



THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



**CANDIDATES' ITEM RESPONSE ANALYSIS
REPORT ON THE CERTIFICATE OF SECONDARY
EDUCATION EXAMINATION (CSEE) 2021**

INFORMATION AND COMPUTER STUDIES



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036 INFORMATION AND COMPUTER STUDIES

Published by
The National Examinations Council of Tanzania
P. O. Box 2624,
Dar es Salaam, Tanzania.

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FOREWORD

The National Examinations Council of Tanzania is pleased to issue this report on Candidates' Item-Response Analysis (CIRA) in Information and Computer Studies for the Certificate of Secondary Education Examination (CSEE) 2021. The exploration provides feedback to the students, teachers, parents, policy makers and other education stakeholders on how the candidates responded to the examination questions.

The analysis of candidates' responses was done in order to identify the areas in which the candidates performed well, moderate or poorly. This report highlights the factors for the observed performance in order to understand 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 shows that the candidates' performance was good. The reasons for good performance were attributed to candidates' sufficient knowledge of the content in the topics tested and correct interpretation of the questions. The reasons for some candidates' weak performance included misinterpretation of the questions, inadequate knowledge on the tested topics and lack of practical skills.

It is expected that, the feedback provided in this report will enable educational administrators, school managers, teachers and students to work on the difficulties faced by the candidates when attempting the examination questions and take appropriate strategies for improving candidates' performance in future examinations subject.

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



Dr. Charles E. Msonde
EXECUTIVE SECRETARY

List of Abbreviations

- CIRA – Candidates’ Item Response Analysis
- CSEE – Certificate of Secondary Education Examination
- LAN – Local Area Network
- WAN – Wide Area Network
- OS – Operating System
- ICT – Information and Communication Technology
- CPU – Central Processing Unit
- ALU – Arithmetic Logical Unit
- CU – Control Unit
- UPS – Uninterruptible Power Supply
- HTML – Hypertext Mark-up Language
- WWW – World Wide Web

1.0 INTRODUCTION

The Candidates' Item Response Analysis (CIRA) in Information and Computer Studies presents an evaluation of the candidates' performance in the 2021 CSEE. The examination measured the knowledge and competences gained 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 namely, Information and Computer Studies 1 (theory) and Information and Computer Studies 2 (practical). The theory paper had three sections: A, B and C. Section A consisted of two objective questions. The first question was a multiple choice question with ten items weighing one mark each. The second one was a matching item containing five premises each carrying one mark. Section B had eight short answer questions including seven questions with 10 marks each, and one question with five marks. All questions in sections A and B were compulsory. Section C had two optional essay type questions. The candidates were required to attempt only one question. The practical paper had three questions with 25 marks each. The candidates were required to attempt two questions.

In 2021, a total of 2,700 candidates sat for the Information and Computer Studies Examination. Out of these candidates, 2,525 (93.7%) passed and 175 (6.3%) failed. In 2020 a total of 2,702 candidates sat for this examination. Of these candidates, 2,404 (88.97%) passed and 298 (11.03%) failed. This implies that the performance rate of 2021 has increased by 4.7 per cent compared to that of 2020.

The candidates' performance in each question/topic is considered good, average or weak if the percentage of the candidates who scored 30 per cent or more of the marks allocated for the question falls in the intervals 0 to 29, 30 to 64 and 65 to 100 respectively. In this report, the candidates' performance are presented in form of charts with red, yellow and green colours which stands for weak, average and good respectively.

The analysis highlights what the candidates wrote, the mistakes they made while attempting the questions and the factors which contributed for their weak, average or good performance. Furthermore, extracts from candidates' responses are used to illustrate the arguments given about candidates' performance. Finally, the report presents conclusions and recommendations.

2.0 ANALYSIS OF THE CANDIDATES' RESPONSE PER QUESTION IN PAPER 1 (THEORY)

The theory paper had three sections: A, B and C. Section A had two objective questions. The first question consisted of 10 multiple choice items with one mark each. The second was a matching item containing five premises each carrying one mark. Section B had eight short answer questions of which seven had 10 marks each and one had five marks. All questions in sections A and B were compulsory. Section C had two optional essay type questions. The candidates were required to attempt only one question.

2.1 Question 1: Multiple Choice Items

The question consisted of ten (10) multiple choice items which were composed from eight topics of the syllabus. The topics were *Computer Evolution, Computer Handling, Word Processing, Spreadsheet, Database Management System, Database as Information System, Desktop Publisher* and *Multimedia*.

All 2,700 (100%) candidates attempted this question, out of which 30 (1.1%) scored from 0 to 2 marks. A total of 998 (37%) students scored from 3 to 6 marks whereas 1,672 (61.9%) scored from 7 to 10 marks. The performance of the candidates in this question is summarized in Figure 1.

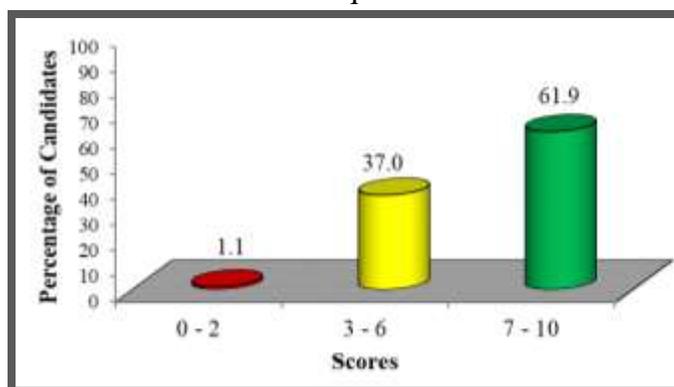


Figure 1: The candidates' performance in question 1

The candidates' performance in this question was good as only 1.1 per cent of the students scored below 3 marks as shown in Figure 1. Majority of the candidates that is 2,670 (98.9%) scored from 3 to 10 marks. This indicates that most of the candidates' chose the correct answer in many items. The following analysis shows candidates' responses to each item in this question:

Item (i) stated that: *In a computer system, unprocessed numbers, text and pictures for various purposes are known as*

- | | |
|-----------------------|--------------------|
| <i>A knowledge.</i> | <i>D contents.</i> |
| <i>B data.</i> | <i>E figures.</i> |
| <i>C information.</i> | |

The item tested candidates' knowledge of data and information. The correct answer was B, *data*. The candidates who scored zero chose other alternatives which were wrong. Some of candidates selected option A, *knowledge* as they did not know that, knowledge is a product of information created by processed data. Most of the candidates selected C, *information* which refers to processed data. These candidates mixed up the terms processed with unprocessed numbers. Others who chose D, *contents* and E, *figures* lacked knowledge of data and information because contents and figures are not related to the data processed in computers.

Item (ii) stated that, *which objects will you use to create a form in Microsoft Access?*

- | | |
|----------------------------------|-----------------------------------|
| <i>A Table and queries</i> | <i>D Queries and reports</i> |
| <i>B Tables and design views</i> | <i>E Queries and design views</i> |
| <i>C Tables and reports</i> | |

The item tested candidates' knowledge of identifying objects used in a Microsoft Access Database Management System. The analysis showed that most of candidates faced difficulties in attempting this item as they chose wrong options. The correct answer was A, *Table and queries*. The candidates who selected incorrect answers failed to understand that, options B, *Tables and design views* and E, *Queries and design views* include

“design view” which is responsible for making changes to the form and not creating a form. Moreover, the candidates who selected C, *Table and reports* did not know that, report as a form depends on data from tables and queries. This indicates that the candidates had insufficient knowledge on objects used in Microsoft access.

Item (iii) read as follows: *Which method is the best for protecting the computer against short circuiting?*

- A *Providing a standby generator* D *Providing an insulated cables*
B *Providing a fire extinguisher* E *Providing air ventilation*
C *Providing surge protectors*

This item tested candidates’ knowledge of identifying methods of protecting a computer against damage. The correct answer was C, *Providing surge protectors*. The candidates who selected option A, *providing standby generator* were wrong because it does not protect a computer against short circuiting but it provides stable electrical power to the computer. The candidates who selected option B, *providing fire extinguisher* did not know that a fire extinguisher protects a computer against immediate detection and helps in suppression of fire within a computer room. Moreover, the candidates who selected option D, *providing insulated cables* failed to understand that an insulated cable protects a computer user and prevents electric shock in a computer room but it is not the best way of protecting the computer against short circuit. Lastly, the candidates who selected option E, *providing air ventilation* were not correct because air ventilation protects computer equipment and critical data by keeping cool air circulated in accordance with space's needs and not against short circuiting.

Item (iv) read: *What does an advertisement with a combination of text, audio, picture and some animations present?*

- A *Hyperlink presentation* D *Single media presentation*
B *Hypermedia presentation* E *Interactivity presentation*
C *Multimedia presentation*

This item tested candidates’ knowledge of recognizing the elements of multimedia. The correct answer was C, *Multimedia presentation*. Most of

the candidates who scored zero selected option B, *Hypermedia presentation*. The candidates who selected this option did not know that hypermedia is the link used to open a picture or video in the webpage. Other candidates, who selected A, *Hyperlink presentation* failed to understand that this is the type of link used in a webpage which includes hypertext and hypermedia. Furthermore, the candidates who selected D, *Single media presentation* did not understand that it includes one media such as video and not a combined media such as video, audio and text. Others who selected alternative E, *Interactivity presentation* failed to understand that this is the type of multimedia which is under user control such as games.

Item (v) was as follows: *The correct sequence of computers arranged in descending order according to their physical size and processing power is*

A *mainframe computer, minicomputer, supercomputer*

B *minicomputer, mainframe computer, supercomputer*

C *supercomputer, mainframe computer, minicomputer*

D *minicomputer, supercomputer, mainframe computer*

E *mainframe computer, supercomputer, minicomputer*

This item tested candidates' knowledge of classifying computers according to their size and processing power. The correct answer was C, *Supercomputer, mainframe computer, minicomputer*. It was observed that most of the candidates chose option B, *minicomputer, mainframe computer, and supercomputer* which indicates the physical size arranged in ascending order. This shows that the candidates had knowledge of computers' physical size but mixed up the terms descending order with ascending order. These candidates were supposed to know that descending order means arrangement from largest to smallest and ascending order means arrangement from smallest to largest. Moreover, the candidates who selected options A, *mainframe computer, minicomputer, supercomputer*, D, *minicomputer, supercomputer, mainframe computer* and E, *mainframe computer, supercomputer, minicomputer* lacked knowledge of computers' physical size and processing power.

Item (vi) read: *What is the function of the features  as used in Microsoft Excel?*

- A *To align the text top, middle and left*
- B *To align the text left, middle and centre*
- C *To align the text top, middle and right*
- D *To align the text left, centre and right*
- E *To align the text top, middle and bottom.*

This item tested candidates' understanding of the uses of formatting features in a Microsoft Excel. The correct answer was E, *To align the text top, middle and bottom*. Most of the candidates selected option C, *To align the text top, middle and right*. These candidates translated directly the position of each command. Others selected option D, *To align the text left, centre and right* which are formatting commands used in Microsoft Word and not in Microsoft Excel. This shows that, the candidates lacked practical skills on using Microsoft Excel.

Item (vii) was as follows: *The shortcut key used to open the new Microsoft word document without closing the existing document is*

- A *Enter + N*
- B *Ctrl + N*
- C *Shift + N*
- D *Insert + N*
- E *Alt + N*

This item tested candidates' knowledge of recognising the uses of shortcut keys in a Microsoft word document. The correct answer was B, *Ctrl+N*. Other options were wrong because A, *Enter + N* and D, *Insert + N* do not signify anything in the Microsoft word document. Moreover, the candidates who selected option C, *Shift + N* did not know that this shortcut is used to capitalize letter N in the document. Others who selected E, *Alt + N* failed to understand that it gives the letter to represent any icon in the tool bar.

Item (viii) stated that: *Which one is a correct order of making audio files?*

- A *Editing, Mixing, Recording and Burning*
- B *Recording, Editing, Mixing and Burning*
- C *Mixing, Editing, Burning and Recording*
- D *Recording, Mixing, Editing and Burning*

E Mixing, Editing, Recording and Burning

This item tested candidates' knowledge of making audio files. It was noted that majority of the candidates scored zero in this item. This might be attributed to the fact that making audio files is not a common thing to many students and teachers. The correct answer was B, *Recording, Editing, Mixing and Burning*. Further analysis shows that, most of the candidates selected option D, *Recording, Mixing, Editing, and Burning*. The candidates failed to understand that the step that follows after recording is editing and not mixing. Other options including A, *Editing, Mixing, Recording and Burning*; C, *Mixing, Editing, Burning and Recording* and E *Mixing, Editing, Recording and Burning* were not correct because they started with the second and third step of making audio files.

Item (ix) stated: *Which software can you use to prepare a month calendar?*

A *Microsoft Word*

D *Microsoft Photoshop*

B *Microsoft Excel*

E *Microsoft Publisher*

C *Microsoft Access*

This item tested candidates' knowledge of the function of application software. The correct answer was E, *Microsoft publisher*. Some of the candidates selected option D, *Microsoft Photoshop*. This response was not correct because, Microsoft Photoshop offers users the ability to create, enhance, or otherwise edit images, artwork and illustrations. The candidates who selected other options failed to understand that, option A, *Microsoft word* is used for typing and editing word document. Option B, *Microsoft excel* is used to calculate, organize and analyse numerical data while, option C, *Microsoft Access* is used to create and manage database.

Item (x) stated that, *which function can be applied in the following worksheet in order to display the status of PROFIT or LOSS? Hint: Status=Revenue – Cost.*

A	B	C	D
	COST	REVENUE	STATUS
	2300	4560	PROFIT
	1500	1230	LOSS

A =IF(B2-D2>0, "PROFIT", "LOSS")

B =IF(B2-C3>0, "PROFIT", "LOSS")

C =IF(C2-C3>0, "LOSS", "PROFIT")

D =IF(C2-B2>0, "PROFIT", "LOSS")

E =IF(B2-C2>0, "PROFIT", "LOSS")

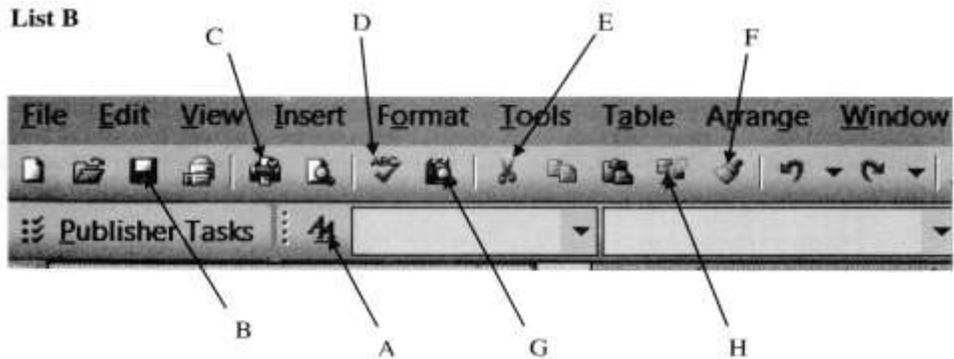
The correct answer was D, =IF(C2-B2>0, "PROFIT", "LOSS"). The candidates who selected other options A, =IF(B2-D2>0, "PROFIT", "LOSS"), B, =IF(B2-C3>0, "PROFIT", "LOSS"), C, =IF(C2-C3>0, "LOSS", "PROFIT") and E, =IF(B2-C2>0, "PROFIT", "LOSS") were not correct. These candidates failed to associate the given formula (Status = Revenue – Cost) with the cell reference in the given options. They were supposed to understand that revenue value is allocated at C2 and cost value is allocated at B2 and therefore if the difference is greater than zero it will give the Profit status. Otherwise it will give Loss status. Additionally, the candidates had to know that cell D contain Profit and Loss which are non-numerical data and it is not possible to manipulate them.

2.2 Question 2: Desktop Publishing

In this question, the candidates where required to match the functions of Microsoft office publisher icons in **List A** with their corresponding icons on the screenshot in **List B** by writing the letter of the correct response beside the item number in the answer booklet provided. The question intended to assess the candidates' ability to identify the functions of Microsoft office publisher icons.

List A

- (i) The icon which is used to check for spelling and grammar mistakes.
- (ii) The icon which is used to print publisher document
- (iii) The icon which is used to save publisher document
- (iv) The icon which is used to remove text on a publisher document
- (v) The icon which is used to apply styles on a text in publisher document.



A total of 2,700 (100%) candidates attempted this question, out of which 27 (1%) scored from 0 to 1 mark, 421 (15.6%) scored from 2 to 3 marks and 2,252 (83.4%) scored from 4 to 5 marks out of 5 marks allocated. Figure 2 presents the candidates' performance in this question.

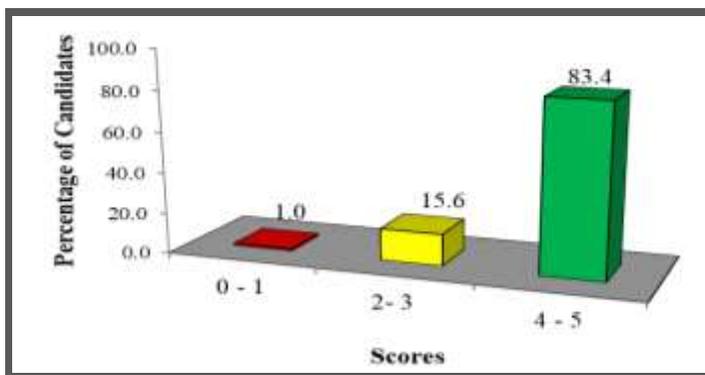


Figure 2: The candidates' performance in question 2

The general performance on this question was good since 99 per cent of the candidates scored more than 1 mark. This performance implies that the candidates had sufficient knowledge on the functions of Microsoft office publisher icons. A few candidates who scored low marks failed to respond correctly to most of the items. The candidates' responses for each item of this question are analysed as follows:

Item (i) required the candidates to identify the icon which is used to check spelling and grammar mistakes. The correct answer was D, . Some candidates selected option E, . The candidates did not know that this icon

is responsible for removing text on a publisher document. Others who selected F,  failed to understand that the function of this icon is to format of texts in multiple places.

Item (ii) required candidates to identify the icon which is used to print publisher document. The correct response was E, . Other candidates selected option B, . These candidates failed to distinguish between the icon used to print and the icon for saving in a publisher document. This shows that the candidates lacked practical skills on designing by using Microsoft Publisher.

Item (iii) required the candidates to identify the icon which is used to save a publisher document. The correct response was B, . The analysis shows that, most of the candidates attempted correctly this item. This might be attributed to the fact that many candidates are familiar with saving documents. Others confused this icon with the icon used for printing by selecting option C, .

Item (iv) required the candidates to identify the icon which is used to remove a text on a publisher document. The correct response was E, . The analysis shows that, most of the candidates selected option F, . The candidates who selected this option failed to understand that Format painter is used to copy and apply formatting in multiple places without removing the text.

Item (v) required the candidates to identify the icon which is used to apply styles on a text in a publisher document. The correct answer was A, . Most of the candidates answered this item correctly. However, some of them selected option D,  “spelling and grammar checker”. These candidates could not differentiate between the icon required to check correctness of spelling and the icon used to apply styles on a text.

2.3 Question 3: Database as Information Systems

The question consisted of five (5) steps (jumbled sentences) required for designing a database. The candidates were required to re-arrange the given sentences in a sequential order beginning with the first step to the last step.

The question intended to assess the candidates' ability to design an effective database. The following steps were given.

- A Define a primary key for each table.
- B Design a draft database to determine the number of files or tables.
- C Design data entry forms needed for the database.
- D Carefully study the requirements of the user.
- E Divide the information into separate fields, records and tables.

The statistics shows that all candidates 2,700 (100%) candidates attempted this question. Out of these 1,060 (39.3%) scored from 0 to 1 mark, 1,342 (48.7%) scored from 2 to 3 marks and 298 (11%) scored from 4 to 5 marks. Figure 3 presents the candidates' performance in this question.

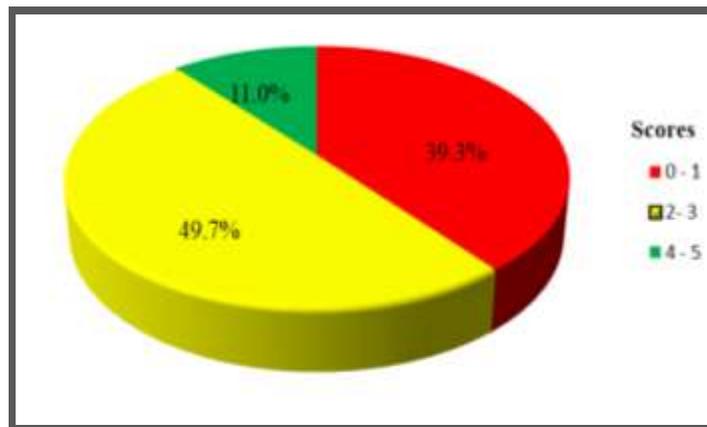


Figure 3: *The candidates' performance in question 3*

The analysis shows that the general performance of the candidates in this question was average because, 60.7 per cent scored from 2 to 5 marks. However, most of the candidates did not score high marks because they mixed up some steps.

Despite the general good performance, some candidates (39.3%) scored low marks (0 to 1). These faced difficulties in arranging step A to E. It was observed that, some of the candidates interchanged step B, *Design a draft database to determine the number of files or tables* with C, *Design data entry forms needed for the database*. Others interchanged step C, *Design data entry forms needed for the database* with D, *carefully study the*

requirements of the user or step B, *Design a draft database to determine the number of files or tables* and D, *carefully study the requirements of the user*. This indicates that the candidates lacked knowledge on designing database.

Moreover, some of the candidates (49.7%) had knowledge on the first two steps namely step D, *Carefully study the requirements of the user* and B, *Design a draft database to determine the number of files or tables* but could not identify the next steps. The analysis shows that some of them wrote step E, *divide information into separate fields, records and tables* followed by step A, *define a primary key for each table* instead of writing step A then step E. These candidates were supposed to understand that, before defining a primary key for each table, it is very important to divide information into separate fields, records and tables.

2.4 Question 4: Computer Networks and Communications

The question was as follows: *Suppose a Computer Subject teacher plans to install a network in a staff room and you are asked to give advice on his decision:*

- (a) Suggest the type of network to be installed in the staff room.*
- (b) Explain with two reasons, why have you proposed such type of network.*
- (c) Give two things the teachers will benefit from the established network.*

This question intended to test the candidates' knowledge of computer network according to the geographical area. The question was attempted by 2,700 (100%) candidates, out of which 536 (19.8%) scored from 0 to 2.5 marks, 847 (31.4%) candidates scored from 3.0 to 6.0 marks and 1,317 (48.8%) candidates scored from 6.5 to 10 marks. Figure 4 presents the candidates' performance in this question.

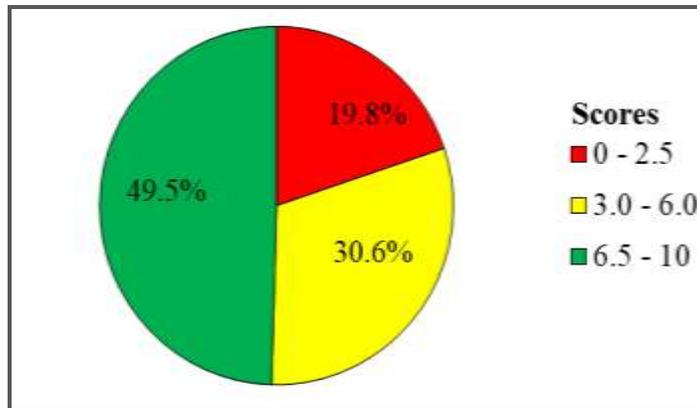


Figure 4: *The candidates' performance in question 4*

Generally, this question had a good performance because 80.2 per cent of the candidates scored more than 2.5 marks. Majority of those who scored high marks (48.8%) suggested correctly a type of network to be installed in the staff room in part (a). They suggested Local Area Network (LAN) to be installed in a staffroom. In part (b), most of the candidates wrote correct reasons to propose the required network in the staff room. However, some of the candidates repeated the same reasons in different words which led them to lose some marks. In part (c), most of the candidates wrote correctly the two things teachers should benefit from the Local Area Network (LAN). However, some of the candidates wrote the importance of LAN instead of writing things the teacher will benefit from the LAN. For example, one candidate wrote, *LAN is less expensive* instead of ease sharing of resources such as printer. This signifies that, these candidates did not understand the requirements of the question. Extract 4.1 presents a sample of a correct response.

4. (a) The major type of network that I would suggest to be installed in the staff room is Local Area Network (LAN)

(b) The following are the major reasons to why I have prepared such type of network in part (a):

- (i) It is because it is a type of network that span only a small geographical location.
- (ii) Also it is because it is a type of network that it is cheap and it is easier to set up at a given area.

(c) The following are the major two things that a teacher will benefit from the network established in part (a):

- (i) It will ensure the easy share of information among the staff room teachers.
- (ii) It will ensure that the teacher gets easy information and files from other teachers and enhance easily communications among the teachers. as hence it will save the time.

Extract 4.1: A sample of correct answer in question 4

Extract 4.1 shows the response of a candidate who explained the importance of information in daily life in part (a). The candidates also explained correctly two ways of disseminating information with examples in part (b).

Further analysis shows that, 31.4 per cent of the candidates scored average marks. Some of these candidates suggested correctly the type of network in part (a). In part (b), most of the candidates managed to give reasons for proposing LAN but they mixed up the term network with internet. For instance, one candidate wrote, *it is easy to share internet*. This candidate did not know that, internet is a collection of different networks. Others wrote correctly only one reason for establishing a LAN in the staff room. In part (c), most of the candidates managed to give at least one correct benefit the teacher would get from the Local Area Network (LAN). However, some of the candidates wrote general benefits obtained from the LAN instead of being specific to the teachers.

Furthermore, statistics reveals that 19.8 per cent of the candidates scored low marks. Most of these candidates could not differentiate computer network from network topology which led them to suggest network topologies such as star, ring and bus topology instead of LAN. These candidates did not understand that network topology refers to the physical arrangement of computers in a network while network refers to interconnected computing devices that can exchange data and share resources with each other. Moreover, some of candidates had knowledge of network but lacked knowledge of coverage areas. For example, some of the candidates wrote WAN instead of LAN. The candidates' response was wrong because WAN covers large geographical areas such as a country, continent or the whole world. The question required the network which covers a small area, that is a staff room.

In part (b), some of the candidates gave correctly one reason for using LAN while others wrote advantages of using internet instead of LAN. This shows that, the candidates had insufficient knowledge of computer networking. In part (c), some of the candidates managed to give only one benefit teachers would get from the LAN but failed to write another benefit. Further analysis shows that other candidates mentioned examples of network devices such as Hub, Switch and Router. This shows that the candidates did not understand the question. Extract 4.2 presents a sample of such incorrect responses.

4	(a) LAN (Local Area Network)
	(b) i) It support many computer.
	ii) It can take wide area as a staff room.
	(c) Good connection.

Extract 4.2: A sample of incorrect answer in question 4

Extract 4.2 is the response of the candidate who identified the correct type of network in part (b) but gave wrong reasons to support his/her choice. The candidate also wrote wrong benefits from the established network in part (c).

2.5 Question 5: The Computer

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

- (a) What is the function of each of the following components in the Computer System?
 - (i) Arithmetic Logical Unit (ALU)
 - (ii) Control Unit (CU)
 - (iii) Uninterruptible Power Supply (UPS)
- (b) Why do computers store data in a binary form? Give reason.
- (c) Why is it strongly advised to always save your work while working in Microsoft word document?

This question was attempted by 2,700 (100%) candidates out of which 622 (23%) performed poorly as they scored from 0 to 2.5 marks and 2,078 (77%) scored from 3 to 10 marks. Therefore the overall candidates' performance in this question was good. Figure 5 illustrates the candidates' performance in this question.

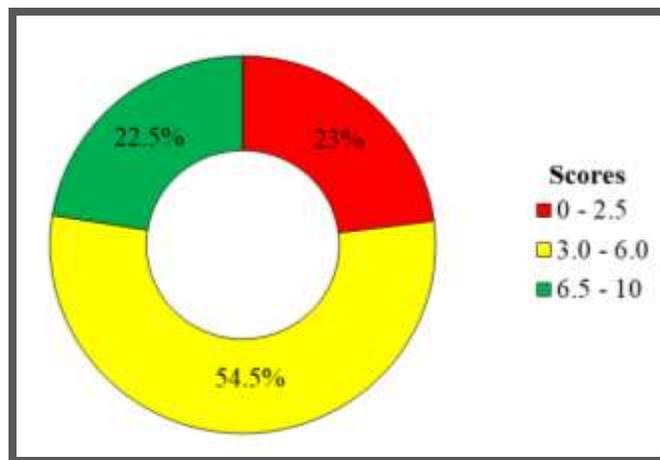


Figure 5: *The candidates' performance in question 5*

Although the performance was generally good majority of the candidates (54.5%) had an average performance as they scored from 3 to 6 marks. Some of them gave the correct function of Arithmetic and Logical Unit (ALU), Control Unit (CU) and Uninterruptible Power Supply (UPS) in part (a). It was also noted that some candidates wrote incomplete explanations about the function of ALU by focusing on logical part only while others

focused on arithmetic part only. Others described a UPS as an electrical power producer like a generator. The candidates failed to understand that the function of a UPS is to protect a computer from power failure but it cannot generate electric power. In part (b), most of the candidates failed to understand the reason why a computer stores data in binary form. Some candidates explained *data sharing and data security* as the reason for storing data in a binary form. For example, one candidate wrote that *Computer store data in binary form to avoid attachment with viruses*. In part (c), some candidates wrote correctly the reason for saving work while using Microsoft word. Other candidates failed to explain in detail the given reasons. Moreover, some candidates knew the importance of saving work while using Microsoft word but failed to give clear explanations.

However, 22.5 per cent of the candidates who scored high marks responded correctly to parts (a) and (c) but only a few of them answered correctly part (b). Some of the candidates associated binary form with the storage capacity of the computer. For example, one of the candidates wrote *to increase storage capacity* as the reason for the computer to store data in a binary form. Others wrote *binary form of storing data increases speed of the computer*. These candidates failed to understand that, a computer stores data in binary form because it can easily understand them. Extract 5.1 presents a sample of such correct responses.

5. a)

i. Arithmetic Logical Unit (ALU)
 Is used to manipulate both arithmetic and logical data in operations, such as addition, subtraction, multiplication, division and arithm logical expression such as greater than (>), less than (<) or equal to (=)

ii. Control unit (CU)
 Is used to control all processing activities of the computer as well as input, output and storage, since it operates in clock system.

a) iii. Uninterruptible Power Supply (UPS)
 Is used to provide an emergency power supply to computer system in case of power fluctuation during computer operation.

b) Computer store data in a binary form which is 0 and 1 because is the only language easier to machine language that computers can understand and use it to execute commands.

c) It is strongly advised to always save your work while working in Microsoft Word document so as to have back up of your document to retrieve in case there is power failure at the time of your application.

Extract 5.1: A sample of correct response to question 5

The responses of a candidate provided in Extract 5.1 shows that the candidate managed to write correct functions of ALU, CU and UPS in part (a). The candidates gave a correct reason for a computer to store data in a binary form in part (b). The candidate also gave a correct reason for saving the work while working in Microsoft Word document.

On the other hand, the candidates (23%) who scored low marks wrote correctly only the function of UPS and ALU but failed to write the functions of CU in part (a). Some candidates wrote the long form of the component instead of giving its functions. Further analysis revealed that others explained ALU as *a temporary storage device* and CU as *a permanent storage device*. These candidates mixed up the function of RAM and ROM with the function of ALU and CU. In part (b), some of the candidates defined the term computer instead of explaining the reason for a computer to store data in binary form. Additionally, it was observed that

some of the candidates did not write anything in this part. In part (c), a few candidates explained correctly the reason for saving work while using Microsoft word. However, some of the candidates copied the question instead of giving reason for saving Microsoft word document. For example, one of the candidates wrote, *it strongly advised to save your work working in Microsoft word document*. Other candidates wrote applications of Microsoft word document. For instance, one of the candidates wrote *It is used for creating books and letters*. Extract 5.2 presents a sample of incorrect responses.

5	a) function of each of the following components in the computer system.
	i) Arithmetic Logical unit (ALU)
	This is used in mathematical operation like Addition, Division, Multiplication
	ii) Control unit (CU)
	This it can used to control the unit in the CPU.
	iii) Uninterruptible power supply (UPS)
	This it can used to ^{give} program the power supply.
	b) → Because if you will find in the binary form to get it → ime → To be clearly and arrange well.
	c) Because to arrange ^{the work} it clearly and put it to the folder.

Extract 5.2: A sample of incorrect answers in question 5

In Extract 5.2 shows that the candidate gave wrong functions of ALU, CU and UPS in a computer. The candidate also wrote incorrect reasons in part (b) and (c).

2.6 Question 6: The computer

This question had two parts: (a) and (b). The question was as follows:

Jimi has no technical knowledge about the computer, but he plans to buy a new computer for his learning purpose.

- (a) Explain three factors he should consider before buying a new computer.
- (b) Explain two types of computer software expected to be installed in a computer to be bought. Give two examples for each category.

All 2,700 (100%) candidates attempted this question, out of which 534 (19.8%) scored from 0 to 2.5 marks; 1,157 (42.8%) scored from 3 to 6 marks; and 1,009 (37.4%) scored from 6.5 to 10 marks. The general performance in this question was good because 80.2 per cent of the candidates scored above 2.5 marks. Figure 6 presents the candidates' performance in this question.

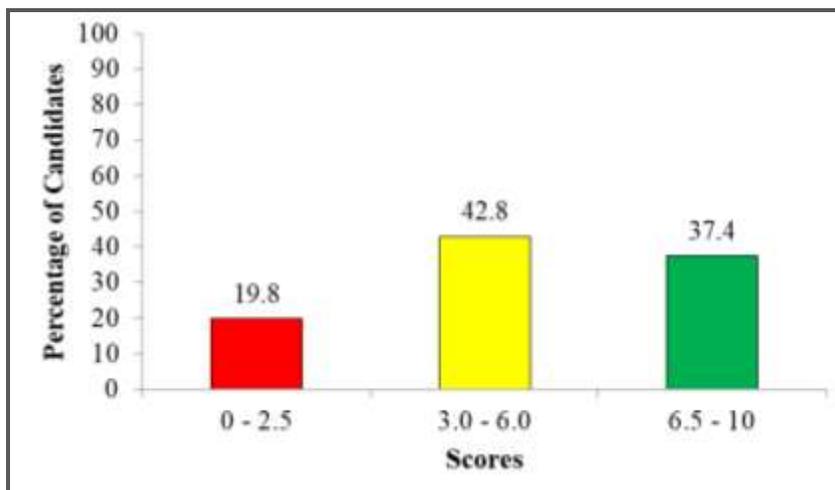


Figure 6: *The Candidates' Performance in Question 6*

Although generally this question had good performance, majority of the candidates failed to score full marks. The analysis of data revealed that 42.8 per cent of the candidates scored from 3 to 6 marks. Some of these candidates wrote correctly at least two factors to consider before buying a new computer in part (a). Others gave partial explanations on some factors, and thus failed to score full marks. In part (b), some candidates explained operating system and utility software as types of computer software instead of system and application software. These candidates did not understand

that operating system and utility software are examples of system software. Others wrote *open source software* and *closed source software* as two types of software. Such candidates failed to understand that these are types of computer software based on ownership. This shows that the candidates did not understand the question.

On the other hand, 160 (5.9%) candidates answered correctly all parts of the question. However, 31.5 per cent of the candidates failed to score full marks. Further analysis shows that some of these candidates faced difficulties in giving clear explanations of factors to be considered before buying a new computer in part (a). In part (b), the candidates listed correctly the types of computer software and examples but failed to explain them correctly. Others gave partial explanations and thus lost some marks. Extract 6.1 provides a sample of correct responses.

6	
	a)
	i) Processor Capacity This is the capacity of a computer to process data into information. It is advised to buy a computer with bigger processing capacity as it will be fast. Example Use of Intel Core 7 processor. Computers.
	ii) Compatibility. This is the ability of the computer to easily function and integrate with different systems. For instance, An updated computer should be compatible with Windows OS and Linux OS. (OS - Operating System).
	iii) Portability. This is the ability to easily move with the device. Thus, a good computer should be easily portable and easy to carry.

6	b)
	i) System Software. (Operating System)
	This is the set of instructions which
	configure, manages and optimizes the
	computer. Example Windows OS and Linux
	OS (OS - Operating System).
	b)
	ii) Application Software.
	This is the set of instructions of a
	software which performs a specific
	task. Example Games and word processor
	such as Microsoft Word and Libre Office

Extract 6.1: A sample of correct answer in question 6

Extract 6.1 shows the response of a candidate who answered this question correctly in parts (a) and (b). This implies that the candidate had adequate knowledge of computer specifications.

The analysis shows that most of the candidates (19.8%) who scored low marks listed factors to consider before purchasing a new computer without giving explanations. Others explained the characteristics of a computer instead of factors to be considered before purchasing a computer. For example, one of the candidates wrote *accuracy, versatility (diligence) and efficiency*. These candidates did not know that before buying a new computer you must consider the cost, hardware and software specifications. In part (b), some of the candidates gave examples of computer software but failed to specify whether they are system software or application software. Other candidates correctly mentioned the types of computer software but failed to explain them. Moreover, some candidates defined computer software instead of giving types of computer software. This shows that the candidates lacked adequate knowledge of types of computer software. Extract 6.2 presents such incorrect response.

6	a factors he should consider before buying a new computer are:
	i) Number of users it can support
	ii) Cost of an operating system
	iii) Number of operators and speed.
	b) Two types of computer software expected to be installed in a computer bought are:
	i) Application software Example: spreadsheet
	ii) System software Example: Operating system.

Extract 6.2: A sample of incorrect answers in question 6

In extract 6.2, the candidate wrote factors to consider before buying an operating system instead of a computer in part (a). In part (b), the candidate managed to list types of computer software with their examples but failed to explain them.

2.7 Question 7: Spreadsheets

This question had four parts: (a), (b), (c) and (d). The candidates were required to answer the following question;

A seller prepared the following worksheet by using a spreadsheet program in order to monitor the sales of text books. Study the following worksheet carefully and then answer the questions that follow.

	A	B	C	D	E	F	G
1	Records of Textbook Sales						
2	Books	Selling Price	Number of Books Sold	Total Sales	Purchasing Price	Profit for Each	Total Profit
3	Mathematics	12000	12	144000	11020	980	
4	Biology	14300	34	486200	12732	1568	
5	History	9700	5	48500	8300	1400	
6	Geography	6500	32	208000	6237	263	
7	French	7400	4	29600	6892		2032
8	English	5800	27	156600	4948		
9							
10	Total number of books sold		114				
11							
12	Total sales value			1,072,900		Total profit	

- (a) Which function can be applied in cell D12 to calculate the total sales?
- (b) Give two advantages of using the functions in a worksheet.
- (c) Use cell reference to write the formulae that will be used to calculate the total profit for French books stored in cell G7. Hint: (Profit for one item = Selling Price – Purchasing Price)
- (d) Use any cell in the given worksheet as an example to differentiate absolute cell referencing from relative cell referencing.

The candidates who attempted this question were 2,700 (100%), of which 1,233 (45.7%) scored from 0 and 2.5 marks; 1,090 (40.3%) scored from 3 to 6 marks and 377 (14%) scored from 6.5 to 10 marks. The general performance in this question was average because 54.3 per cent of the candidates scored above 2.5 marks. Figure 7 presents the candidates' performance in this question.

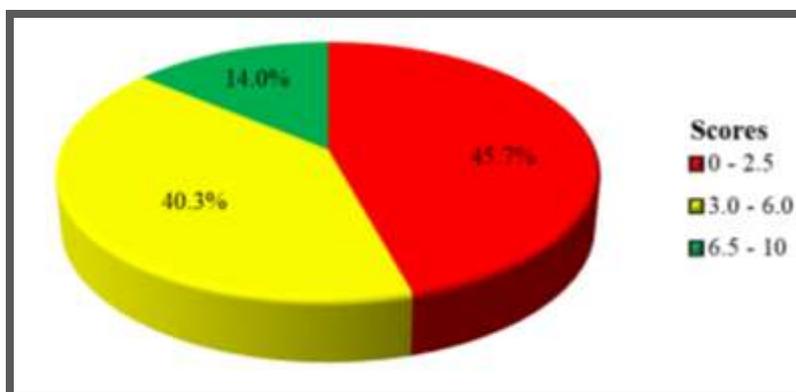
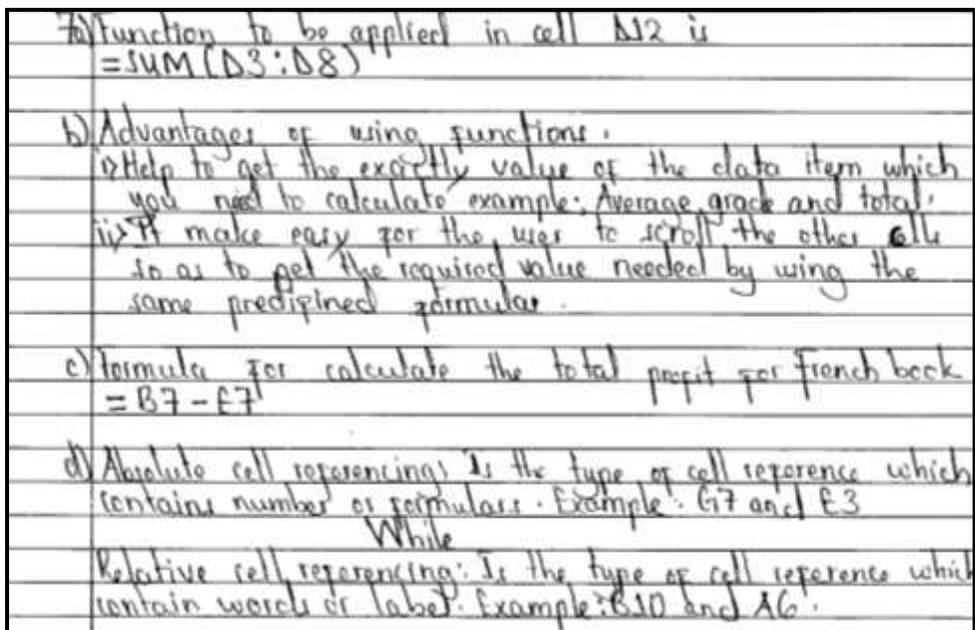


Figure 7: *The candidates' performance in question 7*

Although the candidates' general performance was average, majority of the candidates (45.7%) had weak performance because they scored from 0 to 2.5 marks. The analysis showed that some of these candidates identified the correct function which calculates the total sales in part (a). The function provided by these candidates was =SUM(D3:D8). However, some of the candidates wrote formula instead of function to calculate total sales. This shows that the candidates could not differentiate a function from a formula. Furthermore, other candidates had insufficient knowledge of writing syntax of function and thus gave wrong answers. For example, one candidate

wrote $if(B3*C3)$. This candidate failed to understand that If-function is used to compare values and cannot compute the total sales. In part (b), some of the candidates wrote advantages of spreadsheet instead of advantage of using the function in a worksheet.

Moreover, in part (c), some candidates could not identify the cell reference of the given formula to calculate profit of French books in cell G7, they simply copied the formula given. For instance, some of the candidates wrote, $G7 = (Selling Price - Purchasing Price)$ as a formula for calculating profit instead of $=B3 - E3$. This shows that the candidates lacked practical skills of using spreadsheet. Others wrote the cell reference of the title of selling price and purchasing price. For example, one candidate wrote, $G7 = B2 - E2$. This candidate did not know that titles had labelled data which cannot be manipulated. In part (d), the candidates gave the difference between absolute cell referencing and relative cell referencing but failed to identify a specific cell as an example. Some candidates gave the correct examples without giving the difference. Others interchanged the examples of absolute and relative cell referencing. Extract 7.1 shows a sample of incorrect responses from one of the candidates.



Extract 7.1: A sample of incorrect response in question 7

Extract 7.1 shows responses of a candidate who gave the correct function to calculate total sales in part (a). However, the candidates explained the advantage of computer instead of functions in part (b). The candidate also gave a formula for finding the profit of one French book instead of four French books in part (c). Moreover, in part (d) the candidate explained the types of data entered in excel instead of basing on cell reference.

Some of the candidates (40.3%) who got average marks wrote correctly the function applied to calculate total sales in cell D12 in part (a). They also managed to give correct advantages of using functions in a worksheet in part (b). Some candidates wrote only one correct advantage. The advantage given by many students was that it saves time. However, some of these candidates faced difficulties in answering part (c) and part (d). For example, in part (c), they gave the formula which calculates the profit for one book instead of four books. This shows that the candidates lacked mathematical and cell referencing skills. In part (d), many candidates could not distinguish mixed cell from absolute or relative cell referencing. Others correctly differentiated absolute cell referencing from relative cell referencing but failed to give correct examples. This indicates that the candidates lacked clear understanding of cell referencing.

On the other hand, a few candidates (14.3%) who scored high marks answered correctly all parts of the question. However, some of the candidates wrote incorrect function name to calculate total sales in part (a). For example one of the candidates wrote “=Total (D3:D8)” instead of “=SUM(D3:D8)”. This candidate mixed up the term “total” as applied in the question and the function name “SUM”. Others wrote the formula to calculate total profit as “=(B7 – E7)*4” instead of “=(B7 – E7)*C7”. These candidates did not use cell reference to represent the number of French books. Extract 7.2 presents a sample of such correct responses.

7-a	$= \text{SUM}(D3:D8)$
b.	if saves time for you don't have to re-type a new one each time.
	- Ensures accuracy, for one I can use a wrong formula due to failure to understand a mathematical problem.
c.	$= (B7 - E7) * C7$
d.	Absolute cell referencing
	- is a type of cell referencing that remains fixed even if when the cell which is referred to changes its address to another position.
	example: $= F2 * \$C\2
	Relative cell referencing
	- changes whenever the cell referred to changes its address to a new location.
	$= C2 * F2$

Extract 7.2: A sample of correct answer in question 7

The responses of a candidate provided in Extract 7.2 shows that the candidate attempted correctly part (a), (b) and (c). In part (d), the candidate wrote a formula which involves absolute and relative cell referencing instead of writing a separate example of cell referencing.

2.8 Question 8: Presentation

This question had three parts: (a), (b) and (c). The candidates were required:

- (a) To give the importance of theme in Microsoft Power Point
- (b) To describe the following types of views as applied in Microsoft Power Point
 - (i) Normal
 - (ii) Slide Sorter
 - (iii) Slide Show
 - (iv) Notes page

(c) To suggest steps to be followed when switching a slide to a different layout

This question was attempted by all 2,700 (100%) candidates whereby a total of 2,101 (77.8%) scored from 0 to 2.5 marks and 510 (18.9%) scored from 3 to 6 marks. A few candidates 89 (3.3%) scored from 6.5 to 10 marks out of 10 marks allocated. Figure 8 summarizes the candidates' performance in this question.

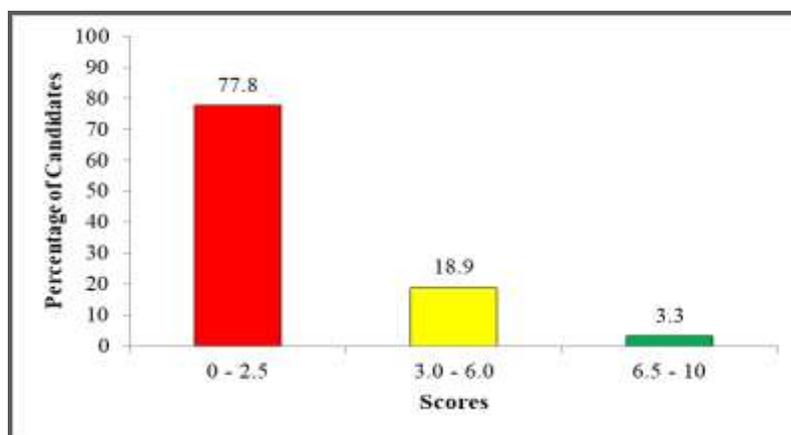


Figure 8: *The candidates' performance in question 8*

This question had weak performance because 77.8 per cent of the candidates scored from 0 to 2.5 marks and among them 43.7 per cent scored zero mark. Majority of the candidates who scored zero lacked knowledge of the content tested and thus gave incorrect responses. In part (a), some of these candidates translated the term theme as an overview or purpose of Microsoft PowerPoint, which was wrong. These candidates did not know that theme is an important tool in Ms PowerPoint because it is a group of design settings which includes color settings, font choices, object effect settings and in some cases also a background graphic which makes a presentation attractive. Moreover, some of the candidates gave the importance of theme in Microsoft PowerPoint but failed to explain in details. For example, one candidate wrote, *theme helps to make a power point presentation attractive.*

In part (b), the candidate described correctly only one type of view as applied in Microsoft PowerPoint and failed to describe other views. In part (b) (i), many candidates associated normal view with design view. For example, some of the candidates wrote *normal view is the page which occurs before design in Microsoft PowerPoint*. Most of them failed to describe Slide show and Notes page. The analysis revealed that some candidates associated slide show with animation of slides. Others associated Notes page with a page necessary for writing notes. These candidates failed to understand that “Notes page view” shows a small area for notes underneath. Most of them wrote steps for inserting animations in the slides while others wrote steps for creating new slides. Additionally, some of the candidates wrote steps for saving while others wrote steps for opening power point. This shows that, the candidates lacked practical skills of creating a presentation. Extract 8.1 presents a sample of such incorrect responses.

8 iii)	Slide show Is the one that is give time for it to change. It can be set to change after every ten minutes
iv)	Notes page It the text contained in each page in form of notes on each slide.
c)	First highlight the particular slide ii) Then click edit iii) After click layout part iv) Then after choose the layout that one needs and click it.

Extract 8.1: A sample of incorrect answer in question 8

In extract 8.1, the candidate mixed-up the concept of slide show and slide transition. The candidate also failed to organize the idea which and thus gave incorrect steps in part (c).

The majority of the candidates (18.9%) who scored average marks wrote correctly the importance of theme in Microsoft PowerPoint in part (a). Some candidates related theme with the tools which can help to deliver message to the people. For example, one candidate wrote, *Theme is the media required to present the intended message to audience*. In part (b), the candidates managed to describe at least one type of view as applied in PowerPoint. Others gave insufficient explanations about the Power point views and consequently lost some marks. In part (c), most of the candidates gave correct steps for switching slide to different layout. However, some of the candidates wrote the first step as *to click design tab* instead of home tab to find slide layout. This led them to lose some marks.

A few candidates (3.3%) who scored high marks answered correctly part (a) and (c). However, some of the candidates described correctly Slide Sorter and Slide Show but had problems in answering Normal and Notes page view in part (b). The analysis shows that some candidates described Notes page as a Header and Footer. Others describe normal view as a slide without an effect and consequently failed to score full marks. Extract 8.2 shows a sample of correct responses to this question.

08 a)	A theme aids in designing the appearance of the Microsoft PowerPoint Presentation so as to enhance attractiveness and order of information through set of colours and fonts.
b) i)	Normal view - This type of view shows the slide pane, slide that is currently displayed, notes area and slide bar in the Microsoft Powerpoint.
ii)	Slide sorter view - This type of view displays slides for the purpose of arranging their order/sequence according to the preference of the user (presenter).
iii)	Slide Show - This type of view displays how your slides will appear during presentation in a continuous manner like an animation (moving pictures) with the set transition speed and transition effects.

08 b) iv)	Notes page displays what is to be said during the presentation or what any additional information concerning the presentation.
c) i)	Select the slide to be switched to a different layout in the Microsoft Powerpoint.
	ii. Click the Home bar.
	iii. Then click the slides pane and select the layout field. Afterwards choose and select the desired layout for the slide.
iv.	

Extract 8.2: A sample of correct answer in question 8

Extract 8.2 shows responses of a candidate who attempted correctly parts (a), (b) and (c).

2.9 Question 9: Database Management System

This question had two parts, (a) and (b). The question was as follows:

- (a) Explain three importance of database system in daily life
- (b) One of the Government institutions has two different departments. One department uses paper-based database while the other uses computerized database. Which department will work more efficiently? Give four reasons for your answer.

This question was attempted by 2,700 (100%) candidates out of which 296 (11%) performed poorly as they scored from 0 to 2.5 marks while 2,404 (89%) scored from 3 to 10. Figure 9 summarizes the candidates' performance in this question.

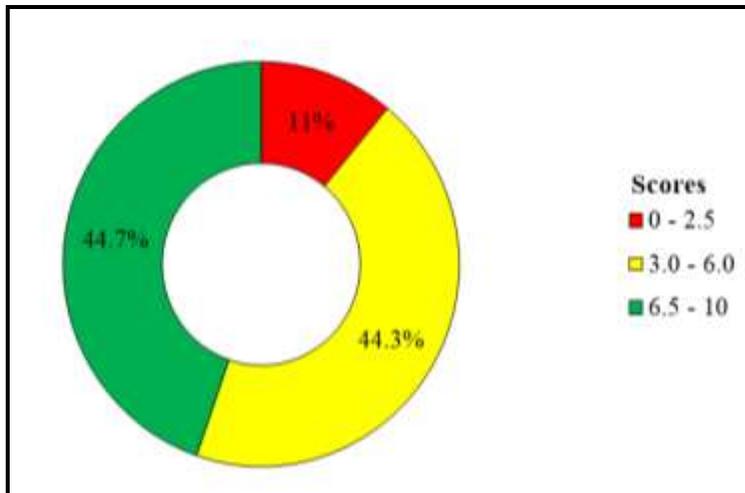


Figure 9: *The candidates' performance in question 9*

The general performance of the candidates in this question was good because 89 per cent scored above 2.5 marks. This high performance might be attributed to the fact that most of the candidates are aware of the use of computerised system in daily life. Figure 9 show that 44.7 per cent of the candidates scored from 6.5 to 10 marks. Some of these candidates explained correctly the importance of database system in daily life in part (a). In part (b), the candidates managed to identify the department which will work more efficiently and gave advantages of computerized database over paper-based database. However, some of the candidates gave reasons but failed to organize them properly to provide clear meaning. Others wrote the application of internet in learning, business and governance instead of benefits that will be offered by the computerized database. Consequently, they failed to score full marks. Extract 9.1 presents a sample of such correct responses to this question.

9. a) - Provide high data security
Database system ensures the data is protected from unauthorised access by creating password on the designed database.
• 100% error free
Database system have ability to detect errors which could be caused by human like repetition and duplication of data.
• Easy to upgrade
The data in database system can be easily created, retrieved, upgraded and deleted in case of any mistakes (C.R.U.D)
b) The department with computerised database will work more efficiently because:-
• It is accurate hence error free
• It is speedy and fast
• It is secured hence data is secured
• It can handle large amount of data

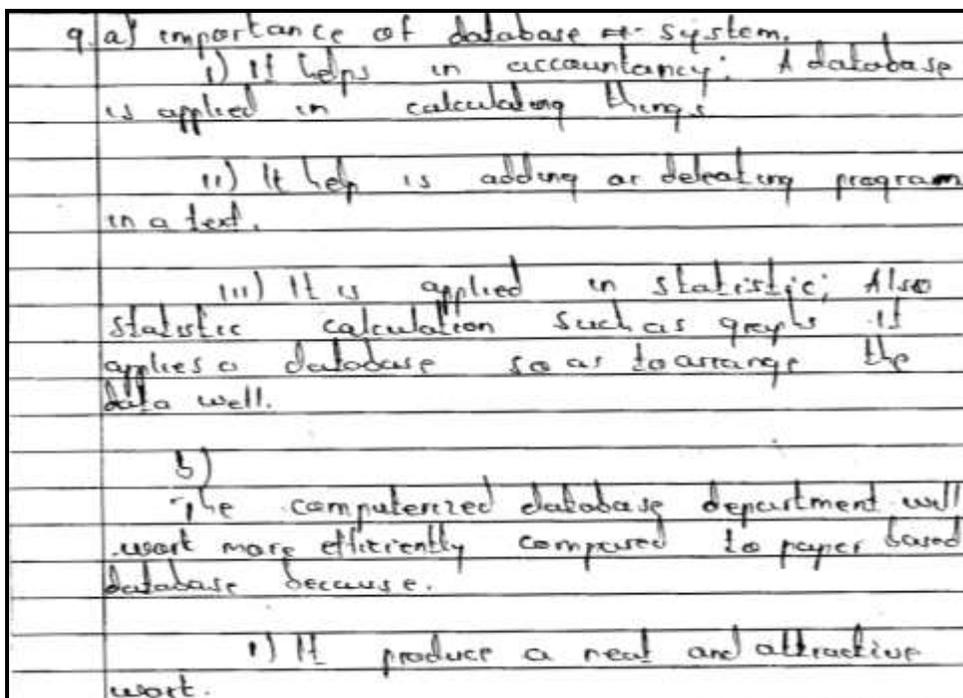
Extract 9.1: A sample of correct answer in question 9

Extract 9.1 shows response from a candidate who gave the correct importance of database system in daily life in part (a). The candidate also wrote the correct reasons for choosing a computerised database.

Further analysis showed that some of the candidates (44.3%) who scored average marks explained one or two importance of database system in daily life in part (a). It was observed that some candidates wrote the importance of e-commerce instead of computerized database. For example, one candidate wrote, *DB – help to display different business staffs in smart and attractive way*. This shows that the candidates failed to differentiate the uses of database in business sector from government department. Others confused the importance of database and disadvantages of database and

consequently lost some marks. In part (b), most of the candidates managed to identify the department which work more efficiently between paper-based and computerized database. They also wrote correctly one or two reasons to support their choice. Some of the candidates wrote disadvantages of paper based database instead of advantages of computerized database. Others wrote general advantages of database instead of being specific to computerized database. For example, one candidate wrote, *It help in storing of data*. The candidates failed to understand that both paper-based and computerized database can store data but a computerised database store huge amount of data compared to a paper- based database.

On the other hand, 296 (11%) candidates had weak performance. Some of these candidates wrote correctly only one importance of database in part (a). Others wrote disadvantages of database instead of importance of database. For example, one candidate wrote, *it requires skilled workers*. This signifies that the candidates had knowledge of database but failed to organize ideas. Some of the candidates correctly explained that the computerized database department will work more efficiently in part (b) but failed to give the reasons to support their choice. During analysis of the candidates' responses it was noted that others wrote characteristics of computer and not advantages of using a computerized database. For example, one of the candidates wrote, *it is not tired some, it is reliable and it saves time*. This shows that the candidates mixed up the term computerized with computer. Extract 9.1 shows a sample of incorrect responses to this question.



Extract 9.1: A sample of incorrect answers in question 9

Extract 9.1 shows the responses of a candidate who managed to give correct choice with one correct reason for the choice in part (b). However, the candidates wrote incorrect advantages of database in daily life.

2.10 Question 10: Web Development

This question had two parts: (a) and (b). The candidates were required to read the given scenario and answer the questions that follow.

(a) Your teacher assigned all students in your class to design a website that advertises your school. The advertisement in the page includes information about physical address, e-mail address, image of the school map and a link to a Home page named "Go Home". One of your fellow students had the following HTML codes which need some corrections. Identify the mistakes made and write the correct codes in order to give the correct results.

```

<html>
  <body bgcolor="lavendar">
    <font face="Tahoma" size="7">CONTACT US</font> <br>
    <table border="1" cellpadding="3">
      <tr>
        <th>Physical Address:</th>
        <td>Changarawe Secondary School<br>
          P.O Box 7234<br>
          Songea</td>
      </tr>
      <tr>
        <th>E-mail Address:</th>
        <td><A href="mailto:changarawe@yahoo.ac.tz">Mail Us</A></td>
      </tr>
      <tr align="center">
        <td colspan="2"><img source="Koala.jpg" width="80" height="50"></td>
      </tr>
      <tr align="center">
        <td colspan="2"><A link ="Home.html">Go to Home</A></td>
      </tr>
    </table>
  </html>

```

(b) Give an output of the following HTML codes which will be displayed in a web browser.

```

<html>
  <body>
    <b>Student name:</b>&nbsp;<input type="text" name="stdname" ><br>
    <b>Gender:</b>&nbsp;<input type="radio" name="stdname">Male
      &nbsp;<input type="radio" name="stdname">Female<br>
    <b>Other information:</b> <br>
    <textarea wrap> </textarea>
  </body>
</html>

```

All 2,700 (100%) candidates attempted this question. A total of 447 (16.6%) candidates performed poorly as they scored from 0 to 2.5 marks while the majority 2,253 (83.4%) scored from 3 to 10 marks. Figure 10 summarizes the candidates' performance in this question.

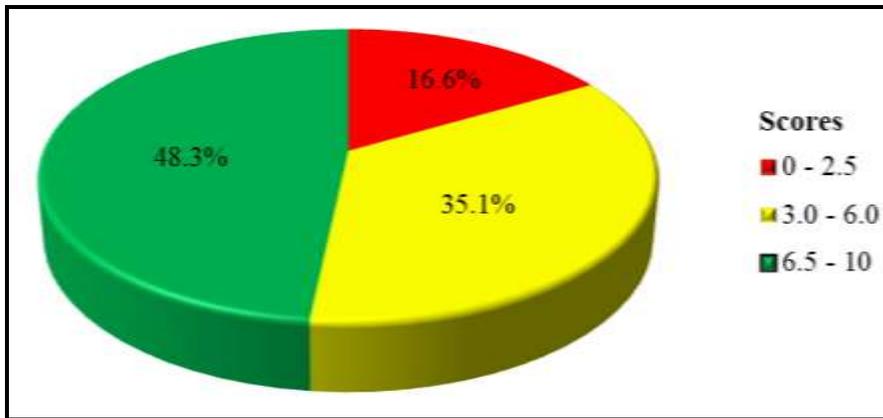


Figure 10: *The candidates' performance in question 10*

Figure 10 shows that 83.4 per cent of the candidates scored above 3 marks. The general performance of the candidates in this question was good because only 16.6 per cent scored below 3 marks. Most of the candidates who scored high marks identified correctly the mistakes made in the given codes and wrote their corrections in part (a). They also gave correct outputs of the HTML tags in part (b). Some candidates corrected image source syntax as “scr” instead of “src”. Others corrected a home page link as instead of . These candidates did not know that HTML tags are not case sensitive. Extract 10.1 presents a sample of correct responses to this question.

```

10 <td> Changarawe Secondary School <br/>
    P.O. Box 734 <br/>
    Songea </td> <td colspan="2"> </td>
</tr>
<tr>
<th> E-mail Address: </th>
<td> <a href="mailto:changarawe@yahoo.
    ac.tz"> Mail Us </a> </td> <td> </td>
</tr>
<tr align="center">
<td colspan="2">  </td>
</tr>
<tr align="center">
<td colspan="2"> <a href="Home.html"> Go
    to Home </a> </td>
</tr>
</table>
</body>
</html>

```

(b)

Student name:

Gender: Male Female

Other information:

Extract 10.1: A sample of correct answers in question 10

Extract 10.1 shows the response of a candidate who managed to answer correctly in part (a) and (b).

Majority of the candidates (35.1%) who scored average marks identified correctly all mistakes made and corrected at least two mistakes. Some candidates could not correct mistakes made in ‘’ and ‘’ codes. This shows that the candidates lacked knowledge of creating link pages and inserting images in a webpage. In part (b), most of the candidates drew correctly textbox, radio buttons and the text “Other information” but failed to draw a textarea. Moreover, some of the candidates gave correct outputs but failed to arrange them correctly. This is attributed to the fact that the candidates could not understand the proper function of the break
 code.

On the other hand, 16.6 per cent of the candidates scored low marks. Some of these candidates identified few mistakes in part (a) but failed to suggest the correct codes which will give the intended results. Some candidates copied all tags without identifying any mistake. Others gave output of the codes instead of giving out the mistakes made and their corrections. This shows that the candidates did not understand the requirements of the question. In part (b), most of the candidates managed to draw “textbox” but failed to give its descriptions and other outputs. It was observed that some of the candidates drew radio buttons but arranged them vertically instead of horizontally. This shows that the candidates misinterpreted the
 code used in the codes. Others wrote correctly the text “Other information:” but failed to translate the code for displaying a textarea for adding information. Extract 10.2 presents the sample of incorrect responses to this question.

```

10 (a) Head < HTML >
      < head >
      < Title > ----- Title >
      < /head >
      < body bg colour = "lavender" >
      < font face = "Tahona" = "7" >
      < tr >
      < th > Physical Address < /th >
      < td > < href = "
      Changarawe sec school /br >
      < /tr >
      < /body >
      < /HTML >

(b)
  < html >
  < head >
  < title >
  -----
  < /title >
  < /head >
  < body >
  -----
  < /body >
  < /html >

```

Extract 10.2: A sample of incorrect answer in question 10

Extract 10.2 shows responses of a candidate who wrote some HTML codes instead of mistakes and their corrections as required in part (a). In part (b), the candidate copied some of the HTML codes instead of drawing the output according to the requirements of the question.

2.11 Question 11: The Impact of ICT on the Society

This was an essay type question which required the candidates to explain four reasons for schools to use Information and Communication Technology in teaching and learning process.

This question was chosen by 1,060 (39.3%) candidates, out of which 249 (23.5%) scored from 0 to 2.5 marks and 811 (76.5%) scored from 3 to 10 marks. Figure 11 presents the candidates' performance in this question.

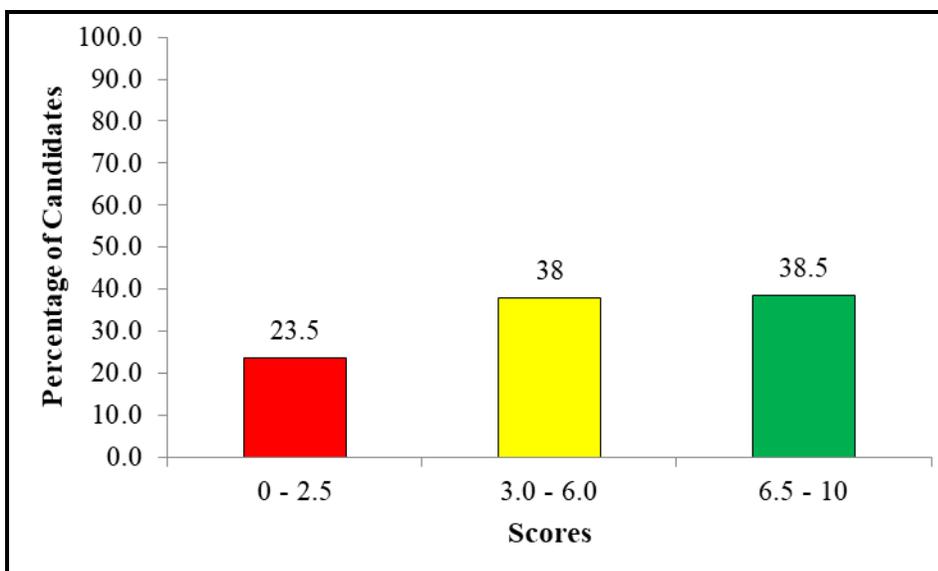


Figure 11: *The candidates' performance in question 11*

The candidates' general performance in this question was good because 76.5 per cent of the candidates scored above 2.5 marks. The candidates (38.5%) who scored high marks explained correctly the four reasons for using ICT in teaching and learning process in school. They also managed to give a correct introduction and conclusion. However, some of the candidates interpreted ICT as ICS subject. These candidates explained ICS in the introduction instead of ICT. Others wrote correct introductions and conclusions but failed to explain some of the reasons. It was observed that some of the candidates failed to score full marks because they confused the importance of ICT in teaching and learning process with the importance of information. Extract 11.1 shows one of the correct responses.

11.	<p>Information and Communication Technology is referred as the use of computerized electronic devices which allows the transmitting of informations and enables communication technology through the use of networks.</p>
	<p>There are various reasons on why should the use of Information and Communication Technology to be included on Teaching and learning process. The following are some of the reasons :-</p>
	<p>Enables students to gain the learning materials on the internet :- The students can search different learning contents on the internet but also they can get the notes on different subjects also on the internet. So the use of Information and communication Technology in schools and in learning will be beneficial to students.</p>
	<p>Enables the preparation of different documents for the students such as students reports and marks :- Also through the use of ICT teachers can prepare the documents related on students performances so as to ensure the students performs well academically.</p>
	<p>Also It saves time :- The use of Information and Communication technology in teaching and learning saves time since a teacher can prepare the learning materials and display on the projectors thus saves time for spreading for everyone individually.</p>
	<p>It helps on sharing different documents related on teaching and learning purposes :- Also by using the knowledge of Information and Communication Technology students and Teachers can share the different Learning - related documents from one</p>

11.	place to another or one school to another. For example Lesson notes or Examinations and past papers. Thus ICT became useful in Teaching and learning.
	Generally these are the reasons or advantages of Information and Communication Technology in schools and since it provides learning materials for students but also it enable teachers to make several documents such as Examinations and notes for their students. Hence shows that Information and Communication Technology should be included in schools for Teaching and Learning purpose.

Extract 11.1: A sample of correct answer in question 11

Extract 11.1 shows the response of a candidate who described correctly the reasons for using ICT in teaching and learning. The candidate also gave a correct introduction and conclusion.

Furthermore, some of the candidates (38%) who scored average marks explained correctly two to three reasons for using ICT in teaching and learning. However, some of them failed to write clear introductions and conclusions. Others explained the career opportunities of ICT. For example, one candidate wrote, *it helps to get professional people like computer programmer*. This indicates that the candidates did not understand question.

Moreover, 23.5 per cent of the candidates scored low marks, from 0 to 2.5 marks. Some of these candidates listed correctly one or two reasons for using ICT without giving explanations. The analysis done in the candidates' responses shows that some of the candidates wrote the benefits of studying ICT in schools. Others could not differentiate the term ICT from the term computer and thus ended up explaining the importance of using computer in teaching and learning. These candidates did not know that the term ICT includes all communication devices such as computers, mobile phone, scanner, printer and related programs to enhance teaching and learning process. Moreover, some of them defined computer only in

their introduction. Others explained the term “information” in the introduction instead of ICT. This shows that the candidates had insufficient knowledge of ICT. Extract 11.2 presents one of such incorrect responses.

11.	<p>Information and Communication Technology is the generic term used to express the convergence of information technology broadcasting and communication. Information and Communication Technology can be applied in different fields for example in industries, hospitals, supermarkets and in schools for different learning purposes for example through computers it enable students to learn in network through e-learning. The following are the importance of learning and teaching Information and Communication Technology in Schools.</p> <p>If is a source of Employment, This is where by if a student studies Information and Communication technology it is very easily for him or her to get job in different fields because nowadays all things are well technological for example of jobs which includes Information and Communication Technology like teaching, Network security, because nowadays there is many theft through the internet also different jobs in airports because all sectors are well technologically including the knowledge of Information and Communication Technology.</p> <p>It help to get knowledge on preparing of different records, This is whereby if a student is aware about the proper use of Information and Communication</p>
-----	--

11. on Technology he or she is able to create different records for the purpose of protection of the Information kept in a certain record.

It ensure Security, Through the knowledge of Information and Communication Technology given to the student it is very easy for he or she to ensure different Internet security for example theft in the Internet when a student is aware about theft he or she may protect that kind of theft through different way in any place where such thing occur even apart from school.

The knowledge of Information and Communication Technology help to get professionality, This is whereby when the students get the knowledge of Information and Communication technology and perform well it is very easy he or she to become a professional by for example engineer, Teacher, doctors, Nurse and downward pilot who conduct the aeroplane by Using a computer this all is about the getting of knowledge about The Information and Communication Technology in schools.

Therefore the knowledge of Information and Communication technology it is very important in now days life, so it is better that the government to organize well in all schools especially primary and secondary schools, the pupils and students should be taught The study of Information and Communication Technology.

Extract 11.2: A sample of incorrect answer in question 11

Extract 11.2 shows the response of a candidate who wrote the advantages of internet instead of ICT. However, the candidates wrote a correct introduction but a conclusion was irrelevant.

2.12 Question 12: The Internet

This was an essay question which required the candidates to read the following scenario and to answer the question that follows:

Suppose you were given an opportunity to convince the headmaster to have the internet connection in your school, explain four benefits of internet applications that will convince the headmaster to pay for the schools' internet connection fee and bills.

This question was opted for by majority of the candidates that is 1,636 (60.6%). The statistics showed that only 67 (4.7%) candidates performed poorly by scoring from 0 to 2.5 marks while 1,569 (95.9%) scored from 3 to 6 marks. Figure 12 summarises the candidates' performance in this question.

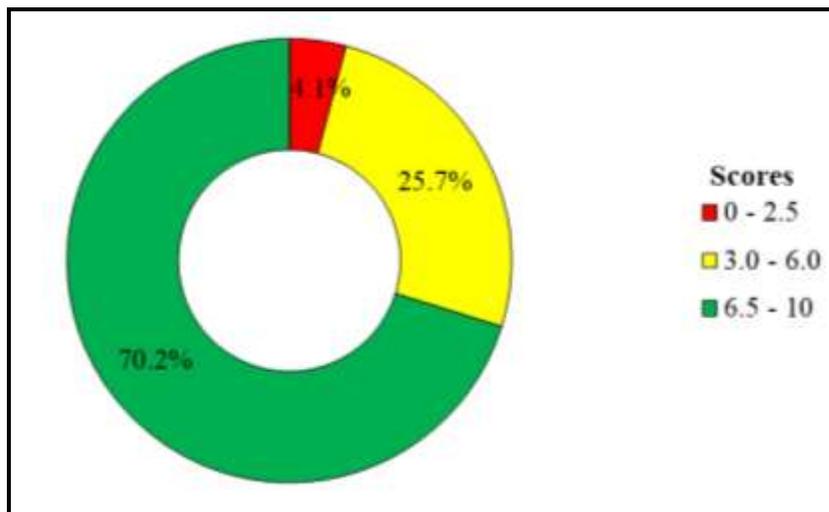


Figure 12: *The candidates' performance in question 12*

The general performance of the candidates in this question was good because, majority of the candidates (95.9%) who attempted this question scored above 2.5 marks. This excellent performance is attributed to the candidates' adequate knowledge of application of internet in daily life. The analysis of data showed that 224 (13.7%) candidates explained correctly the benefits of the internet applications that will convince the headmaster to pay for internet connections. They also gave exhaustive introduction and conclusion. However, some of the candidates explained the general

advantages of the internet which are not related to schools. For example, one of the candidates wrote that *internet enable the uses of e-commerce*. Others failed to give a clear introduction. Some of them focused on defining the term internet. Moreover, some candidates failed to organize their points well so as to make them understand. Consequently, they failed to score full marks. Extract 12.1 presents a sample of the correct responses.

12.	<p>Internet. Refers to the global interconnection of the computer networks for easy sharing of resources between the networks. Internet is very beneficial to people since it allows people to performs different activities in it such as business, learning and advertisement. The following are other benefits of Internet applications especially in schools</p> <p>Electronic learning (E-learning); This is one of the important benefits of internet in schools since it allows student to get different learning materials on-line and extend their knowledge, it also help the students who are absent to get the sessions or lessons when at home through internet.</p> <p>Electronic mailing (E-mail). Internet also allow the users to perform e-mailings, this enables the students to easily submit their works or assignments to their teachers or lecturers through the use of e-mail which results to works simplification and also save time to students.</p> <p>Vast - Content. This is the internet service which allows the computers to work online. This enables the students to perform their works online since there is vast-content which enable them to be online. This creates good performance to students since they will be able to get different learning materials on-line.</p>
-----	---

	Advertisement; Internet is also useful in advertisement of different goods, schools, institutions and company, the schools can be advertised online through the use of internet and create market for the school to have many students and increase income of the school through the use of internet.
	Conclusively; Internet is very beneficial in daily life since it enables different companies and institutions to perform activities on it such as e-commerce, e-learning, e-banking and advertisement which helps to generate more profit and buyers to them and makes their businesses more efficient so we must ensure the preservation of it for the use by future generations.

Extract 12.1: A sample of correct answer in question 12

Extract 12.1 shows the response from one of the candidates who explained correctly with examples four benefits of internet applications that will convince the headmaster to pay for internet services. The candidate also gave appropriate introduction and conclusion.

Most of the candidates (25.7%) who scored average marks explained correctly two or three benefits of internet application in schools. The candidates' responses revealed that some of them wrote correct conclusions but failed to write correct introduction. These candidates explained the World Wide Web (WWW) in their introduction instead of internet. Others defined the term internet as international network instead of interconnected network. Furthermore, some candidates failed to write clear conclusions. It was noted that some of the candidates wrote conclusions by mentioning disadvantages of the internet contrary to the requirement of the question.

A few, candidates 67 (4.1%) who scored low marks explained one or two correct benefits of internet applications. They also failed to write correct introductions and conclusions. Some of the candidates wrote advantages of the internet in the society instead of benefits of internet application to school. Others candidates gave the definition of a computer network instead of internet in their introductions. For example, one candidate wrote, *Internet is the connection of two computers for resources sharing*. This signifies that the candidates failed to differentiate between computer

network and the internet. Moreover, some candidates did not write the introduction and conclusion. This indicates that the candidates lacked skills of essay writings. Extract 12.2 presents a sample of such an incorrect response.

12.	<p>Internet is the huge of network that links together a millions of small networks. by using different tools like modems, internet service provider (ISP) router etc. The following are the benefits of internet application.</p> <p>It help in learning process this help the students for learning purpose example through the use of search engine like google, yahoo, msn etc. it enable student to get different things through online.</p> <p>It help in doing and performing different schools activities. example through the use of internet may help in shifting of student from one school to another and to keep records of different things.</p> <p>It save some internet provide free time in performing a lot of thing example in entering of school results it save time comparing to the use of hand and paper.</p> <p>It reduce expenditure cost through the use of internet student and teacher reduce the costly example in finding of different material it reduce the cost of buying the book but it hard to get it through an line.</p> <p>Conclusively the internet also have the disadvantage like it can lower the class of student performance and it may cause of job to other teachers.</p>
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Extract 12.2: A sample of an incorrect answer in question 12

Extract 12.2 shows the response from one of the candidates who explained general internet services instead of being specific to learning and teaching. The candidate also wrote a wrong introduction and irrelevant conclusion.

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

The practical paper had three questions with 25 marks each. The candidates were required to attempt two questions.

3.1 Question 1: Web Development

This question tested the candidates' practical skills on web page design and development. The question was as follows;

Kenyana is a newly established secondary school with a vision of using ICT in its operations. Mr Mochuli, the Head of school employed you to develop the school's website which includes the calendar on the home page as shown in the following screenshot. Use HTML code to accomplish this task.

SCHOOL CALENDAR							
School Picture & Events	July, 2020						Staffs & Students Pictures
<p><u>School Picture</u></p>  <p><u>School Events</u></p> <ul style="list-style-type: none"> • Jan 09-Opening Day • Jan 12-School baraza • July 31-School Day • August 24-School Bonanza • Dec 20-Closing Day 	Su	Mo	Tu	We	Thu	Fri	Sa
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
	 <p><i>"Headmaster"</i></p>  <p><i>"Form IV Students"</i></p>						
<p>Current date: Thursday, 12th of July 2020 <input type="text"/> <input type="button" value="Search Date"/></p>							

HINT:

- Use a table in designing a webpage
- You can use any picture from your computer gallery

Page descriptions:

- The heading “school calendar” should be level 1 with a red text color and gray background color.
- The size of the texts “School Picture and Events”, “July” and “Staff and Students Picture” should be h3 with green background color.
- Font style for “Form IV students” should be Lucida Handwriting.
- The Height and Width of each picture should be 100 and 210 respectively.
- Table border should be 1 and rows pan should be 2.
- The size of months’ name and dates should be h4.

This question tested the candidates’ knowledge of webpage design. The candidates who attempted this question were 569 (21.1%), of which 172 (30.2%) scored 0 to 7 marks; 83 (14.6%) scored from 7.5 to 16 marks and 569 (55.2%) candidates scored from 16.5 to 25 marks. Figure 13 presents a summary of the candidates' performance in this question.

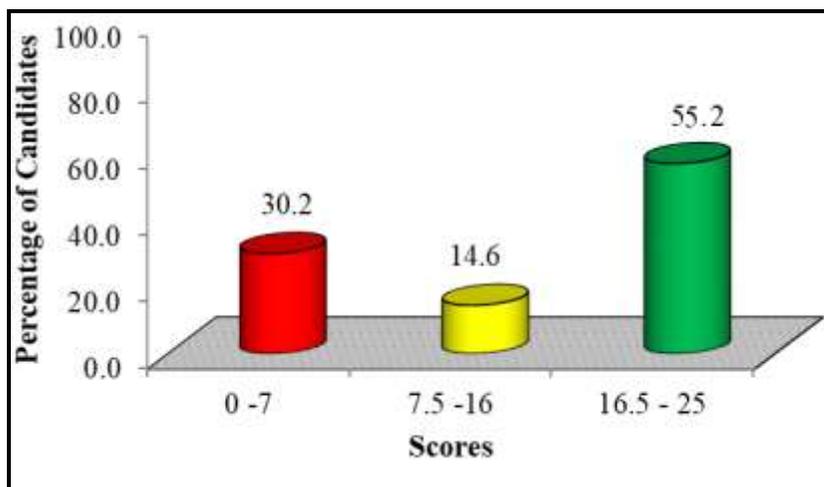


Figure 13: *The candidates' performance in question 1*

The general performance in this question was good because 71.9 per cent of the candidates scored above 7 marks. The analysis showed that most of the candidates who scored high marks wrote the correct codes to open and close HTML codes, and they typed correctly body and table tags. They also designed a table with appropriate border. Additionally, they typed correctly the codes for the text “School Calendar” with a red text color, gray background color and heading one (h1). It was also observed that some of the candidates typed correctly the codes for displaying text “School Picture & Events”, “July, 2020” and “Staff & Students Picture” with green background and the heading level three (h3).

Moreover, the candidates managed to create page partition by using rowspan and colspan attributes. The candidates also typed correctly the codes for inserting three pictures with appropriate and size, inserted correct calendar as well as correct codes for displaying unordered list for school events. However, some of the candidates typed correctly codes for designing website for school calendar but failed to include appropriate heading level for the text “SCHOOL CALENDAR”, School Events and dates. This showed that the candidates did not read the instruction carefully. The analysis revealed that others failed to type the codes for the superscript on the current date. Moreover, some candidates did not save the inserted picture in one folder consequently their picture could not to be displayed on the web page. A few of the candidates failed to display proper arrangement of the calendar. Extract 13.1 shows the correct codes from one of the candidates.

```

<html>
<head>
<title>School Calendar</title>
</head>
<body>
<table border="1">
<tr bgcolor="gray" align="center">
<td colspan="3"><h1><font color="red">SCHOOL CALENDAR</font></h1></td>
</tr>
<tr bgcolor="green">
<td ><h3>School Picture & Events</h3></td>
<td align="center"><h3> July, 2020</h3></td>
<td > <h3>Staffs & Students Pictures</h3></td>
</tr>
<tr>
<td rowspan="2"><p><u> <strong>School Picture </strong></u> <br>
<br>
 <br>
</p>
<p>
<u> <strong>School Events </strong></u> <br>
<br>
</p>
<ul>
<li> Jan 09-Opening Day </li>
<li> Jan 12-School baraza</li>
<li> July 31-School Day</li>
<li> August 24-School Bonanza</li>
<li> Dec 20-Closing Day</li>
</ul>
<br>
<br>

```

```

</td>
<td height="338"><table width="340" height="307">
<tr>
<td width="348"><table width="334" height="301">
<tr>
<td width="37"><h4>Su</h4></td>
<td width="50"><h4>Mo</h4></td>
<td width="37"><h4>Tu</h4></td>
<td width="50"><h4>We</h4></td>
<td width="52"><h4>Thu</h4></td>
<td width="40"><h4>Fri</h4></td>
<td width="45"><h4>Sa</h4></td>
</tr>
<tr>
<td><h4>1</h4></td>
<td><h4>2</h4></td>
<td><h4>3</h4></td>
<td><h4>4</h4></td>
<td><h4>5</h4></td>
<td><h4>6</h4></td>
<td><h4>7</h4></td>
</tr>
<tr>
<td><h4>8</h4></td>
<td><h4>9</h4></td>
<td><h4>10</h4></td>
<td><h4>11</h4></td>
<td><h4>12</h4></td>
<td><h4>13</h4></td>
<td><h4>14</h4></td>
</tr>
<tr>
<td><h4>15</h4></td>
<td><h4>16</h4></td>
<td><h4>17</h4></td>

```

```

        <td><h4>18</h4></td>
        <td><h4>19</h4></td>
        <td><h4>20</h4></td>
        <td><h4>21</h4></td>
    </tr>
    <tr>
        <td><h4>22</h4></td>
        <td><h4>23</h4></td>
        <td><h4>24</h4></td>
        <td><h4>25</h4></td>
        <td><h4>26</h4></td>
        <td><h4>27</h4></td>
        <td><h4>28</h4></td>
    </tr>
    <tr>
        <td height="54"><h4>29</h4></td>
        <td><h4>30</h4></td>
        <td><h4>31</h4></td>
    </tr>
</table>
</tr>
</table></td>
<td><br><i><u>"Headmaster</u></i><br>
<br>
<br>
<u><font face="Lucida Handwriting">"Form IV Students</font></u><br> </td>
</tr>
<tr>
    <td colspan="2"> Current date:Thursday, 12<sup>th</sup> of July 2020
    <input type="text"> <input type="Button" value="Search Date">
    </td>
</tr>
</table>
</body>
</html>

```



Extract 13.1: A sample of correct answer in question 1 of paper 2

Extract 13.1 shows a sample of response from a candidate who wrote HTML code correctly to design the website for a school calendar. They managed to design calendar correctly, insert a picture and set font size as it is required.

On the other hand, the analysis showed that 30.2 per cent of candidates scored low marks. Some of these candidates typed the basic HTML codes to open and close HTML and created a table. However, they failed to give the correct codes for font colour and background colour. They also failed to perform the following operations: setting table partitioning of rowspan and colspan, inserting image, underlining and making unordered list. Furthermore, some candidates designed a text and picture without including table tags. This showed that the candidates lacked practical skills on designing a table. It was noted that some candidates failed to score any mark because they used application programs instead of notepad to create a webpage. For example, some candidates used Microsoft Publisher while others used Microsoft Word to type HTML codes. This indicates that the candidates lacked the knowledge about notepad editor. Extracts 13.2 presents a sample incorrect responses.

```
<html>
<tittle><back ground="grey">school calendar</tittle>
<body bg color="white">
<table border="1"> <raw span=2>
<tr>
<th>school picture & events</th>
<th>july 2020</th>
<th>staffs & students pictures</th>
</tr>
<h2><font face="lucida hand writing">form iv students</h2>
<tr>school picture</tr>
<tr>school events</tr>
<tr2>calendar</tr2>
<tr3>head master</tr3>
</html>
```

school calendar

school picture & events	july 2020	staffs & students pictures
-------------------------	-----------	----------------------------

Extract 13.2: A sample of incorrect answers in question 1 of paper 2

In Extract 13.2, the candidate typed the codes which display a table with only one row, instead of creating a table with four rows and three columns.

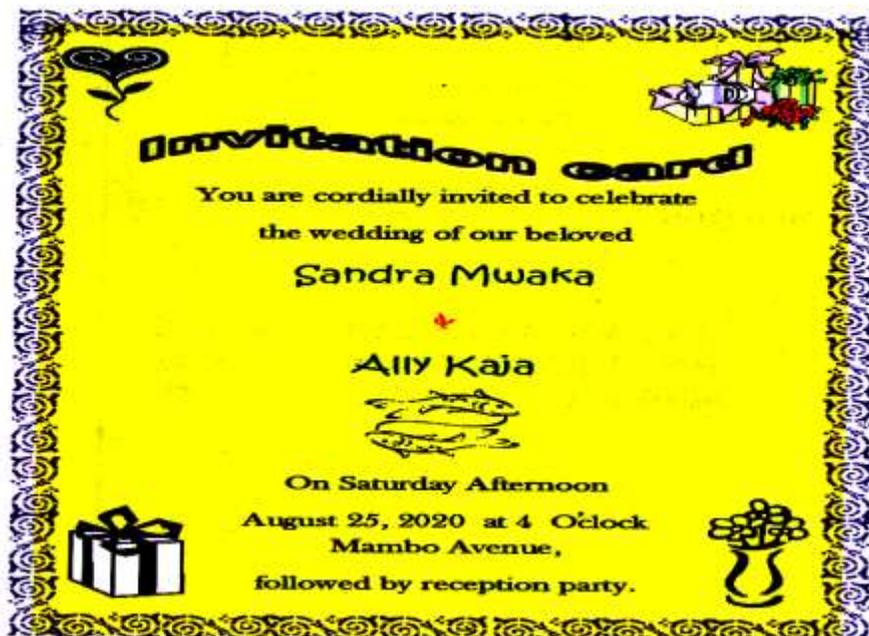
Moreover, 14.6 per cent of the candidates who scored average marks typed correctly body and table tags and table border. They also created table partition by using colspan and rowspan. However, some of the candidates failed to insert pictures with their appropriate size. The candidates also failed to insert the correct calendar, underline the texts “School Picture”, “School events”, “Headmaster” and “Form IV students”. Others failed to give codes for setting text “Form IV students” by using the style “Lucida Handwriting”. They also failed to italicize the text “Headmaster”. This led them to lose some marks.

3.2 Question 2: Desktop Publishing and Word Processing

The candidates were required to design the given invitation card and the time table for Ally Kaja's wedding with different descriptions. The question was as follows:

In his wedding, Ally Kaja got trouble to design his wedding card and time table. Suppose he asked you to solve the problem by creating invitation card and timetable for his wedding;

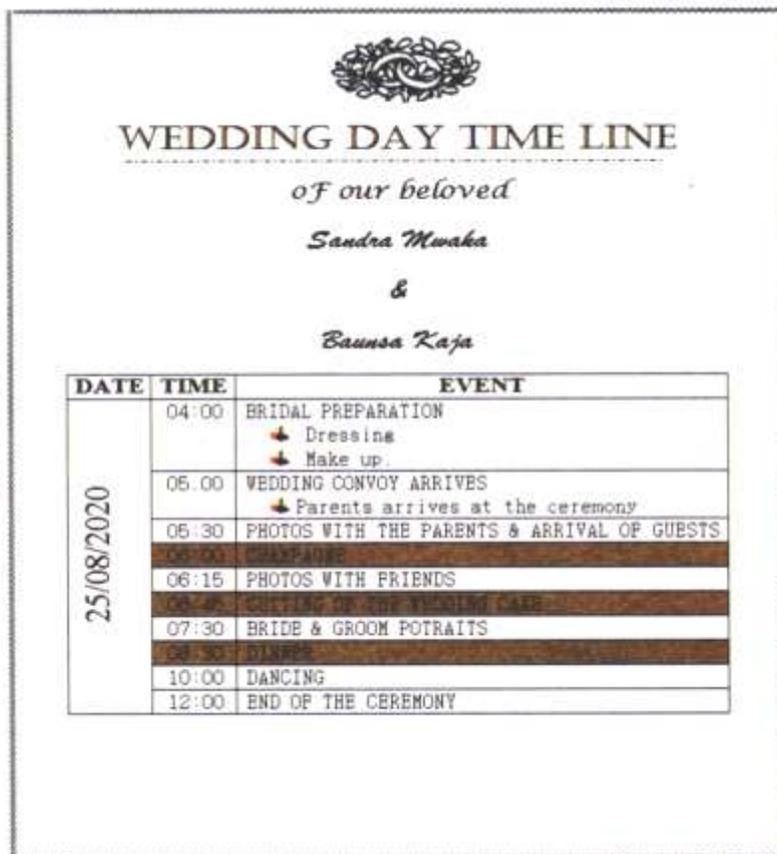
- (a) Use Microsoft publisher to design the following invitation card. Save your work as Invitation Card.



Page descriptions:

- The background colour should be Accent 2, lighter 60%
- The border colour and clip art should be purple.
- The style and colour of the text "invitation card "should be Word Art and purple respectively.
- The font style and colour of the text "Sandra Mwaka " and "Ally Kaja" should be Kristen ITC and green respectively.
- Other text should be black coloured with font style Baskerville Old Face and size should be 10.

(b) Use Microsoft word to create the following timetable for the wedding. Save your work as Wedding Timetable.




WEDDING DAY TIME LINE
of our beloved
Sandra Mwaka
&
Baunsa Kaja

DATE	TIME	EVENT
25/08/2020	04:00	BRIDAL PREPARATION ↓ Dressing ↓ Make up.
	05:00	WEDDING CONVOY ARRIVES ↓ Parents arrives at the ceremony
	05:30	PHOTOS WITH THE PARENTS & ARRIVAL OF GUESTS
	06:15	PHOTOS WITH FRIENDS
	07:30	BRIDE & GROOM POTRAITS
	10:00	DANCING
	12:00	END OF THE CEREMONY

Page description:

- The font size and size of the text "WEDDING DAY TIME LINE" should be Castellar and 28 respectively.
- The font style of the text "of our beloved" should be Lucida Calligraphy and font size should be 20 respectively.
- The font style and size of the names "Sandra Mwaka & Ally Kaja " should be Brush Script MT and 24 respectively.
- The font style and size of the table header should be Times New Roman and 18 respectively.
- The font style and size of "TIME" and "EVENT" details should be BatangChe and 16 respectively.
- The background colour of the word "CHAMPAGNE ", "CUTTING CAKE" and "DINNER" should be Tan (Darker 50%).
- Use any clip art of your choice at the top of the timetable.

Majority of the candidates that is 2,404 (89.2%) attempted this question, out of which 282 (11.7%) performed poorly by scoring from 0 to 7 marks while 2,122 (88.3%) had good performance by scoring from 7.5 to 25 marks. Figure 14 illustrates the candidates' performance in this question.

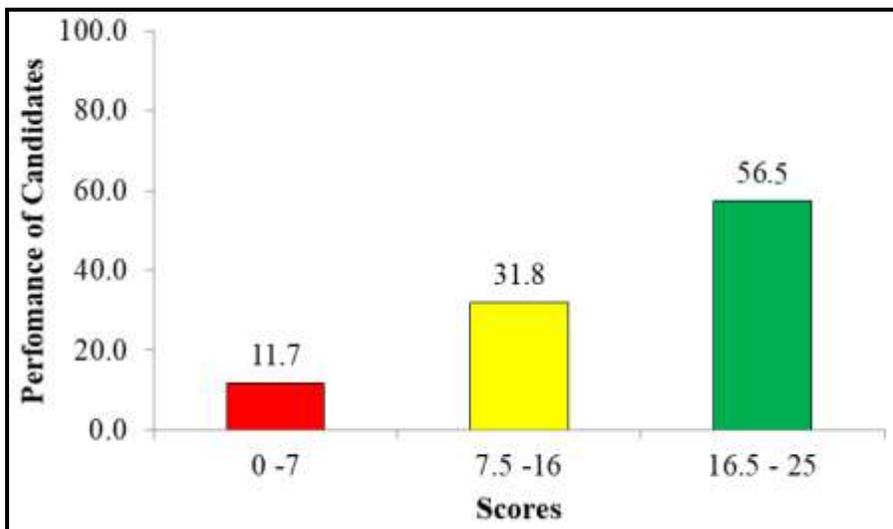


Figure 14: *The candidates' performance in question 2*

The general performance in this question was good because 89.1 per cent of the candidates scored above 7 marks. The candidates who performed high

marks designed the invitation card and wedding timetable as per the instructions given. In part (a), most of the candidates opened Microsoft publisher and inserted WordArt "Invitation Card" with relevant font colour. They also typed the text of the card and changed font style and size of different texts according to the instructions given. They also inserted correctly border and clips arts. However, some of them failed to change colour of the border to purple which led them to lose marks.

Moreover, in part (b), some of the candidates applied Microsoft office word to create Timetable for Ally Kaja's wedding. They also managed to set the heading of Timetable "WEDDING DAY TIME LINE" into Castellar font style and 28 text size. Furthermore, the candidates set correctly the background colour of the word "CHAMPAGNE", "CUTTING OF THE WEDDING CAKE" and "DINNER" as Tan (Darker 50%). However, some of the candidates set black colour instead of Tan (Darker 50%). Other candidates typed date "25/08/2020" horizontally instead of aligning it into 90⁰ degrees. Extracts 14.1 show a sample of correct responses to question 2 of paper 2.



Invitation card

You are cordially invited to celebrate
the wedding of our beloved

Sandra Mwaka



Ally Kaja



On Saturday Afternoon
August 25, 2020 at 4 O'clock
Mambo Avenue.
followed by reception party.





WEDDING DAY TIME LINE
Of our beloved
Sandra Mwaka
&
Baunsa Kaja

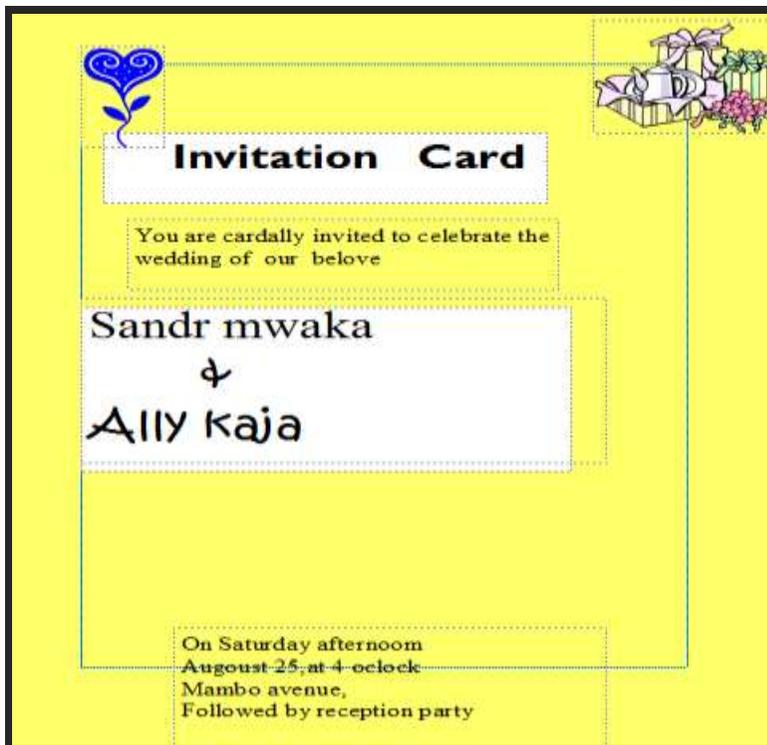
DATE	TIME	EVENT
25/08/2020	04:00	BRIDAL PREPARATION ✦ Dressing ✦ Make up
	05:00	WEDDING CONVOY ARRIVES ✦ Parents arrives at the ceremony
	05:30	PHOTOS WITH THE PARENTS & ARRIVAL OF GUESTS
	06:00	CHAMPAGNE
	06:15	PHOTOS WITH FRIENDS
	06:45	CUTTING OF THE WEDDING CAKES
	07:30	BRIDE & GROOM POTRAITS
	08:30	DINNER
	10:00	DANCING
	12:00	END OF THE CEREMONY

Extract 14.1: A sample of correct answers in question 2 of paper 2

Extract 14.1 shows a sample of the correct responses. The candidate designed correctly both invitation card and wedding timetable using appropriate application software. The candidate managed to insert border, colour, and picture and to type the information required.

On the other hand, 708 (31.8%) candidates who scored average marks designed the invitation card and wedding Timetable. However, they applied dark blue colour on a title "Invitation Card" instead of purple as it was instructed in part (a). Some of the candidates set the font style of the text "Sandra Mwaka " and "Ally Kaja" to Times New Roman or Calibri instead of Kristen ITC". In part (b), some candidates failed to draw a line after the title "WEDDING TIME LINE". Other candidates applied text highlighter instead of background colour. This shows that the candidates failed to differentiate the text highlighter from background colour. Moreover, some candidates put star or slash instead of bullets in "TIME" and "EVENT" details and consequently lost some marks.

Furthermore, 11.7 per cent of the candidates who attempted this question scored low marks. The analysis showed that majority of these candidates used wrong applications to design both invitation card and wedding timetable. In part (a), some of the candidates managed to open Microsoft publisher but failed to apply designing tools to create the invitation card intended. Others failed to apply the font types and size as the question directed. Moreover, the candidates inserted basic shapes instead of clip arts in the invitation card. For example, one candidate inserted a *Heart shape* as a clip art. This shows that the candidates failed to differentiate between clip arts and other shapes. In part (b), some candidates failed to insert a table to create a timetable for the wedding. Others failed to merge the date column. Additionally, some candidates could not insert borders into the timetable. This shows that the candidates lack practical skills on word processing. Extract 14.2 shows a sample of an incorrect answer from one of the candidates.



WEDDING DAY TIME LINE
 OF OUR BELOVED
Sandra Mwaka
 &
Ally Kaja

DATE	TIME	EVENT
	04:00	BRIDAL
	05:00	
	05:30	
	06:00	
	06:15	
	06:45	
	07:30	
	08:30	

Extract 14.2: A sample of incorrect answer in question 2

Extract 14.2 shows a sample of responses from one of the candidates who gave only two clip arts but failed to apply WordArt in the text “invitation card”. The candidate also applied incorrect font type to all texts in part (a). In part (b), the candidate failed to insert borders and typed few texts with incorrect font type in the table.

3.3 Question 3: Database Management System (DBMS)

This question required the candidate to demonstrate the skills on manipulation of data in the database. The question given to the candidate was as follows:

Air Tanzania company computerized its operations in order to improve on-line booking to their customers. All customers’ bookings are held in a database called ATC BOOKING. The database contains the following tables named “Passengers” and “Flight”. Study the tables carefully and then answer the questions that follow:

Passengers				
Passenger ID	Passenger Name	Address	Booking Date	Location
BQ001	Joseph Nyangasa	344	06-Jul-19	Kilimanjaro Airport
BQ002	Amina Hamisi		21-May-19	JK Nyerere Airport
BQ003	Deus Emmanuel	219	07-Aug-19	Mwanza Airport
BQ004	Chacha Mkwabe	614	21-Aug-19	JK Nyerere Airport
BQ005	Bakari Juma		05-Sep-19	Mwanza Airport
BQ006	Jamal Ally	345	15-Feb-19	Kilimanjaro Airport

Flight				
FlightID	PassengerID	Flight Name	Destination	Price
D717	BQ001	Dreamliner	Mwanza	180000
D787	BQ005	Dreamliner	Dodoma	250000
Q350	BQ003	Boeing	Zanzibar	210000
Q400	BQ004	Bombadier	Kigoma	400000
Q500	BQ006	Boeing	Mwanza	150000

- Use the appropriate software to create the database and tables named Passengers and “Flight”. Assign the appropriate data type for each field.
- Set the PassengersID and FlightID as primary keys.
- Create two forms named “PassengersForm” and “FlightForm” with the current data inserted in the header. Use the forms created to enter the data for each table.
- Validate the price field in the flight table so that the field should accept the price which is greater than 100,000. Otherwise a field should give an alert message “The entered price is too low!
- Create a relationship between two tables.
- Create a query that displays all records in the passengers table where the address has not been entered. Save the query as No Address.
- Create a query that displays Flight Name and Price then add a calculated field called **VAT** which will display 18% of the price. Save the query as VAT Query.
- Print your document.

The statistics show that 2,405 (89.1%) of the candidates attempted this question. A few candidates that is 147 (6.1%) had weak performance as they scored from 0 to 7 marks while majority 2,258 (93.9%) scored from 7.5 to 25 marks. Figure 15 summarizes the candidates' performance in this question.

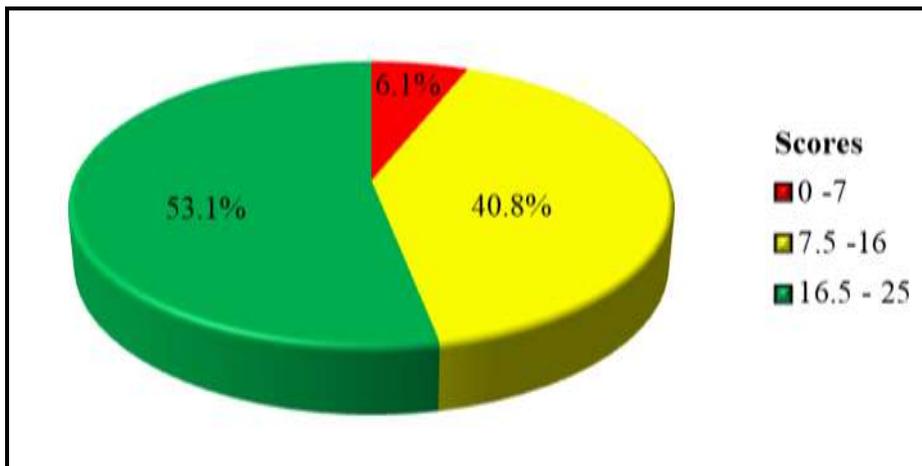


Figure 15: *The candidates' performance in question 3*

Figure 15 shows that 93.9 per cent of the candidates scored above 7 marks, which indicate that the general performance of this question was good. The majority of the candidates who scored high marks managed to create a correct database ATC BOOKING in part (a). The candidates also created passengers and flight tables with their appropriate field names and data types. They also managed to assign correctly the primary keys in part (b). Additionally, the candidates created correctly passenger and flight forms which were used to enter their respective records in part (c). In part (d), some candidates managed to validate the price field in the flight table so that the user could enter the amount which is greater than 100,000. Moreover, in part (e), the candidates created a relationship between passengers table and the flight table using primary and foreign keys. Furthermore, in part (f), most of the candidates created correctly and saved a “No Address” query. Lastly, some of the candidates created correctly a query that displayed a Flight Name and Price and added a calculated field called VAT in part (g). This implies that the candidates had sufficient

knowledge of the concept of management of database as information systems.

Conversely, some candidates failed to score full marks because they faced difficulties in changing the Date/Time data type property into medium format in part (a). They also failed to add the current date on passengers form and flight form. The analysis shows that the candidates wrote the date manually instead of applying syntax of date format. This indicates that the candidates lacked practical skills of setting date. Others created a relationship which joins primary keys of two tables instead of primary and foreign keys in part (e). Moreover, others typed “0” instead of “Is Null” as a criteria to create “No Address” query in part (g). Furthermore, some candidates used “passengerID” to create records of “No address” query instead of using “Address” field. This shows that the candidates failed to understand the requirements of the question. Extract 15.1 shows a sample of correct responses.

The image shows two screenshots from a database application. The top screenshot displays a table named 'Passenger' with the following data:

PassengerId	Passenger Name	Address	Booking Dat	Location	Click to Add
BQ001	Joseph Nyangasa	344	06-Jul-19	Kilimanjaro Air	
BQ002	Amina Hamisi		21-May-19	JK Nyerere Airp	
BQ003	Deus Emmanuel	219	07-Aug-19	Mwanza Airpor	
BQ004	Chacha Mkwabe	614	21-Aug-19	JK Nyerere Airp	
BQ005	Bakari Juma		05-Sep-19	Mwanza Airpor	
BQ006	Jamal Ally	345	15-Feb-19	Kilimanjaro Air	

The bottom screenshot shows the 'Field Name' and 'Data Type' table for the 'Passenger' table:

Field Name	Data Type
PassengerId	Text
Passenger Name	Text
Address	Number
Booking Date	Date/Time
Location	Text

General		Lookup
Format	Medium Date	
Input Mask		
Caption		
Default Value		
Validation Rule		
Validation Text		
Required	No	
Indexed	No	
IME Mode	No Control	
IME Sentence Mode	None	
Smart Tags		
Text Align	General	
Show Date Picker	For dates	

Flight					
FlightId	PassengerId	Flight Name	Destination	Price	
D717	BQ001	Dreamliner	Mwanza	180,000	
D787	BQ005	Dreamliner	Dodoma	250,000	
Q350	BQ003	Boeing	Zanzibar	210,000	
Q400	BQ004	Bombadier	Kigoma	400,000	
Q500	BQ006	Boeing	Mwanza	150,000	
*					

Flight		
Field Name	Data Type	
FlightId	Text	
PassengerId	Text	
Flight Name	Text	
Destination	Text	
Price	Currency	

General Lookup	
Format	Standard
Decimal Places	0
Input Mask	
Caption	
Default Value	
Validation Rule	>100000
Validation Text	"The intered price is too low"
Required	No
Indexed	No
Smart Tags	
Text Align	General

General Lookup	
Format	Standard
Decimal Places	0
Input Mask	
Caption	
Default Value	
Validation Rule	>100000
Validation Text	"The intered price is too low"
Required	No
Indexed	No
Smart Tags	
Text Align	General

Monday, December 20, 2021

Passenger FORM

PassengerId	<input type="text" value="BQ001"/>
Passenger Name	<input type="text" value="Joseph Nyangasa"/>
Address	<input type="text" value="344"/>
Booking Date	<input type="text" value="06-Jul-19"/>
Location	<input type="text" value="Kilimanjaro Airport"/>

No Address				
PassengerId	Passenger Name	Address	Booking Date	Location
BQ002	Amina Hamisi		21-May-19	JK Nyerere Airport
BQ005	Bakari Juma		05-Sep-19	Mwanza Airport

VAT Query		
Flight Name	Price	VAT
Dreamliner	180,000	32400
Dreamliner	250,000	45000
Boeing	210,000	37800
Bombadier	400,000	72000
Boeing	150,000	27000

Field:	Flight Name	Price	VAT: 18/100*[Price]
Table:	Flight	Flight	
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			
or:			

Extract 15.1: A sample of correct answer in question 3

Extract 15.1 shows the sample of correct responses. The candidate managed to design “Passengers” and “Flight” table with their appropriate data types and primary keys, set date/time format in medium date and validated price field. The candidate used appropriate primary and foreign keys to create a relationship. The candidate also created passenger form and flight form with current date. The candidate created correctly “No Address” and “VAT” queries.

Apart from good performance by most candidates 6.1 per cent of the candidates scored low marks. The analysis showed that some of these candidates were able to create database, tables’ fields with default data types. However, some candidates created tables with incorrect names. For example, one candidate wrote, *New Microsoft Access database* as a database name instead of “ATC BOOKING”. Others created a database without including any record. Some candidates failed to rename fields and used the default fields’ names like “ID”, Field2, Field3 instead of writing the required field names. Likewise, some of the candidates failed to understand the appropriate program to use and consequently used incorrect

application programs. For example, some of the candidates used Microsoft excel instead of Microsoft Access. Lastly, some of candidates added correctly two tables but failed to create their relationship. Most of these candidates failed to create forms and query. Extract 15.2 shows a sample of incorrect responses to this question.

ID	Pasenger ID	Pasenger na	Addrees	Booking Dat	Location
*					

Field Name	Data Type
ID	AutoNumber
Pasenger ID	Text
Pasenger name	Text
Addrees	Number
Booking Date	Text
Location	Text

Lookup	
Field Size	255
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	No
Allow Zero Length	Yes
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

Extract 15.2: A sample of incorrect answers in question 3

In extract 15.2, the candidate managed to create one table but with incorrect table name, field name, primary key and data type. The candidate also, failed to create a query and relationship between tables.

4.0 THE PERFORMANCE OF CANDIDATES IN EACH TOPIC

The analysis of candidates' performance in each topic showed that most of the candidates performed well in the multiple choice question (98.9%) which was set from the following topics: *Computer Evolution, Computer Handling, Word Processing, Spreadsheet, Database Management System, Database as Information System, Desktop Publisher and Multimedia*. Other topics which had good performance included *The Internet* (95.9%), *Desktop Publishing* (94.1%), *Computer Network and Communication* (80.1%), *The Computer* (78.6%), *Web Development* (77.7%), *Database as Information System* (77.3%) and *Impact of ICT on the Society* (76.5%).

The candidates performed averagely in the topic of *Spreadsheet* (54.3%). The average performance resulted from unclear explanations and insufficient knowledge and skills on the prescribed topic. Moreover, their performance was weak in the question based on *Presentation* (22.2%). The weak performance in this topic was attributed to the candidates' lack of practical skills and misinterpretation of the questions. The performance of the candidates in each topic is summarized in the Appendix.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

Majority of the candidates (81.5%) answered correctly most of the questions. The analysis of candidates' performance in each topic showed that 10 topics were examined, whereby 8 topics had good performance and 1 topic had weak performance. There was 1 topic with average performance. Therefore, the general performance in Information and Computer Studies Examination in 2021 was good. The good performance signifies that the candidates had appropriate knowledge and skills in the tested concepts. The analysis of the candidates' performance in each topic indicated that the candidates had difficulties in answering questions from the topic of *Presentation*. The weak performance in this topic is attributed to the candidates' misinterpretation of the question and inadequate practical skills on the tested concepts.

5.2 RECOMMENDATIONS

In order to improve the candidates' performance in this subject, teachers should guide students to develop proficiency in:

- (a) demonstrating the presentation delivery models.
- (b) demonstrating the art and skills of electronic presentation.
- (c) preparing effective slides for presentation.
- (d) performing various formatting features in a worksheet.
- (e) explaining the uses of a spreadsheet program.
- (f) using mathematical operators and predefined formula/functions.
- (g) reading the examination instructions and questions carefully so as to understand clearly the requirement of the question.

Appendix

Analysis of Candidates Performance per Topic

S/n	Topic	No. of Questions	The Percentage of Candidates who Scored 30 Per cent and Above	Remarks
1	Computer Evolution, Computer Handling, Word Processing, Spreadsheet, Database Management System, Database as Information System, Desktop Publisher and Multimedia	1	98.9	Good
2	The Internet	1	95.9	Good
3	Desktop Publishing	1	94.1	Good
4	Computer Network and Communication	1	80.1	Good
5	The Computer	1	78.6	Good
6	Web Development	2	77.7	Good
7	Database as Information System	2	77.3	Good
8	Impact of ICT on the Society	1	76.5	Good
9	Spreadsheet	1	54.3	Average
10	Presentation	1	22.2	Weak

