vice versa.	D RJ terminator
(v) A device that creates a physical link between the computers and the transmission media.	E RJ40
(vi) A device that handles distortion from signals before sending them to another segment.	F Gateway
(vii) A device used to connect different networks.	G Hub
(viii) A device that can be configured to provide access to wide area network.	H Modem
(ix) A device that selectively determine the appropriate segment for which a message is meant for delivery through address filtering.	I NIC
(x) An instrument with wireless hardware for detecting signals in the surrounding.	J Repeater
	K Router
	L Switch
	M Terminator

A total of 2,028 candidates attempted this question. Of which, 1,472 (52.2%) candidates scored marks ranging from 0 to 2. The candidates who scored from 3 to 6 marks were 1,152 (40.8%), whereas 196 (7%) scored from 7 to 10 marks. The performance of the candidates' in this question is summarized in Figure 2.

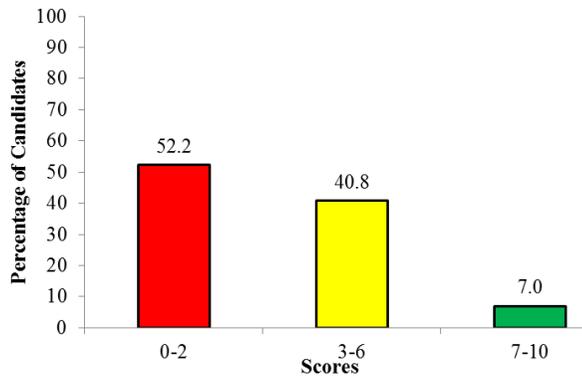


Figure 2: *The candidates' performance in question 2.*

Figure 2 shows that, 1,348 (47.8%) of the candidates scored from 3 to 10 marks and therefore, the candidates performance in this question was average. Analysis of candidates' responses revealed that most candidates faced difficulties in attempting items (iii), (vi), (vii), (viii) and (ix).

Item (iii) required the candidates to identify a device that connects two nodes point to point as if they were linked by a direct cable between them. The correct answer was *L, Switch*. Some of the candidates chose *K, Router*. The candidates' answer was wrong because a Router generally contain a specialized operating system with ability to forward data packets between different networks.

Item (vi) required the candidates to identify a device which handles distortion from signals before sending them to another segment. The correct answer was *J, Repeater* but some candidates chose *C, Bridge*. These candidates failed to understand that a Bridge is a device that selectively determines the appropriate network segment for which a message is meant for delivery through address filtering.

Item (vii) required the candidates to identify a device which is used to connect different networks. The correct answer was *K, Router* because the

router interconnects different networks and directs the transfer of data packets from source to destination. Some candidates chose *G, Hub*. These candidates failed to understand that Hub is a device which connects computers on a network and is able to relay signals from one computer to another on the same network.

Item (viii) required candidates to identify a device which can be configured to provide access to wide area network. The correct answer was *F, Gateway* but some of the candidates chose *H, Modem*. These candidates did not know that, the modem is specifically used to convert signals from analog to digital and vice versa.

Lastly, item (ix) required the candidates to identify a device which selectively determines the appropriate segment for which a message is meant for delivery through address filtering. The correct answer was *C, Bridge*. However, some candidates chose *L, Switch*. These candidates failed to understand that switch connects computers in the network and relay signals from one computer to another.

2.3 Question 3: True / False Items

The question consisted of ten (10) True or False items which were composed from the following topics: *computer networking and communications, the computer, multimedia, web development, and presentation*. The candidates were required to write **True** for a correct statement and **False** for incorrect statement.

The following items were given:

- (i) Both ROM and RAM are Volatile. _____
- (ii) The CPU carries out all instruction executions. _____
- (iii) Hypermedia is **not** a subset of Multimedia. _____
- (iv) Notepad provides the basic standard for creating Webpages.

- (v) Presentation software is very difficult to learn how to use. _____
- (vi) It is possible to insert an image in a HTML document using tags.

- (vii) Video is a powerful tool in presentations. _____
- (viii) A byte is a pattern of bits sufficiency to store a character. _____

- (ix) Pasteboard is a small blank space surrounding the printable area where objects are designed or edited. _____
- (x) A JPEG is a standard for the storage and transfer of images that uses image compression techniques to minimize storage size. _____

A total of 2,820 (100%) candidates attempted this question. The analysis showed that 9 (0.3%) candidates scored from 0 to 2 marks and 626 (22.2%) from 3 to 6 marks. Those who scored from 7 to 10 marks were 2,185 (77.5%). Figure 3 represents the summary of the candidates' performance in this question.

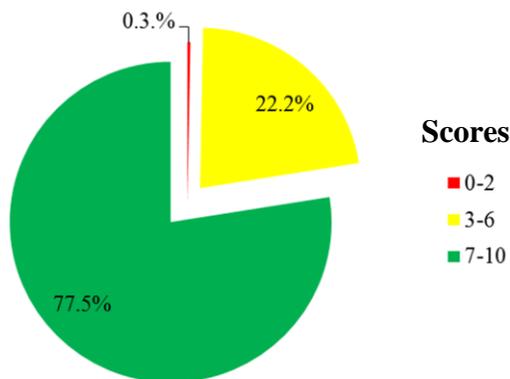


Figure 3: *The candidates' performance in question 3.*

The candidates' performance in this question was good, because 99.7 percent of the candidates scored more than 2 marks. Majority of the candidates gave correct responses in many items. However, a few candidates had problems in answering items (viii) and (ix).

Item (viii) tested the candidates' knowledge on computer data storage. The correct answer was 'True'. The candidates who wrote 'False' did not know that a byte is a *pattern* of bits sufficient to store a character and a byte can hold one character at a time. The wrong responses may be attributed to the fact that the computer storages units are not common to the students because most of the storages devices such as Compact Disk and Flash disk are in Mega Byte (MB) and Giga Byte (GB).

Item (ix) tested the candidates' knowledge on the meaning of the term pasteboard when working with Desktop publishing. The correct answer was False. The candidates who wrote True were wrong because pasteboard is a large blank space surrounding printable area where objects are designed or

edited. This indicates that candidates lacked practical skills on desktop publishing packages.

2.4 Question 4: Spreadsheet

This question tested the candidates' knowledge on the application of spreadsheet. The candidates were given the following snapshot which gave the information on the possible income collection of a business man:

	A	B	C	D	E	F
1	INCOME				EXPENSE	
2		Quantity	Per Unit	Product	Containers	
3	Bottles	589	0.45	265.05	4.5	
4	Paper kg	250	1	250	3.25	
5	Cans	12367	0.05	#VALUE!	10.00	
6	Others	1221212	30	#####	5.00	
7	Total				18.25	
8						
9						

This question had two parts (a) and (b). In part (a), the candidates were required to use the information given in a snapshot to answer the following questions;

- (a)
 - (i) Write the feature (s) used in row 1 to make the text appear as a single cell in columns A – D.
 - (ii) Give the feature (s) used in cell C2.
 - (iii) Give the descriptions of the error message appeared in cell D5 and write the correct function which required giving the valid result.
 - (iv) Why is the answer in cell D6 not displayed correctly?
- (b) Describe any two special features of the spreadsheet program.

Out of 2,721 (96.5%) candidates who attempted this question, 1,796 (66%) scored from 0 to 2 marks. The analysis indicates that 840 (30.9%) scored from 2.5 to 5 marks, while 85 (3.1%) scored from 5.5 to 8 marks. The candidates' performance in this question was average because only 925 (34%) of the candidates scored more than 2 marks. Figure 4 shows the summary of the candidates' performance in this question.

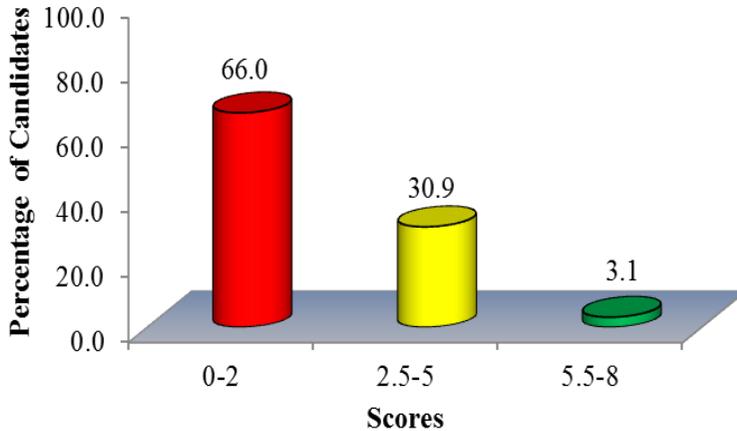


Figure 4: The candidates' performance in question 4.

The analysis showed that, 66 percent of the candidates who scored from 0 to 2 marks wrote the correct features used in row 1 in part (a) (i), which was merge and center. Some of the candidates wrote wrap text feature in part (a) (ii) but could not recognize the center alignment feature. In part (a) (iv), a few candidates gave a reason which led the answer in cell D6 not to be displayed correctly. The answer provided by these candidates was *the column is not wide enough to accommodate the values*. Further analysis indicates that some of the candidates faced difficulties in part (b). They explained the functions or activities performed by the spreadsheet instead of its special features. For example, one of the candidates wrote *it is used to perform calculation and analyze data* instead of it has inbuilt-formula called functions which simplify calculations on the numerical data. Others wrote the title bar, toolbar, status bar, scroll bar features which are found in Microsoft word window.

However, 619 (22.7%) candidates who scored zero mark wrote *word wrap* feature in part (a) which is found in Microsoft word instead of *wrap text* which exist in Microsoft excel. In part (a) (ii), some of the candidates' wrote *column span, rows pan, cell expansion* and *cell padding* in cell C2 instead of wrap text. The analysis also showed that these candidates did not know the descriptions of the errors #VALUE and ##### tested in part (a) (iii). For example, one of the candidates wrote that: *#VALUE indicates incorrect value or function* while others wrote *invalid intersection of cells* instead of wrong type argument or wrong operant used. Extract 4.1 presents an example of incorrect responses.

Extract 4.1

Q4	
(a)(i)	Features used in row 1 to make the text appear as a single cell in column A-D is Alignment.
	Vert Horizontally
(ii)	Features used in cell C2 Alignment vertically.
(iii)	Description of the error appear ^{on} message in cell D5. is Unenough of text because of short cell. so correction of this function to increase cell.
(iv)	The answer in cell D6 not displayed correctly because of Uncorrect of formular Intered.
Q4(b)	→ Function formular.
	→ Alignment.

Extract 4.1 shows the response of a candidate who wrote *alignment horizontally* and *alignment vertically* as a feature applied in A-D and C2 instead of merging and wrap text. The candidate also interchanged the answers in part (a) (iii) & (iv).

Moreover, some of the candidates 840 (30.9%) who scored average marks (2.5 to 5) gave the correct features in part (a) (i), (ii) which were merge & center and Wrap text respectively. They also gave the reasons for the answer in cell D6 not to be displayed correctly. Some of the candidates described the error message #VALUE! but wrote incorrect function required to give the valid results. Others wrote the function with incorrect cell reference. For example, one of the candidates wrote the function =PRODUCT(B6,C6) instead of =PRODUCT(B5,C5). Further analysis showed that some of the candidates had concept of cell referencing but they did not know the function name required. For example, some candidates wrote =Division (B5:C5) and =Multiply(B5:C5). Others wrote the formula =(B5*C5), instead of the function =PRODUCT(B5, C5). These candidates failed to differentiate a function from a formula used in spreadsheet. Few of them managed to describe only one special feature of spreadsheet program in part (b) instead of two features.

On the other hand, a few candidates 85 (3.1%) who scored from 5.5 to 8.0 marks gave the correct feature in part (a) (i) and (ii). It was observed that, in part (a) (iii) a few of them gave the correct descriptions of the error message displayed in cell D5 and the function required. They also wrote the reason in part (a) (iv). However, some of these candidates did not know the special

features of the spreadsheet program and others mentioned the features without correct explanations. For example, one of the candidate wrote; “*spreadsheet has virtual ledger sheets (worksheet), which consists of rows and columns*”. This indicates that the candidate lacked critical understanding of the knowledge of spreadsheet features.

2.5 Question 5: Internet

This question consisted of three parts (a), (b) and (c) as follows:

- (a) Give the long form of the term internet and give its purpose.
- (b) Describe four advantages of using internet.
- (c) Identify three basic elements considered when composing an e-mail.

A total of 2,793 candidates (equivalent to 97%) attempted this question. The analysis shows that 1,462 candidates (52.3%) scored from 0 to 2.5 marks and 1,173 (42%) from 3 to 5.5 marks. A few candidates 158 (5.7%) scored from 6 to 9 marks. Figure 5 illustrates the candidates’ performance in this question.

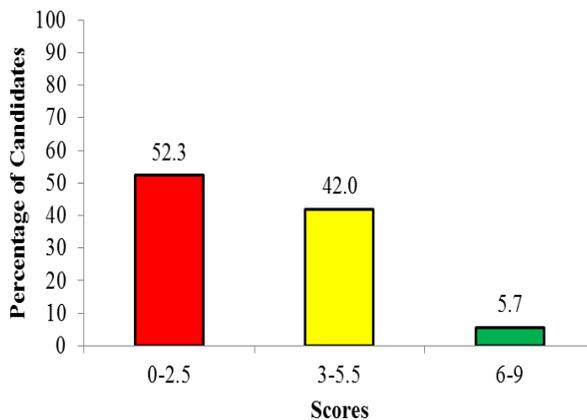


Figure 5: The candidates’ performance in question 5.

Generally, the candidates’ performance in this question was average as 47.7 percent scored more than 2.5 marks. In part (a), majority of the candidates (52.3%) who scored low marks wrote *International network* as a long form of internet instead of interconnected network. These candidates interpreted the prefix *inter* from the word internet as international because the internet cut across in different nations (worldwide). Furthermore, in part (b), some of the candidates wrote the advantages of internet instead of the purpose. For

example, one of the candidates wrote *the purpose of internet is to allow communication between millions of computers in the world* instead of information sharing and communication. However, some described few advantages of internet with unsatisfactorily explanations. Others correctly listed the advantages of using internet without any explanations.

Further analysis of candidates' responses showed that many candidates wrote the parts of an e-mail address in part (c) instead of the basic elements considered in composing an e-mail. The answers given by some of the candidates were *username*, *@* and *domain name* instead of header, message and signature. Others wrote *internet*, *application software* and *modem*. Extract 5.1 presents a sample of such incorrect responses.

Extract 5.1

5.	a) <u>"internet"</u> → <u>Intercontinental Network</u> and its purpose is to turn the world into a small village
	b) <u>Advantages of Internet:</u> ✓ internet is fast and accurate and hence one can rely on it once he/she is using it.
5.	b) ✓ internet is used in different sectors and is almost going to apply in every sector of our lives. ✓ communication through the internet is aiming at making the world a village
	✓
	c) <u>Basic elements considered when composing an E-mail:</u> → Receiver's address → Requested message → Sender's Address

Extract 5.1 shows the candidate who wrote the intercontinental in part (a) as a wrong form of internet. However, this candidate had an idea of the advantage of internet but did not give the detailed explanations.

On the other hand, 1,173 (42%) candidates scored average marks from 3 to 5.5. In part (a), some of the candidates wrote the correct long form of the internet and its purpose. They also described correctly few advantages of using internet in part (b). Some of the advantages listed by some of the candidates were *fast communication* and *e-learning*. This showed that the candidates were aware of these services because they are common in the society nowadays. However, others listed the advantages of using internet with unsatisfactory explanations. For example, one of the candidates wrote *E-learning means studying to abroad through internet*. Analysis of the candidates' responses showed that many candidates' did not attempt part (c) because they lacked knowledge and practical skills on composing e-mail. However, a few candidates who attempted part (c) identified only the header part but could not identify other elements.

Moreover, a few candidates 158 (5.7%) scored high marks from 6.5 to 9.0. Some of these candidates gave the correct long form of the term "internet" and its purpose in part (a). They also described the advantages of using internet in part (b) but failed to identify three basic elements considered when composing an e-mail. Some of the candidates mentioned all the basic elements (header, message and signature) but could not correctly describe them. Others described parts of an e-mail address instead of basic elements. For example, one of the candidates wrote *username, mail server and the domain name*. This indicates that the candidates had inadequate knowledge on e-mail communication.

2.6 Question 6: Computer Software

The candidates were asked to:

- (a) Describe five resources managed by an Operating System.
- (b) Mention procedures that could be performed for the following operations:
 - (i) Restore deleted files to their original locations.
 - (ii) Move multiple files or folders from one drive to another.

The question was attempted by 2,651 (94%) candidates, out of which 1,511 (57%) scored from 0 to 2 marks. The analysis showed that 1,044 (39.4%) scored from 2.5 to 5 marks, while 96 (3.6%) scored from 5.5 to 8 marks. The performance of the candidates is summarized in Table 1.

Table 1: Summary of the Candidates' Performance in Question 6.

Scores	Number of Candidates	Percentage of Candidates
0 -2	1,511	57.0
2.5 - 5	1,044	39.4
5.5 - 8	96	3.6
Total	2,651	100

The candidates' performance in this question was average because 43 percent of the candidates scored more than 2 marks. The analysis carried out on candidates' responses showed that, most of the candidates 1,511 (57%) scored low marks (0 to 2). Some of these candidates wrote functions of operating system in part (a) instead of the resources managed by the Operating system. For example, some of the candidates wrote *file management, resources allocation, error handling and interrupt handling*. This shows that, the candidates were not able to distinguish the term "resources" from "functions". Others mentioned a few resources managed by Operating system without explanations.

Furthermore, a few candidates had an idea of procedures required to restore deleted files in part (b) (i) but could not differentiate between the uses of left and right mouse button. For example, one of the candidates wrote one of the steps of restoring deleted file as *left click recycle bin* instead of right click the recycle bin. Likewise, other candidates wrote the steps of deleting multiple files or folders in part (b) (ii) instead of moving multiple files or folders. These candidates interpreted the term move as delete. Extract 6.1 is an example of such incorrect responses.

Extract 6.1

6	(i) (i) To restore data, in operating system the user of computer can restore data
	(ii) To move file, through the use of operating system the computerist can move file from one disk to another.
	(iii) To delete file, through the use of computer by operating system you can delete the files.
	(iv) To install the program, through operating system you can install the program.
	(v) To create a new folder, through operating system you can create a new folder on the computer.
	(b) (i) (a) To open the recycling file
	(b) To find the deleted file needed.
	(c) To install the file
	(i) (a) Take one file ^{and} put into another file
	(b) Double click at right place on the mouse
	(c) click move or select move.

Extract 6.1 shows the candidate who explained common activities which can be done by a computer user in part (a) instead of the resources managed by operating system. The candidate also mixed up the term restores and install in part (b).

On the other hand, the candidates 1,044 (39.4%) who scored average marks (2.5 to 5) described correctly few resources managed by operating system in part (a). The common resources described by the candidates were input/output devices and memory. Some of the candidates listed the resources managed by operating system without detailed explanations. In part (b), other candidates mentioned procedures of restoring deleted files and move multiple files or folders from one drive to another.

Only 96 (3.6%) candidates scored from 5.5 to 8.0 marks. The analysis showed that in part (a), some of these candidates described correctly resources managed by an operating system. However, they failed to score full marks because they could not explain all the required resources. The resources provided by some candidates were *Processor, Memory, Secondary storage devices, Communication devices, and Input/output devices*. In part (b) (i), they also mentioned procedures required restoring deleted files. Others did not know the procedures of moving multiple files or folders from

one drive to another in part (b) (ii). This indicates that, the candidates lacked knowledge and practical skills in file management.

2.7 Question 7: Web development

This question had three parts (a), (b) and (c). The question required the candidates to;

- (a) Give the reason for HTML page to runs on any Operating system.
- (b) Mention two significances of HTML form.
- (c) Write the HTML codes which will display the following output on a web browser.

Type your First Name :

Type your Last Name :

This question was attempted by 2,652 (94%) candidates. Out of which 2,106 (79.4%) scored from 0 to 2.5 marks and 511 (19.3%) from 3 to 5.5 marks. The analysis showed that, 35 (1.3%) candidates scored from 6 to 9.0 marks. Figure 6 is a summary of the candidates' performance in this question.

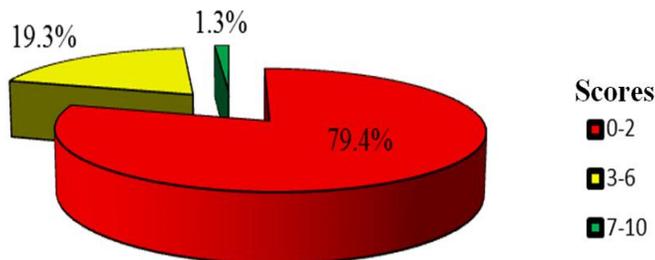


Figure 6: *The candidates' performance in question 7.*

The general performance in this question was poor because only 546 (20.6%) of the candidates scored more than 2.5 marks. Statistics showed that 2,106 (79.4%) of the candidates scored low from 0 to 2.5 marks. Of which 1,163 (43%) scored a zero mark. Most of these candidates did not attempt the question in part (a) at all. This reveals that they didn't understand the reason which led the HTML to run on any operating system. In part (b), some of the candidates wrote that *the HTML form is used to create a webpage* instead of submitting information to a webpage. The analysis done on the candidates' responses showed that in part (c), majority of the candidates did not

understand the concepts ‘HTML structure’, ‘syntax’ and ‘tags’. For example, some of the candidates wrote `<Type your First Name>` and `<Type your Last Name>`, `<Mickey>`, `<Mouse>` and `<Process>`. These candidates did not know that the HTML codes are written between the form tags `<form>...</form>` so as to be displayed by a browser. They also failed to understand the tags which display the text boxes and the button (Process). The candidates who did not score a zero mark wrote the correct tag for break, opening and closing form with incorrect input types, values and the submit button. Extract 7.1 presents a sample of such incorrect responses.

Extract 7.1

γ	(b)
	(i) It promote registration form
	(ii) It promote entertainment online.
	(c)
	<code><html></code>
	<code><title></title></code>
	<code><head></code>
	<code></head></code>
	<code><body></code>
	<code><p></code>
	Type your first name :
	<code><input type = textbox first name = textbox></code>
	Type your last name :
	<code><input type = textbox last name = textbox>
</code>
	<code><select> process </select></code>
	<code></html></code>

Extract 7.1 shows the response of a candidate who had an idea of HTML but lacked basic skills in writing HTML syntax. The candidate gave the wrong significance of HTML form.

Apart from poor performance, 511 (19.3%) candidates had an average marks (3 to 5.5). In part (a) and (b), some of these candidates did not know the reason for the HTML page to run on any operating system and the significance of HTML form. For example, one candidate wrote *HTML codes created with features of Microsoft window* instead of it does not depend on

the Operating System, thus the same codes can run on any platform provided that there is a web browser. However, some of them wrote correctly the codes in part (c) which displayed the intended output. A few candidates wrote the correct significance of HTML form and gave the reasons for HTML to run in different Operating systems but failed to write some HTML codes in part (c).

From the candidates responses it was also observed that, in part (b), some candidates mentioned only one significant instead of two. A few candidates wrote correctly the codes to display the text boxes but had difficulty writing the codes for the submit button. For example, some candidates wrote “<input type=“Process” value=“Process”> others wrote <input type =“Button” value=“Process”> instead of <input type= “Submit” value=“Process”/>. Others did not know the code that display by default “Mickey” and “Mouse” in the text boxes. This implies that the candidates lacked practical skills in writing the HTML codes.

2.8 Question 8: Word Processing

This question had three parts (a), (b) and (c) which required the candidates to:

- (a) Write the function of standard tool bar.
- (b) Mention six parts of the Microsoft word application window.
- (c) Explain two methods of proofreading a document prepared in Microsoft word.

This question was attempted by 2,635 (93.4%) candidates out of which 1,552 (57.4%) scored from 0 to 2 marks. Data analysis indicates that 1,031 (39.1%) candidates scored from 2.5 to 5.0 marks, while 92 (3.5%) from 5.5 to 8.0 marks. Figure 7 illustrates the candidates’ performance in this question.

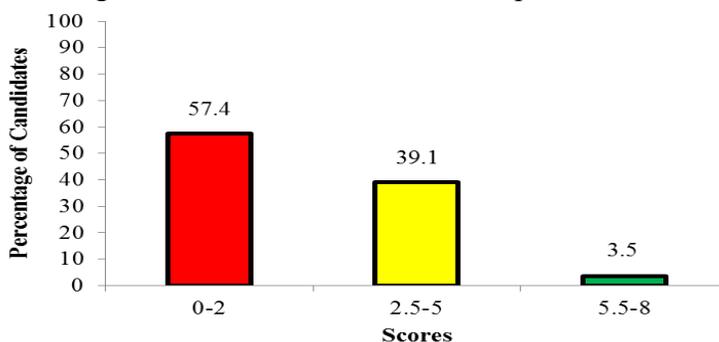


Figure 7: The candidates’ performance in question 8.

The general performance in this question was average because 42.6 percent of the candidates scored more than 2 marks. The analysis of candidates' responses showed that, most of the candidates 1,552 (57.4%) scored low marks (0 to 2). Some of these candidates wrote in part (a) the functions of some menu that are found in the standard toolbar. For example, one of the candidates wrote that *standard tool bar is used to find the insert, shapes and other figures* instead of standard tool bar contains commands that used to carry out common tasks such as launching a new document window, opening a file, saving and grammar checking. However, some of the candidates mentioned correctly some parts of Microsoft word application window. The parts mentioned by some of the candidates were *title bar, Toolbars, status bar* and *scroll bar*.

Further analysis showed that, most of the candidates scored zero mark in part (b) because they did not understand the requirement of the question. They mentioned the application programs available in Microsoft Office Package. For example, some of the candidates mentioned *Microsoft word, Excel, Access, PowerPoint and Publisher* instead of tool bars, title bar, menu bar, rulers, task pane, scroll bars, status bar, restore, close and minimized. Some of the candidates included "Space bar" and "window button" in their answers which were not correct. This shows that, the candidate could not differentiate parts of the keyboard from Microsoft word application window. Extract 8.1 presents a sample of such incorrect answer.

Extract 8.1

Q2: (a)	Function of standard toolbar. - To create Microsoft Word application window.
(b)	(i) Insert (ii) Page border (iii) Page colour (iv) Page layout (v) Word art (vi) toolbar
(c)	(i) Open document (ii) Move document.

Extract 8.1 shows the response of a candidate who did not know the function of standard tool bar. The candidate also wrote sub-menu that are found in the insert menu in part (b). The steps written in part (c) were also wrong.

The candidates 1,031 (39.1%) with an average performance (2.5 to 5.0) wrote correctly the function of standard tool bar in part (a) and mentioned some parts of Microsoft word application window in part (b). It was observed that, the candidates had difficulty explaining the methods of proofreading a document in Microsoft word. Some did not know the presence of proofreading features available in Microsoft word. They wrote *reading the document more than once to identify errors*. Others wrote *reading the softcopy and hardcopy several times*. This indicates that, the candidates had inadequate knowledge on Microsoft word application window and the methods of proofreading a document prepared in Microsoft word. A few candidates wrote correctly the function of tool bar and mentioned correctly the parts of Microsoft Word application window in part (b). Some of the candidates listed in part (c) the methods of proofreading the document prepared in Microsoft word, without detailed explanations.

2.9 Question 9: Desktop Publishing

The question was as follows:

- (a) Explain two advantages of using Desktop Publishing (DTP) over word processor.
- (b) You are asked to prepare a school identification card by using a computer; give other two hardware and two software needed to complete your work
- (c) Write steps required to create basic shape in PageMaker.

The statistics showed that 2,692 (95.5%) candidates attempted this question, of which 1,707 (63.4%) candidates scored from 0 to 2.0 marks. The candidates who scored from 2.5 to 5.0 marks were 825 (30.6%). In addition, 160 (6%) candidates scored from 5.5 to 8.0 marks. The performance of the candidates is summarized in Table 2.

Table 2: Shows a Summary of the Candidates' Performance in Question 9

Score	Percentage of the Candidates	Number of Candidates
0 -2	63.4	1,707
2.5 - 5	30.6	825
5.5 - 8	6	160
Total	100	2,692

The performance in this question was average because 1,707 (63.4%) candidates scored below 2.5 marks. Most of the candidates who scored low marks (0 to 2) gave the correct advantage of Desktop Publishing (DTP) in part (a). The analysis showed that others wrote the functions of DTP instead of giving its advantages. For example, some of the candidates wrote *creating invitation cards, creating calendars and certificate*. In part (b), some of the candidates gave the hardware required to prepare a school identification card with incorrect software. Others had knowledge on the computer hardware but did not know the hardware required to prepare school identification card. For example, some of the candidates wrote *speakers, monitor, and processing unit* instead of printer, digital camera and scanner. Similarly, others wrote applications software *Word processing, Access program, Spreadsheet and PowerPoint* which specifically are not used to create cards. This indicates that, the candidates had insufficient knowledge and skills on creating the simple publications by using DTP.

These candidates were supposed to know that the software Adobe InDesign, Microsoft publisher, Quark Xpress, Corel Draw, Ventura, Serif PagePlus and Apple Page2 are designed for the purpose of designing publications such as cards. However, many candidates did not attempt part (c) at all. Those who attempted this part gave the incorrect steps of creating the basic shape. Some of the candidates had an idea on the PageMaker but they lacked practical skills which led failure in locating the steps in chronological order. For example, one of the candidates wrote *open the PageMaker option box menu and choose the shape you want then apply*. Further analysis revealed that, some of the candidates wrote stages of publishing cards such as *planning, designing, and creating*. Extract 9.1 presents a sample of such incorrect responses.

Extract 9.1

09 a)	-Desktop Publishing it gives more tools than in word Processor.
	- DTP Provides more Publications than in word Processor
(b)	- Keyboard - For type text and card commands.
	- Mouse - For control the movement of Printer on screen.
	- Program Used - Microsoft access.
	- Software tools - Invert, layout and home Page.
(c)	Steps Used to Create basic shape in Page maker are
	(i) Home → shapes → select your lovely shape → OK
	(ii) Invert → Animation → select → OK.

Extract 9.1 shows the response of a candidate who had an idea of the advantages of DTP in part (a). The candidate gave the wrong computer hardware in part (b) and the steps provided in part (c) were wrong.

A total of 825 (30.6%) candidates recorded an average marks (2.5 to 5.0). Some of these candidates explained the advantages of using Desktop Publishing (DTP) in part (a) but faced difficulty giving clear explanations. For example, one of the candidates responded to the question in part (a) as follows;

- *Stories are in a single frame work in which they can be easily edited and formatted.*
- *Publishers created by Desktop Publisher are more advanced/ good such that they can be used in commercial trade for instance newspaper.*

Some of the candidates gave the hardware for the preparation of identification card in school with incorrect software. However, in part (c), many candidates did not know the steps for creating basic shapes in PageMaker. These candidates wrote the steps for opening a PageMaker and inserting shapes. This indicates that the candidates thought that PageMaker is application software which is not correct. The candidates were supposed to know that PageMaker is found in the Microsoft publisher software. Others

wrote incomplete steps as they wrote *Open PageMaker, Select shape tool, and drag the shape*. A few candidates had an idea of the steps required but skipped some steps or mixed up the steps. For example, one of the candidates wrote *Open PageMaker, Hold down the left mouse button and drags the shape to the required size*. These candidates had to understand that a shape cannot be dragged before being selected. This reveals that the candidates' lacked the basic DTP practical skills.

Likewise, in part (b), 160 (6%) of the candidates explained correctly the hardware and software used to prepare school identification card. The required hardware was digital camera, printer and scanner and software were PageMaker and Microsoft Publisher software. However, in part (c), some of the candidates had difficulty writing all steps required to create basic shapes.

2.10 Question 10: Database as Information System

This was an optional essay question. The candidates were required to describe five types of database models according to their data organisation.

This question was attempted by few candidates because database models are not common as compared to the internet and Information and Communication Technology (ICT) where other questions were derived. The analysis of performance scores showed that only 234 (8.4%) candidates attempted this question. According to the analysis 71 (30.3%) candidates scored from 0 to 2.5 marks and 63 (27%) from 3.0 to 6 marks. The candidates who scored from 6.5 to 10 marks were 100 (42.7%). The performance of the candidates is summarized in Table 3.

Table 3: Summary of the Candidates' Performance in Question 10.

Scores	Number of Candidates	Percentage of Candidates
0 -2.5	71	30.3
3 - 6	63	27.0
6.5 - 10	100	42.7
Total	234	100

Generally, the candidates' performance was good because 163 (69.7%) candidates scored more than 2.5 marks. The majority of the candidates 100 (42.7%) who scored from 6.5 to 10 marks correctly described the database models such as Flat file, Hierarchical, Network, Relational and Object oriented database model. However, some of the candidates did not score all marks allocated to this question because they lacked detailed introductions and conclusions. Others did not include the object oriented database model in their explanations. Some of them described tree and Hierarchical as different database models which led them to lose some marks. Extract 10.1 presents a sample of such correct responses.

Extract 10.1

10.	<p>Database refers to a well organized data that is stored in a computer system and it can be in softwares such as Microsoft Access, My-SQL (Structured Query language), Oracle and DB2. Database model is a methodology used in storing data. The following describe below are types of database model according to their data organisations:-</p> <p>Hierarchical / tree database model :- This is one among the earliest database models used as data or information was transferred from the source to other recipients. In this kind of database model, data is always the same and just repeated thus increasing the rate of data redundancy.</p> <p>Network-based database model :- This is also another database model that was used in the early years as a result of being an advanced model of the hierarchical database model which was designed to reduce the rate of data redundancy from the previous model. It is also no longer in use.</p>
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10.	<p>Database refers to a well organized data that is stored in a computer systems and it can be in softwares such as Microsoft Access, My-SQL (Structured Query language), Oracle, and DB2. Database model is a methodology used in storing data. The following describe below are types of database model according to their data organisations:-</p> <p>Hierarchical / tree database model :- This is one among the earliest database models used as data or information was transferred from the source to either recipients. In this kind of database model, data is always the same and just repeated thus increasing the rate of data redundancy.</p> <p>Network-based database model :- This is also another database model that was used in the early years as a result of being an advanced model of the hierarchical database model which was designed to reduce the rate of data redundancy from the previous model. It is also no longer in use.</p> <p>Relational database model :- This database model is commonly and widely used by many people and organisations as it contains tables whereby the rows are filled with records and columns simply represent the fields. This type of database models are used to create different relationships between two or more tables.</p> <p>Object oriented database model :- An object is simply a dynamic entity of the entire database. Therefore, this kind of database model simply shows exactly where the object came from. For example the source of data where the object came from could be from excel or from Microsoft Word and the like.</p>
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Extract 10.1 shows the response of a candidate who described correctly all types of database models according to their data organisation.

On the other hand, 63 (27%) candidates who scored average marks correctly described few database models. The models described by some candidates were *flat file*, *relational* and *tree*. A few candidates wrote the introduction part of the essay without detailed explanations. For example, one of the candidates wrote that "*Flat file is a type of database model that allows organization to relate data* instead of flat file is the type of database model

store in similar way to manual model of database with single set of data item like the cards used in library books catalogue.

Further analysis showed that, majority of the candidates 71 (30.3%) who scored low marks (0 to 2.5) wrote incorrect introduction and conclusion. They also listed the database models without giving any explanations. Others explained the 'table', 'query', 'form', 'report' and 'Macros' which are the features of Database Management Software (DBMS). These candidates failed to make a distinction between the term database and Database Management Software (DBMS). This signifies that, the candidates' has insufficient knowledge on the database models. Extract 10.2 presents a sample of such incorrect responses.

Extract 10.2

10 Data base is the collection of related files. Data base has been divided into two type which are electronic database and traditional data base. The following are types of data base model according to their data organizations which are :-

Field: This is the one of type of database according to their data organization. and this it help to record the name and other things which we had given.

Record: This is the one of type of data base according to their data organization. which help to records the data which we have given in the table so that this is the one of the type of data base according to their data organization.

File: This is the one of type of data base according to their data organization. This it help ec many people to collect the data by using the data base so that this, it has improved many people through recording in the file the information.

Data base: This is the collection of related files. This has helped many people to improve the living by using data base which help many people to collect the all related files so that this is the type of data base according to their data organizations.

Router: This is one of type of database according to their data organization. This help many people to store that data by using Router on the data organization.

Extract 10.2 shows the response of a candidate who emphasized the database instead of database models in the introduction. The candidate also explained the networking device (router) as a type of database models.

2.11 Question 11: Impact of ICT in the Society

This question had two parts (a) and (b) which required the candidates to:

- (a) Describe four roles of information and communication technology in the society.
- (b) Explain two effects for disposing electronic equipment to the environment.

The question was attempted by 2,543 candidates (equivalent to 90.2%). The candidates who scored from 0 to 2.5 marks were 270 (10.6%) while 1,032 (40.6%) scored from 3.0 to 6 marks. The data indicates that 1,241 (48.8%) candidates scored from 6.5 to 10 marks. The performance of the candidates is summarized in Table 4.

Table 4: Shows a Summary of the Candidates' Performance in Question 11.

Scores	Number of Candidates	Percentage of Candidates
0 -2.5	270	10.6
3 - 6	1,032	40.6
6.5 - 10	1,241	48.8
Total	2,543	100

In general, the performance of the candidates in this question was good, because 2,273 (89.4%) of the candidates scored above 2.5 marks. The analysis of candidates' responses revealed that, the candidates 1,241 (48.8%) with high performance described correctly the roles of information and communication technology to the society in part (a). However, they faced difficulties in explaining the effects of disposing electronic equipment to the environment in part (b). Majority of the candidates listed the effects of disposing electronic equipment without giving explanations. For instance, some of the candidates wrote *they can cause death and explosion*. These candidates had idea of the effects but did not know how electronic equipment can cause such effects. A few candidates wrote the effects for disposing electronic equipment to the environment with correct explanations. Extract 11.1 presents a sample of such correct responses.

Extract 11.1

11	(a) Four roles of ICT in the society.
	i/ Role of Information and Communication Technology in The Entertainment Sector .
	- ICT has enabled entertainment opportunities to the society through listening to music and playing games by using different electronic devices such as phones and computers .
	ii/ Role of Information and Communication Technology in the Banking system .
	- ICT has improved the Banking system to a large extent due to the advancement in technology in various banking issues such as Electron Fund Transfer, Sim banking and Withdrawal of cash through Automated Teller Machine (ATM) .
	iii/ Role of Information and Communication Technology in the health sector .
	- ICT has been applied in the health sector through diagnosis of diseases on patients, monitoring patients conditions and storing records of details of victims .
	iv/ Role of Information Communication Technology in the Education system .
	- ICT has raised education system through E-learning . Computer Aided - Learning and Learning from information gathered from the internet . This has simplified Learning - activities.

(b) Two effects of disposing electronic equipment to the environments.
i/ Pollution of the environment .
- The disposal of electronic equipments such as already used CRT monitors can lead to environmental pollution. Making the environment - unfavourable for living .
ii/ Some electronic equipments may lead into suffocation or death when disposed to the environment as they have chemicals that are poisonous to organisms . Example Already used batteries .

Extract 11.1 shows the response of the candidates who wrote the roles of ICT in the society and the effects for disposing the electronic equipment to the environment.

On the other hand, 1032 (40.6%) candidates scored from 3 to 6 marks. Majority of the candidates described roles of ICT in the society in part (a) with unexhausted explanations. Others failed to explain clearly both roles of ICT and the effects for disposing electronic equipment to the environments. For example, one of the candidates wrote the role of ICT in the society as *employment – where by some of the people are employed*. This implies that the candidates failed to distinguish between the roles and effects of ICT in the society.

Furthermore, the candidates 270 (10.6%) who scored from 0 to 2.5 marks mentioned the roles of ICT in part (a) without explanations. They also listed the effects of disposing electronic equipment in part (b) with wrong explanations. Others wrote the computer laboratory rules instead of roles of ICT. For example, one candidate wrote *don't drink in the computer room*. These candidates mixed up the term roles and rules. A few candidates explained the effects of electricity instead of the effects of disposing electronic equipment to the environments. These candidates associated the term electricity with electronic. For example, one of the candidates wrote *if*

the children touch electronic equipment can cause shock and death because it is dangerous. Extract 11.2 presents a sample of such incorrect responses.

Extract 11.2

11 (a)	<p>Communication and Information it is very important in the Society because the people can enable to communicate from one person to another. The following are the role of Information and Communication technology in the Society.</p> <p>Topic, This is the role of Communication and Information technology in the Society. People should carefully during the Communication and Information for choice behaviour topics.</p> <p>Period This is the role of Communication and Information technology in the Society. People should be carefully during the Communication and Information for choosing good period.</p> <p>Age, This is the role of Communication and Information technology in the Society. People should be carefully for represent the Information or in a Communication between their age.</p> <p>Area, This is the role of Communication and Information technology in the Society. The People should behave in area of Communication and Information example Church and mosque.</p> <p>The Communication and Information in the Society There are many negative effect such as misunderstanding and conflict.</p>
11 (b)	<p>Death- This is the effect for disposing electronic equipment to the environment because when a people touch the area which transmit electric (Shock)</p> <p>Destruction of properties- This is the effect for disposing electronic equipment to the environment because when a electric react and provide shock for example in office.</p>

Extract 11.2 shows the response of the candidate who gave the introduction of the term communication instead of ICT. The candidate explained irrelevant points such as Period, Age and Area in part (a) with the wrong effects for disposing electronic equipment to the environments.

2.12 Question 12: The Internet

This was an essay question and the candidates were required to explain five advantages of internet in the society.

A total of 2,771 (98.3%) candidates attempted this question, out of which 162 (5.8%) scored from 0 to 2.5 marks. The analysis showed that 805 (29.1%) candidates scored from 3 to 6 marks and 1,804 (65.1%) from 7.0 to 10 marks. Figure 8 shows a summary of the candidates' performance in this question.

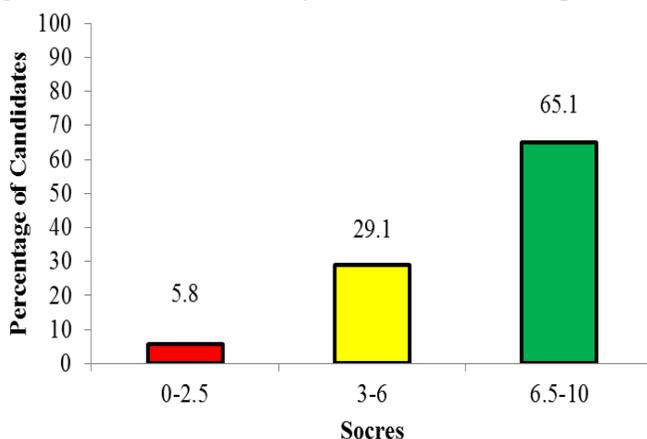


Figure 8: *The candidates' performance in question 12.*

The general performance of the candidates in this question was good because 94.2 percent of the candidates scored above 2.5 marks. This good performance might be attributed to the fact that nowadays the internet services are commonly used in many societies. The analysis done in the candidates' answers show that, the majority of the candidates 1,804 (65.1%) who performed well correctly explained the advantages of internet in the society. The advantages provided by most candidates were; *facilitating e-commerce, e-learning, communication, e-banking and e-business*. However, few candidates failed to give clear introduction and conclusions. For instance, one candidate wrote the introduction as *internet is the World Wide Web hence it operates in the whole universe. The arrival of internet has brought more advantages to our society*. Furthermore, some of the candidates were not able to give satisfactory explanations on the e-business and e-banking. Extract 12.1 presents a sample of such correct responses.

Extract 12.1

12	<p>Internet is the world wide interconnected of millions of computers for the purpose of performing different tasks and provide information to people easily and quickly at a time, Internet in the society has many advantages, the following are some of advantages of internet in the society as follows</p> <p>Enables sending and receiving messages, this is among of the importance of internet to the society, through internet people are free to access different informations from different areas easily and quickly through free access of information people within the society are able to solve different problems when knowing what happen in a specific time</p> <p>Advertisement, through internet people are able to advertise about their different good from different activities this help them to be up to date also helping them to save time since people do not use time to travel from one place to another to advertise their goods instead people are able to advertise their good when staying in one place.</p> <p>Learning, is another advantage of internet in the society because through internet students and other people are able to learn different things also searching materials which help them in their studies this helping the society through saving their money in buying a lot of books for their children to study.</p> <p>Purchasing, is another advantage of internet to society since internet helps people to sell goods and purchasing them through internet this helps the society because in the society there are many disabled people who can not walk from one place to another to buy or selling goods so through that elders and disabled people are able</p>
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12	to buy and purchase when they home so internet is more important to them in the society.
	Entertainment, also this is another importance or advantage of internet to society because when people are stressed they could relax and being rest from their stress through watching movies, playing different games also listening music & all of these are obtained from the internet hence protect people from taking and decide doing bad decision making when they are stressed about certain matter or problem.
	Therefore these above are some of advantages of internet to society such as enable people within the society to purchase, to learn different things, to advertise goods, to get access of information also to remove stress through entertainment so internet is very important to society hence it helps to provide the development and create peace and harmony among members of the society.

Extract 12.1 shows a response of a candidate who managed to explain five advantages of internet correctly. The candidate also, the candidate was able to write correct introduction and conclusion.

On the other hand, most of the candidates 805 (29.1%) who scored average marks from 3 to 6.5 explained correctly some advantages of internet in the society. They could not write the correct introduction and conclusion. Some of them wrote correct introduction and conclusion but failed to give relevant descriptions on the advantages of internet. For example, one of the candidates wrote that *Source of employment, many people through internet is employed and some people introduce stationaries and libraries.*

Further analysis shows that a few candidates 162 (5.8%) who scored low marks listed the advantages of internet with wrong explanations. Some of the candidates wrote the advantages of computer such as *Speed, Availability, Flexibility* and *Accuracy* instead of writing advantages of the internet. It was noted that, a few candidates mixed up the concepts of the internet and network. These candidates wrote the advantage of computer network such as

share resources like printer. The candidates were supposed to know that sharing resources and information are the roles of the network and not internet. Extract 12.2 presents a sample of such incorrect responses.

Extract 12.2

12.	<p><u>ADVANTAGES OF INTERNET IN THE SOCIETY</u></p> <p>Internet; is the process of information and communication in the long form of the internet its purpose comm when composing an e-mail of internet in the society.</p> <p>The following of Advantage of internet in the society.</p> <p>Communication; is the used of internet in the communication of internet in the society of supported of internet of society communication information; it has help to supported of information to control of internet in the society in information of computer system in the society.</p> <p>Complete; is the complete of internet in the society to application software of connected to the computer system is operating system in the internet in the society.</p> <p>Equipment; is the device that can be configured to provide access to wide are network of supported of equipment of in the & internet society.</p> <p>Hardware; is the hardware of detecting signals in the wireless of meant for delivery through address filtering of the internet in the society.</p> <p>Low level science technology; is the low level science technology which use laser light technology to write and read data from a disc is known digital disc drive of internet in the society.</p>
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Extract 12.2 shows a response of a candidate who wrote only one correct advantage of internet which is communication with other incorrect explanations. Also the candidate wrote the wrong introduction.

3.0 ANALYSIS OF THE CANDIDATES' PERFORMANCE PER QUESTION IN PAPER 2 (PRACTICAL)

3.1 Question 1: Spreadsheets

This question tested the candidates' practical skills on the application of spreadsheet. The question was as follows:

Mbogo Modern Technology Electronics Ltd deals with sales of three types of electronic goods, namely Laptop computers, DVD players and Music systems. Read the information in the table which shows the details of May 2017 sales and answer the questions that follow:

	A	B	C	D	E	F	G	H
1								
2	Mbogo Modern Technology Electronics Ltd Sales as per 30th May 2015							
3	Category Code	Type	Item Description	Unit Price	Unit Sold	Sub-total	Tax	Net Amount
4	LP001	Computer	Del-150 GB	1500000	20			
5	LP002	Computer	Apple-100 GB	2000000	10			
6	MS 012	Music system	Samsung	600000	25			
7	MS 013	Music system	Toshiba	800000	15			
8	DV 210	DVD	Sony DVD player	300000	30			
9	DV 216	DVD	Panasonic DVD player	200000	12			
10								
11	Tax rates			Computer	5%			
12				DVD	10%			
13				Music syst	12%			

- Create a worksheet by using the details given in the table above. Save it as MBOGOTECH.
- Use appropriate cell reference to calculate:
 - The Sub-total which is the product of Unit Price and Unit Sold.
 - The TAX is based on the type of item. Use the rates given in the table above to calculate tax payable for each item sold. (HINT: Tax = Tax rates \times subtotal).
 - The Net Amount which is the Subtotal minus Tax.
- On the same worksheet, create a two dimensional line graph with types of electronic goods in horizontal axis and Unit Price in vertical axis. Save it as Goodsgraph.

- (d) On the same worksheet, create a three dimensional pie chart with labelled data of types of electronic goods against Net amount. Save it as Piegraph.
- (e) Copy the worksheet created and paste in sheet2. Sort the worksheet in ascending order according to the Unit Price.
- (f) Print your work.

The analysis shows that 2,333 (83.2%) candidates attempted this question. Data analysis showed that 277 (11.9%) candidates scored from 0 to 7 marks and 704 (30.1%) from 7.5 to 16 marks. According to the statistics 1,352 (58%) candidates scored from 16.5 to 25 marks. Figure 9 presents the candidates' performance in this question.

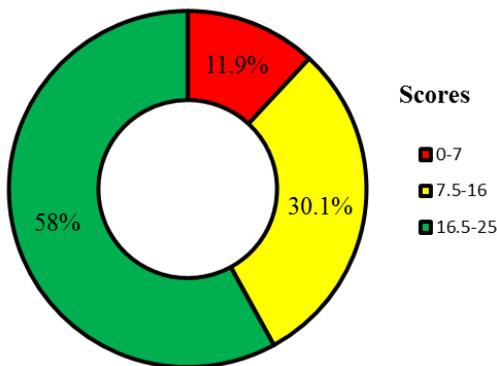


Figure 9: *The candidates' performance in question 1.*

Figure 9 show that 88.1 percent of the candidates scored more than 7 marks. Thus, the performance was good. Analysis of the candidates' responses showed that 1,352 (58%) candidates who scored high marks correctly created a worksheet, calculated sub-total, Tax and Net amount. They also performed the required formatting such as bold, merge and center, wrap text as well as saving a worksheet as MBOGOTECH. Majority of these candidates created a two dimensional line graph and three dimensional pie charts with labelled data. Finally, the candidates were able to copy the worksheet created and sorting in ascending order according to the unit price.

However, some candidates did not know how to add data label in a pie chart. Others created a two instead of a three dimensional pie chart. They also had difficulty sorting a worksheet according to the unit price. Extract 3.1.1 to 3.1.4 shows the sample of a correct response.

Extract 3.1.1

		G3		fx		=PRODUCT(\$E\$10,F3)		
	A	B	C	D	E	F	G	H
1	Mbogo Modern Technology Electronics Ltd Sales as per 30th May 2017							
	Category Code	Type	Item Description	Unit Price	Unit Sold	Sub- total	Tax	Net Amount
2								
3	LP 001	Computer	Del-150 G	1500000	20	=PRODUCT(D3,E3)	=PRODUCT(\$E\$10,F3)	=(F3-G3)
4	LP 002	Computer	Apple-100 GB	2000000	10	=PRODUCT(D4,E4)	=PRODUCT(\$E\$10,F4)	=(F4-G4)
5	MS 012	Music system	Samsung	600000	25	=PRODUCT(D5,E5)	=PRODUCT(\$E\$12,F5)	=(F5-G5)
6	MS 013	Music system	Toshiba	800000	15	=PRODUCT(D6,E6)	=PRODUCT(\$E\$12,F6)	=(F6-G6)
7	DV 210	DVD	Sony DVD	300000	30	=PRODUCT(D7,E7)	=PRODUCT(\$E\$11,F7)	=(F7-G7)
8	DV 216	DVD	Panasonic DVD	200000	12	=PRODUCT(D8,E8)	=PRODUCT(\$E\$11,F8)	=(F8-G8)
9								
10	Tax rates			Computer	0.05			
11				DVD	0.1			
12				Music system	0.12			

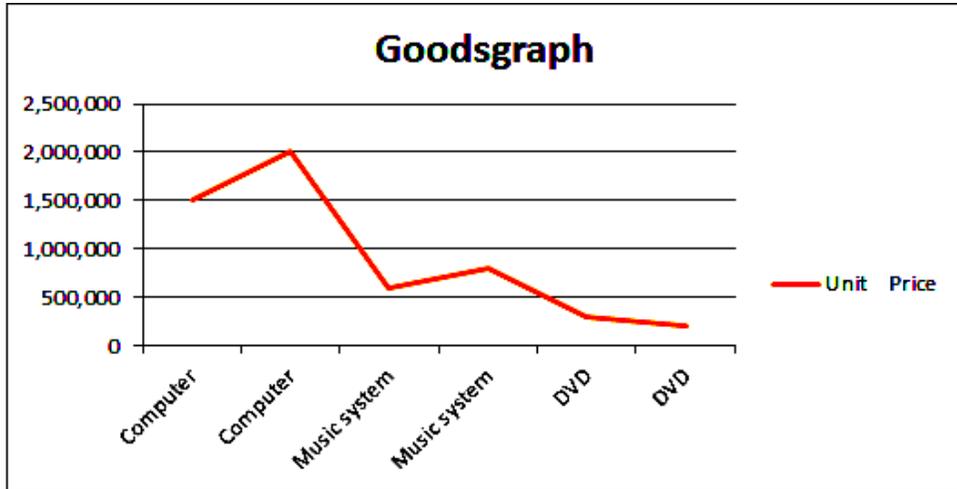
In Extract 3.1.1, the candidate typed correctly the function for tax, sub-total and net amount. He/she also performed all the required formatting.

Extract 3.1.2 shows the output of the function in extract 3.1.1

Extract 3.1.2

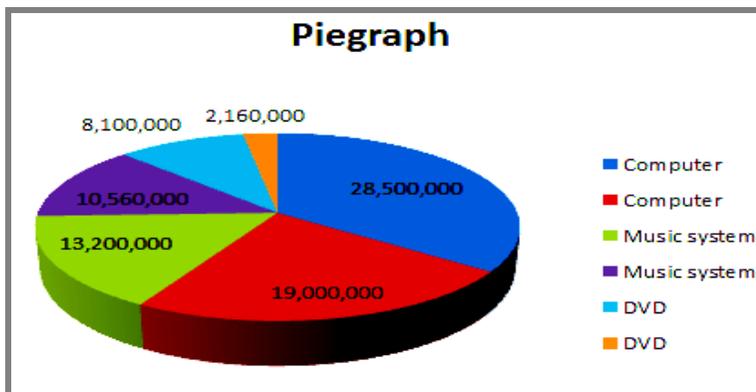
		G3		fx		=PRODUCT(\$E\$10,F3)		
	A	B	C	D	E	F	G	H
1	Mbogo Modern Technology Electronics Ltd Sales as per 30th May 2017							
	Category Code	Type	Item Description	Unit Price	Unit Sold	Sub- total	Tax	Net Amount
2								
3	LP 001	Computer	Del-150 GB	1,500,000	20	30,000,000	1,500,000	28,500,000
4	LP 002	Computer	Apple-100 GB	2,000,000	10	20,000,000	1,000,000	19,000,000
5	MS 012	Music system	Samsung	600,000	25	15,000,000	1,800,000	13,200,000
6	MS 013	Music system	Toshiba	800,000	15	12,000,000	1,440,000	10,560,000
7	DV 210	DVD	Sony DVD player	300,000	30	9,000,000	900,000	8,100,000
8	DV 216	DVD	Panasonic DVD player	200,000	12	2,400,000	240,000	2,160,000
9								
10	Tax rates			Computer	5%			
11				DVD	10%			
12				Music system	12%			

Extract 3.1.3



Extract 3.1.3 reveals the response of a candidate who created a two dimensional line graph.

Extract 3.1.4



Extract 3.1.4 shows the sample output of the candidate who created a three dimensional pie chart with labelled values.

On the other hand, the candidates 704 (30.1%) who scored from 7.5 to 16 marks created the worksheet, performed the required formatting and typed the correct functions and formula. However, they failed to drag the formula and functions to the rest of the cells. The analysis showed that some of the candidates had knowledge of using cell reference to calculate TAX but did not know how to use the fixed cell reference. It was also observed that the candidates used the formula which does not include a dollar sign which led the tax rate values to change after dragging the formula. These candidates were supposed to know that the formula required to calculate the Tax must

include the dollar sign (\$) because the tax rates are fixed (does not change) for each item. Other candidates were able to give the correct function but failed to type the cell reference of the tax rates with respect to the type of item.

Furthermore, some of the candidates created a three dimensional pie chart without data labels. A few candidates failed to extract two dimensional pie charts from three dimensional and also could not insert the data in the created chart. Conversely, few candidates 277 (11.9%) who scored low marks created the worksheet and performed the formatting but failed to use the functions and formulas to perform the required calculations. These candidates lacked the knowledge on the use of cell referencing. For example, one of the candidate wrote the function of calculating the tax rate for the computer item =SUM(5/100*G6) instead of =PRODUCT(\$E\$10, F3). These candidates failed to refer the computer tax rate of 5% which was in cell E10. Extract 3.1.6 and 3.1.7 show the sample of the candidate with incorrect answers.

Extract 3.1.6

		Function Library				Defined Names		
H6		=SUM(5/100*G6)						
	B	C	D	E	F	G	H	I
1								
2		Mbogo M orden Technology Eelectronics Ltd						
3		sales as per 30th May 2017						
	Category	Type	Item	Unit Price	Unit	Sub-	Tax	Net
4	Code		Description		Sold	total		Amount
5	LP 001	Computer	Del-150 GB	1500000	20	=SUM(E5:F5)	75001	=SUM(G5-H5)
6	LP 002	Computer	Apple-100 GB	2000000	10	=SUM(E6:F6)	=SUM(5/100*G6)	=SUM(G6-H6)
7	MS 012	Music system	Samsung	6000000	25	=SUM(E7:F7)	=SUM(12/100*G7)	=SUM(G7-H7)
8	MS 013	Music system	Toshiba	800000	15	=SUM(E8:F8)	=SUM(12/100*G8)	=SUM(G8-H8)
9			Sony DVD player					
10	DV 210	DVD		300000	30	=SUM(E9:F9)	=SUM(10/100*G9)	=SUM(G9-H9)
						=SUM(E10:F10)	=SUM(5/100*G10)	=SUM(G10-H10)
11	DV216	DVD	Panasonic DVD player	200000	12	=SUM(E11:F11)	=SUM(12/100*G1)	=SUM(G11-H11)
12								

In extract 3.1.6 shows the response of the candidate who entered data in the worksheet but typed wrong formula/functions. The candidate also failed to perform the formatting required.

Extract 3.1.7

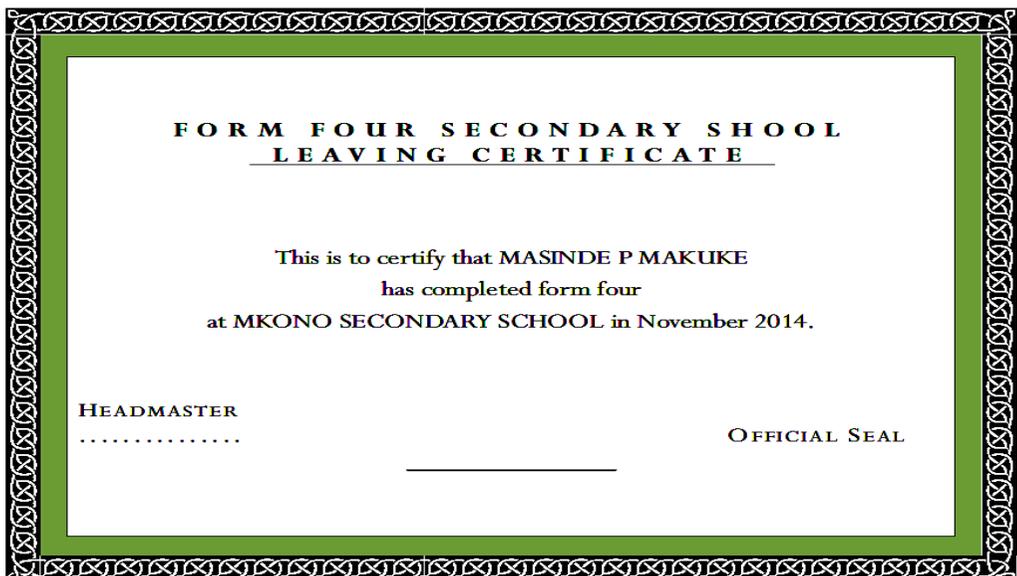
Clipboard		Font		Alignment				
H6		fx =SUM(5/100*G6)						
B	C	D	E	F	G	H	I	
1								
2		Mbogo M orden Technology Eelectronics Ltd						
3		sales as per 30th May 2017						
4	Category Code	Type	Item Description	Unit Price	Unit Sold	Sub-total	Tax	Net Amount
5	LP 001	Computer	Del-150 Gt	1,500,000	20	1,500,020	75001	1,425,019
6	LP 002	Computer	Apple-100 GB	2,000,000	10	2,000,010	100000.5	1,900,010
7	MS 012	Music system	Samsung	6,000,000	25	6,000,025	720003	5,280,022
8	MS 013	Music system	Toshiba	800,000	15	800,015	96001.8	704,013
9			Sony DVD player	300,000	30	300,030	30003	270,027
10	DV 210	DVD				0	0	0
11	DV216	DVD	Panasonic DVD player	200,000	12	200,012	24001.44	176,011
12								

In extract 3.1.7 displays the output due to wrong functions inserted by a candidate.

3.2 Question 2: Microsoft Publisher and Microsoft Word

This question tested the candidates' practical skills on the application of Microsoft Publisher and Microsoft Word. The question was as follows:

- (a) Use Microsoft publisher to design a form four secondary school leaving certificate as given in the following snapshot



Certificate descriptions

- Set font face type Perpetua, font size 20 and font color black
 - Use any border of your choice.
- (i) Save your work with the name of certificate as a Publisher file and JPEG image.
 - (ii) Print your work
- (b) (i) By using Microsoft Word program, type the texts as given below and answer the questions that follow (HINT: all numbering must be automatic).

1.0 Introduction

There always been a need to come up with better writing tools to improve on efficiency and legibility of the written work. These tools include manual typewriters, electronic typewriters and now electronic *word processors*.

2.0 Electronic word processors

Electronic word processor is application software that enables the user to create, edit and print text-rich documents. Examples of common word processors include:

- (a) Microsoft word
 - (b) Corel WordPerfect
 - (c) Apple
- (ii) Save your work as “Word Processor.
 - (iii) Run the spelling checker and correct all mistakes.
 - (iv) Change the line spacing of the whole document to 1.5.
 - (v) Apply a hanging indentation to 2 inch mark in the introduction.
 - (vi) Format all texts to font face **Comic Sans MS** with font size 11.5 pt.
 - (vii) Apply a 6pt width page border setting to the document. The page border must be a Box type.
 - (viii) Type your Examination Number by using font style Heading 2 as the heading of your document.
 - (ix) Print your work.

Out of 1,944 (69.3%) of the candidates who attempted this question, 136 (7%) scored from 0 to 7 marks. Data analysis shows that 461 (23.7%) candidates scored from 7.5 to 16 marks, while 1,347 (69.3%) from 16.5 to 25

marks. The candidates' performance in this question was good because only 7 percent of the candidates scored below 7.5 marks. Figure 10 shows the summary of the students' performance in this question.

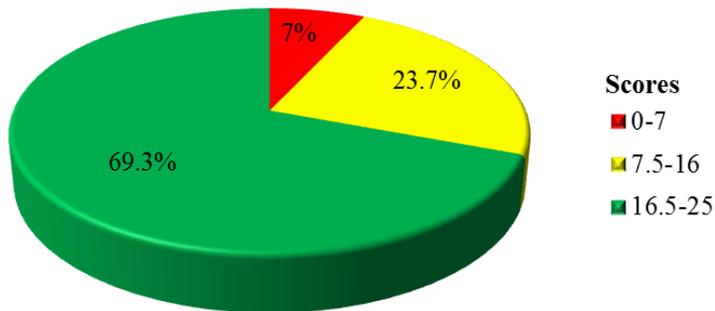


Figure 10: *The candidates' performance in question 2.*

Majority of the candidates 1,944 (69.3%) who scored high marks in this question correctly designed a certificate in part (a) by using Microsoft publisher template with appropriate font style and size. They also inserted the border and saving a certificate as a publisher file and JPEG format. However, some of the candidates failed to choose the appropriate font style and size. Others created a certificate without proper positioning of the texts and the lines just like indicated in the certificate.

Moreover, in part (b), most of the candidates typed the given text by using the automatic keys and set the line spacing for the whole document to 1.5. These candidates also formatted all the text to font face "Comic Sans MS with font size of 11.5pt" and inserted border of a Box type with size of 6 points. However, some of them had difficulty hanging indentation to 2 inches mark in the introduction and running Spell Checker to correct the mistakes made. Others did not save the school leaving certificate in the JPEG format. Extract 3.2.1, shows the sample of candidates with knowledge and skills to design a certificate by using Microsoft publish.

Extract 3.2.1



Extract 3.2.1 indicates the candidate who created the correct certificate.

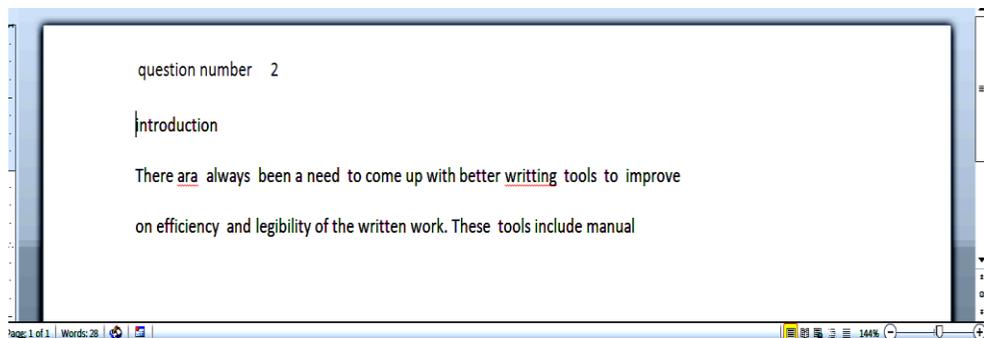
Furthermore, some of the candidates 461 (23.7%) who scored average marks lacked the knowledge on the use of text boxes in creating a certificate in part (a). These candidates failed to format the appropriate font style and sizes of the texts. Some of them failed to insert a border in the certificate created. Others had problem in saving a Microsoft Publisher certificate to JPEG format. The analysis of candidates' responses showed that, some candidates did not know how to indent an introduction, inserting pages border and line spacing as well as inserting numbers automatically. For example, some of the candidates inserted text box as a border instead of page border.

On the other hand, a few candidates 136 (7%) who scored low marks designed a certificate by using Microsoft Publisher in part (a) without setting the border, saving the certificate in JPEG format and font type *Perpetua* with font size 20. Others did not understand the Microsoft Publisher program, thus, they used wrong application software such as Microsoft word and Microsoft Power Point to design certificate.

Similarly in part (b), some of these candidates did not correct mistakes made because they do not know in which menu the spell checker feature is found. Some of the candidates set the correct font face *Comic Sans MS* but had

difficulty setting the font size 11.5. They also failed to change line spacing to 1.5 and applying a hanging indentation to 2 inches in the introduction. Furthermore, they failed to set page border of box type with 6pt and type examination number by using Heading 2 style. This indicates that the candidates had insufficient practical skills in Microsoft Publisher and Microsoft Word program. Extract 3.2.2 represents a sample of incorrect response.

Extract 3.2.2



In extract 3.2.2, the candidate, had knowledge on typing using Microsoft word but did not know how to perform formatting and editing. The candidates could not use the spell checker to correct the mistakes.

3.3 Question 3: Management of Database as Information Systems

This question tested the candidates' skills on the manipulation of data in the database. They were given a table which shows the records of products sold by the Khanji Drinking Company. The details for the product table were as follows:

PRODUCT						
PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE	
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993	
Pepsi	1002	Tz Brew	150	3/7/1991	8/12/1995	
Kilimanjaro	1003	K Brew	550	5/7/1993	8/22/1996	
Tusker	1004	Kibo Brew	550	2/6/1990	10/10/1993	
Heinekein	1005	South A	1200	7/9/1999	6/19/2002	
Safari	1006	K Brew	600	4/23/1989	6/2/1999	
Ndovu	1007	Kwanza	550	8/9/1995	4/26/1991	
Kibo gold	1008	South A	550	6/8/1995	10/18/1998	
Carlsberg	1009	Kbrew	800	3/12/1996	4/1/1998	
Castle	1010	South A	600	12/30/1996	9/3/1999	

They were required to use information given in a table to:

- (a) Use Microsoft Access program to create a database called KHANJI DRINKING COMPANY which include a table named PRODUCT; make sure that you insert a proper data type for each field of the table.
- (b) Format the datasheet to blue color with Black text.
- (c) Set the product code as primary key.
- (d) Create a query that displays all products that begin with letter C or ending with letter A. Save it as C&A.
- (e) Create a query that displays products manufactured in 1990 or 1996. Save it as 1990 or 1996.
- (f) Create a query that displays all product codes greater than 1004 and less than 1009. Save it as "G&L".
- (g) Sort the database from lowest to highest Unit Price. Save it as "Highest".
- (h) Use a query to calculate VAT given the formula $VAT = 4\%$ of UNIT Price; make sure that all fields of PRODUCT table are displayed. Save your query as KAG&VAT.
- (i) By using query calculate the Unit Sell Price= Unit Price + 4% of Unit Price. Make sure that all fields of PRODUCT table are displayed on the query result. Save the query as VAT INCLUSIVE.
- (j) Print your work.

This question was attempted by only 1,248 (44.4%) candidates, out of which 124 (9.9%) scored from 0 to 7 marks. The analysis showed that 837 (67.1%) candidates scored from 7.5 to 16 marks and 287 (23%) from 16.5 to 25 marks. Figure 11 illustrates the candidates' performance in this question.

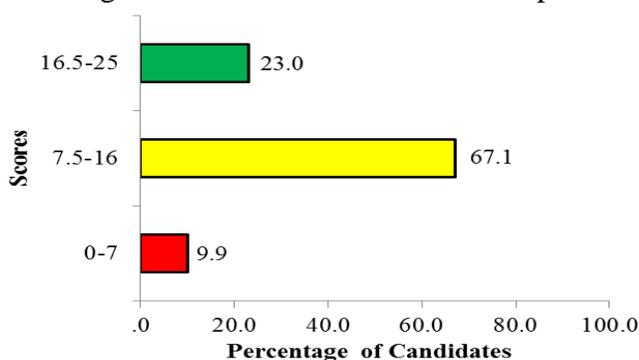


Figure 11: *The candidates' performance in question 3*

Figure 11 shows that 90.1 percent of the candidates scored above 7 marks. Generally, candidates' performance in this question was good. The majority of the candidates 837(67.1%) who failed to score high marks correctly created the database and table with the correct data types. They also assigned the primary key to the PRODUCTCODE field and entered the data into the product table. The analysis of candidates' responses showed that, some of the candidates also created a query that displays product manufactured in 1990 or 1996 and all product codes greater than 1004 and less than 1009.

It was also observed that they created a query required to filter out all products that begin with letter C and ending with letter A. However, majority of the candidates faced difficulties in creating a calculated query KAG&VAT and VAT INCLUSIVE. Some of these candidates created queries without calculated field while others created the fields with wrong expression. These candidates did not have a clear understanding of the concept of calculated field. Sample of the correct candidates' responses are shown in Extracts 3.3.1 to 3.3.7.

Extract 3.3.1

Field Name	Data Type
PRODUCT NAME	Text
PRODUCT CODE	Number
COMPANY NAME	Text
UNIT PRICE	Number
DATE OF MANUFACTURE	Date/Time
EXPIRY DATE	Date/Time

PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993
Pepsi	1002	Tz Brew	150	3/7/1991	8/12/1995
Killimanjaro	1003	K Brew	550	5/7/1993	8/22/1996
Tusker	1004	Kibo Brew	550	2/6/1990	10/10/1993
Heinekeln	1005	South A	1200	7/9/1999	6/19/2002
Safari	1006	K Brew	600	4/23/1989	6/2/1999
Ndovu	1007	Kwanza	550	8/9/1995	4/26/1991
Kibo gold	1008	South A	550	6/8/1995	10/18/1998
Carlsberg	1009	Kbrew	800	3/12/1996	4/1/1998
Castle	1010	South A	600	12/30/1996	9/3/1999

Extract 3.3.1 shows a sample of correct table design, correct data type, appropriate primary key, format datasheet to blue color with black text and the required records as instructed.

Extract 3.3.2

Field:	PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT
Sort:						
Show:	<input checked="" type="checkbox"/>					
Criteria:	Like "C*" Or Like "**A"					
or:						

PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993
Carlsberg	1009	Kbrew	800	3/12/1996	4/1/1998
Castle	1010	South A	600	12/30/1996	9/3/1999

Extract 3.3.2 shows a sample of a candidate who typed the correct criteria for the query that displays all products begins with letter C or ending with letter A.

Extract 3.3.3

Field:	PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT
Sort:						
Show:	<input checked="" type="checkbox"/>					
Criteria:	Like "**/1990" Or Like "**/1996"					
or:						

PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993
Tusker	1004	Kibo Brew	550	2/6/1990	10/10/1993
Carlsberg	1009	Kbrew	800	3/12/1996	4/1/1998
Castle	1010	South A	600	12/30/1996	9/3/1999

Extract 3.3.3 shows a sample of a candidate who wrote the correct criteria for the query that displays all products manufactured in 1990 or 1996.

Extract 3.3.4

Field:	PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT
Sort:						
Show:	<input checked="" type="checkbox"/>					
Criteria:	>1004 And <1009					
or:						

PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Heinekein	1005	South A	1200	7/9/1999	6/19/2002
Safari	1006	K Brew	600	4/23/1989	6/2/1999
Ndovu	1007	Kwanza	550	8/9/1995	4/26/1991
Kibo gold	1008	South A	550	6/8/1995	10/18/1998

Extract 3.3.4 shows a sample of a candidate who wrote the correct criteria for the query that displays all products codes greater than 1004 and less than 1009 and save it with a given name.

Extract 3.3.5

Field:	PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT
Sort:				Ascending		
Show:	<input checked="" type="checkbox"/>					
Criteria:						
or:						

Highest						
PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE	
Pepsi	1002	Tz Brew	150	3/7/1991	8/12/1995	
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993	
Kibo gold	1008	South A	550	6/8/1995	10/18/1998	
Ndovu	1007	Kwanza	550	8/9/1995	4/26/1991	
Tusker	1004	Kibo Brew	550	2/6/1990	10/10/1993	
Kilimanjaro	1003	K Brew	550	5/7/1993	8/22/1996	
Castle	1010	South A	600	12/30/1996	9/3/1999	
Safari	1006	K Brew	600	4/23/1989	6/2/1999	
Carlsberg	1009	Kbrew	800	3/12/1996	4/1/1998	
Heinekein	1005	South A	1200	7/9/1999	6/19/2002	

Extract 3.3.5 shows a correct response from the candidate with sufficient knowledge on designing a query that sort the database with all records from the lowest to highest Unit Price and save it as Highest.

Extract 3.3.6

Field:	PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE	VAT: 4/100*[UNIT PRICE]
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	
Sort:							
Show:	<input checked="" type="checkbox"/>						
Criteria:							
or:							

KAG&VAT							
PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE	VAT	
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993	8	
Pepsi	1002	Tz Brew	150	3/7/1991	8/12/1995	6	
Kilimanjaro	1003	K Brew	550	5/7/1993	8/22/1996	22	
Tusker	1004	Kibo Brew	550	2/6/1990	10/10/1993	22	
Heinekein	1005	South A	1200	7/9/1999	6/19/2002	48	
Safari	1006	K Brew	600	4/23/1989	6/2/1999	24	
Ndovu	1007	Kwanza	550	8/9/1995	4/26/1991	22	
Kibo gold	1008	South A	550	6/8/1995	10/18/1998	22	
Carlsberg	1009	Kbrew	800	3/12/1996	4/1/1998	32	
Castle	1010	South A	600	12/30/1996	9/3/1999	24	

Extract 3.3.6 shows a correct response from the candidate with sufficient knowledge in query design with calculated field given formula VAT= 4% of Unit Price and save it as KAG& VAT.

Extract 3.3.7

Field:	PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE	UNIT SELL PRICE: [UNIT PRICE]*1.04
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	
Sort:							
Show:	<input checked="" type="checkbox"/>						
Criteria:							
on:							
VAT INCLUSIVE							
PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE	UNIT SELL PRICE	
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993	208	
Pepsi	1002	Tz Brew	150	3/7/1991	8/12/1995	156	
Killimanjaro	1003	K Brew	550	5/7/1993	8/22/1996	572	
Tusker	1004	Kibo Brew	550	2/6/1990	10/10/1993	572	
Heinekein	1005	South A	1200	7/9/1999	6/19/2002	1248	
Safari	1006	K Brew	600	4/23/1989	6/2/1999	624	
Ndovu	1007	Kwanza	550	8/9/1995	4/26/1991	572	
Kibo gold	1008	South A	550	6/8/1995	10/18/1998	572	
Carlsberg	1009	Kbrew	800	3/12/1996	4/1/1998	832	
Castle	1010	South A	600	12/30/1996	9/3/1999	624	

Extract 3.3.7 shows a correct response from the candidate with sufficient knowledge in query design with calculated field given formula Unit Sell Price= Unit Price +4% of Unit Price and save it as "VAT INCLUSIVE".

Conversely, a few candidates (124) (9.1%), who scored low marks (0 to 7), created the correct database and the table as well as assigning the appropriate data type. However, they had problem in setting the primary key and applying blue background color to the database table. The analysis done on the candidates' responses showed that some of the candidates created a query that displays product manufactured in 1990 or 1996. They also created a query that displays all product codes greater than 1004 and less than 1009 but failed to create the rest queries which involved the calculated fields.

Moreover, some of the candidates created queries with only one filed (Product Name). Some typed the criteria that would retrieve records of products manufactured in 1990 or 1996 without including asterisk (*). These candidates typed the criteria as *1990 or 1996* instead of *"*1990 or *1996"*. This indicates that the candidates did not have knowledge and skills regarding syntax of queries. The Extracts 3.3.8 to 3.4.0 shows a sample of incorrect responses.

Extract 3.3.8

Field:	PRODUCT NAME	PRODUCT CODE	CANPANY NAME	UNITY PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT
Sort:						
Show:	<input checked="" type="checkbox"/>					
Criteria:					>1990	
or:						

Extract 3.3.8 shows a sample of response from a candidate who failed to give correct criteria for retrieving information concerning products manufactured either in 1990 or 1996 from the database table.

Extract 3.3.9

All Access Objects		PRODUCT	
Tables		Field Name	Data Type
PRODUCT		PRODUCT NAME	Text
		PRODUCT CODE	Text
		COMPANY NAME	Text
		UNIT PRICE	Text
		DATE OF MANUFACTURE	Text
		EXPIRY DATE	Text

PRODUCT N	PRODUCT C	COMPANY N	UNIT PRICE	DATE OF MA	EXPIRY DATI
Cocacola	1001	Kwanza	200	2/6/1990	10/10/1993
Pepsi	1002	Tz Brew	150	3/7/1991	8/12/1995
Killimanjaro	1003	K Brew	550	5/7/1993	8/22/1996
Tusker	1004	Kibo Brew	550	2/6/1990	10/10/1993
Heinekeni	1005	South A	1200	7/9/1999	6/19/2002
Safari	1006	K Brew	600	4/23/1989	6/2/1999
Ndovu	1007	Kwanza	550	8/9/1995	4/26/1991
Kibo gold	1008	South A	550	6/8/1995	10/18/1998
Carlsberg	1009	K Brew	800	3/12/1996	4/1/1998
Castle	1010	South A	600	12/30/1996	9/3/1999

Extract 3.3.9 shows the output of the table from the candidate who managed to enter correct records but failed to select appropriate data type in design view. This indicates that the candidate lacked basic knowledge on managing database and design.

Extract 3.4.0

Field:	PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
Table:	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT	PRODUCT
Sort:						
Show:	<input checked="" type="checkbox"/>					
Criteria:	= "CA"				"1990"	
or:						

PRODUCT NAME	PRODUCT CODE	COMPANY NAME	UNIT PRICE	DATE OF MANUFACTURE	EXPIRY DATE
*					

Extract 3.4.0 shows blank output from the query designed by the candidate after using wrong criteria due to an insufficient knowledge.

4.0 PERFORMANCE OF CANDIDATES IN EACH TOPIC

The analysis done in relation to each topic showed that most of the candidates did well. The analysis showed that, the candidates performed well in True or False items (99.7%) which were set from the following topics: *Computer Networking and Communications, The Computer, Multimedia, Web Development, and Presentation*. The performance was also good in the questions set from the topics of *Impact of ICT in the Society (89.4%), Database as Information System (79.9%), The Internet (71.0%) and Desktop Publishing (64.8%)*. Likewise, the candidates' performance was good in the multiple choice question (83%) which was set from the following topics: *The Computer, Computer Handling, Computer Software, Word Processing, Spreadsheet and Computer Network and Communication*.

The candidates' performance was average in the question based on the topics of *Spreadsheet (61.1%), Multimedia (48.2%), Computer Network and Communication (47.8%), Computer Software (43%) and Word Processing (42.6%)*. This performance is due to insufficient knowledge on the concepts taught under these topics.

Their performance was poor in the question based on Web Development (20.6%). This is because the candidates lacked the practical skills pertaining to Hypertext Markup Language (HTML). The *Appendix* shows, the performance of the candidates in each topic.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

Generally, the candidates' performance in the 2018 Information and Computer Studies Examination was good. However, some candidates had difficulty in attempting few questions due to insufficient knowledge on the tested concepts; lack of practical skills; and failure to understand the requirements of the questions because of poor commanding of English Language.

The analysis of the candidates in each question revealed that the majority of the candidates 2,106 (79.4%) had difficulty in attempting question 7 in paper 1 which was constructed from Web Development topic. These candidates did not know the basic concepts and codes of HTML. Only 234 candidates

(8.4%) attempted question number 10 which tested candidates' knowledge on the Database as Information System. This implies that most of the candidates had insufficient knowledge on the Database as Information System concepts.

5.2 RECOMMENDATIONS

In order to improve the candidates' performance in future Information and Computer Studies examinations, the following recommendations are presented:

- (a) Education stakeholders, such as the government, parents and school managers, should ensure that schools have ICT laboratories equipped with necessary ICT facilities which will improve teaching and learning process.
- (b) Teachers should provide more exercises, tests and examinations to enhance students' mastery of theoretical concepts and practical skills.
- (c) Teachers should advise students to read questions carefully so that they understand them well and adhere to given instructions.
- (d) Teachers should teach all the topics set out in the Information and Computer Studies syllabus.
- (e) Students should be encouraged to put more effort in learning English Language. Fluency in English is an added advantage in attempting examinations.

APPENDIX

Analysis of Candidates Performance in each Topic

S/n	Topic	No. of Questions	Percentage of Students who Scored 30% Marks or Above	Remarks
1	Computer networking and Communications, The computer, Multimedia, Web development, and Presentation	1	99.7	Good
2	Impact of ICT in the Society	1	89.4	Good
3	The Computer, Computer Handling, Computer Software, Word Processing, Spreadsheet, and Computer Network and Communication.	1	83	Good
4	Database as Information System	2	79.9	Good
5	The Internet	2	71.0	Good
6	Desktop Publishing	1	64.8	Good
7	Spreadsheet	2	61.1	Average
8	Multimedia	1	48.2	Average
9	Computer Network and Communication	1	47.8	Average
10	Computer Software	1	43.0	Average
11	Word Processing	1	42.6	Average
12	Web Development	2	20.6	Poor

