THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

CANDIDATES' ITEM RESPONSE ANALYSIS REPORT FOR THE CERTIFICATE OF SECONDARY EDUCATION EXAMINATION (CSEE) 2019

036 INFORMATION AND COMPUTER STUDIES

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FOREWORD

The National Examinations Council of Tanzania is pleased to issue the Candidates' Item-Response Analysis (CIRA) report in Information and Computer Studies for the Certificate of Secondary Education Examination (CSEE) 2019. The analysis provides feedback to the students', teachers, parents, policy makers and other education stakeholders on how the candidates' attempted the questions.

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

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

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

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

Dr. Charles E. Msonde
EXECUTIVE SECRETARY

1.0 INTRODUCTION

This report presents an evaluation of the candidates' performance in the 2019 Information and Computer Studies Certificates of Secondary Education Examination (CSEE). The examination assessed the knowledge and competences acquired by the candidates at the ordinary level of education. The examination was set according to the approved examination format which was developed in accordance with the 2005 Information and Computer Studies syllabus for Ordinary Level Secondary Education.

The examination had two papers, Information and Computer Studies 1 (Theory) and Information and Computer Studies 2 (Practical). The theory part of the paper had three (3) sections A, B and C. Section A consisted of two (2) objective questions with ten items from question one (1) and five items from question two (2). Section B had eight (8) short answer questions. All questions in sections A and B were compulsory. Section C had two (2) optional essay type questions. The candidates were asked to attempt one (1) question in that section. The practical part of the paper had three (3) questions with 25 marks each. The candidates were required to attempt two (2) questions.

A total of 2,786 candidates sat for the Information and Computer Studies examination in 2019. Out of these candidates, 2,018 (72.4%) passed the examination and 768 (27.6 %) failed. In 2018, a total of 2,820 candidates sat for the Information and Computer Studies examination. Of these candidates, 2,368 (86.1%) passed and 382 (13.9%) failed. This means that there was a decrease in performance by 13.7 per cent in 2019.

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

The analysis of the candidates' performance is done by showing the requirements of the questions, what the candidates wrote and the mistakes they made while attempting the questions. Furthermore, the extracts from candidates' responses are provided for easy reference. Finally, the report presents conclusions and recommendations.

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

2.1 Question 1: Multiple choice Items

This question consisted of ten (10) multiple choice items which were composed from the following topics: *Computer Evolution, Database as Information System, Computer Handling, Presentation, Computer Hardware, Computer Software, Word Processing, Web Designing and Computer Networking.*

All 2,786 (100%) candidates attempted this question. Of whom 241 (8.7%) scored 0 to 2.5 marks, 1,919 (68.9%) scored 3 to 6 marks and 626 (22.5%) scored 6.5 to 10 marks out of the 10 marks allocated. Figure 1 presents the candidates' performance on this question.

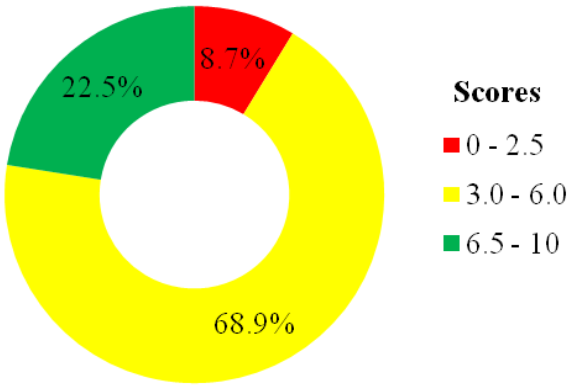


Figure 1: *The candidates' performance on question 1.*

The general performance on this question was good because 91.3 per cent scored above 2.5 marks as shown in Figure1. The majority of the candidates were able to choose the correct answers in most of the items. This indicates that the candidates had adequate knowledge on the topics tested in this question. However, the analysis carried out from the scripts of

the candidates signified that the candidates who failed to score high marks had problems in items (ii), (iii), (v) and (viii).

Item (ii) stated that *the database object that enables you to view and print data from a database table in a chosen appearance is called:*

A *a form.* *B* *a query.*
C *a macro.* *D* *a table.*
E *a report.*

The correct answer was *E, a report*. Other alternatives were not correct because *A, a form* is a visual display that resembles a usual form used to enter data or view records from a table. *B, a query* is a statement used to request information from the table. *C, a macro* is a database object which is used to automate some operations such as displaying table while option *D, a table* is the structure used to store items in relational database. This shows that, the candidate who wrote wrong answers did not know the function of the report in the database.

Item (iii) stated that *the problem of eye strain which is caused by spending a lot of time on using computers can be minimized by:-*

A *taking regular breaks and using antiglare screen.*
B *using adjustable monitor stands and keyboards.*
C *adopting a healthy sitting style.*
D *drinking sufficient amount of juice every day.*
E *using adjustable chair and footrest.*

The correct answer was *A, taking regular breaks and using antiglare screen.* Majority of the candidates chose other alternatives which were wrong. The candidates who chose wrong alternatives did not understand that, option C, D and E had nothing to do with the problem of eye strain but rather, helping other parts of the body such as backbone, waist and legs. This shows that the candidates lacked knowledge on computer handling and security.

Item (v) read as follows: *Which keyboard keys are referred to as special purpose keys in a personal computer?*

A *F1, F2, F3 up to F12* *B* *A to Z, Tab, Caps lock and 0 - 9*

C Arrow keys, Tab and Home key *D Shift, Ctrl, Alt and Esc*
E DEL, Backspace and Pg – Dn

The correct answer was D, *Shift*, *Ctrl*, *Alt* and *Esc*. Other alternatives were wrong because option A, *F1*, *F2*, *F3* up to *F12* are functional keys. Option B, *A* to *Z*, *Tab*, *Caps lock* and 0 – 9 were incorrect because *A* to *Z* and 0 – 9 are keys for entering text and for numeric entry respectively, *Tab* for tab setting and caps lock for toggle between upper and lower case. Option C, *Arrow keys*, *Tab* and *Home* keys for direction, tab settings and navigation to home screen. E, *DEL*, *Backspace* and *Pg – Dn* are keys used for deleting and page scrolling. This signifies that the candidates are not familiar with the different keys of the keyboard.

Item (viii) stated that *which tag would you use to emphasize the heading of the article in the webpage?*

A *<head></head>* *B* *<title></title>*
C *<hr></hr>* *D* *<h1></h1>*
E *<th></th>*

The correct answer was D, *<h1></h1>*. However, majority of the candidates chose other alternatives. The candidates' responses were wrong because option A, *<head></head>* marks the header part of the page. Option B, *<title></title>* gives title of the webpage. Option C, *<hr></hr>* creates horizontal line while option E *<th></th>* is a tag for creating the table header. This indicates that the candidates who selected wrong options had insufficient knowledge.

2.2 Question 2: Matching Items

In this question, the candidates were required to match the descriptions of text alignment used in Microsoft Word in **List A** to their corresponding types of alignments in **List B** by writing the letter of the correct answer beside the item number in the answer booklet provided. The question was intended to measure the candidates' ability to identify different types of text alignment in Microsoft word.

LIST A		LIST B
(i)	Lines of text lined up equally along the left margin but unequally at the right margin.	A Hanging alignment B Justify alignment C First line alignment D Centre alignment E Left alignment F Full alignment G Right alignment H Force justified alignment
(ii)	Lines of text lined up equally along the right margin but unequally at the left margin.	
(iii)	Lines of text arranged equally along both left and right margin	
(iv)	Lines of text arranged equally along both left and right margin even if a line has only few words.	
(v)	The lines of text kept at the middle unequally between the left and right margins.	

A total of 2,785 (100%) candidates attempted this question, out of whom 455 (16.3%) scored 0 to 1 marks, 1,657 (59.5%) scored 2 to 3 marks and 673 (24.2%) scored 4 to 5 marks out of the 5 marks allocated. Figure 2 presents the candidates' performance on this question.

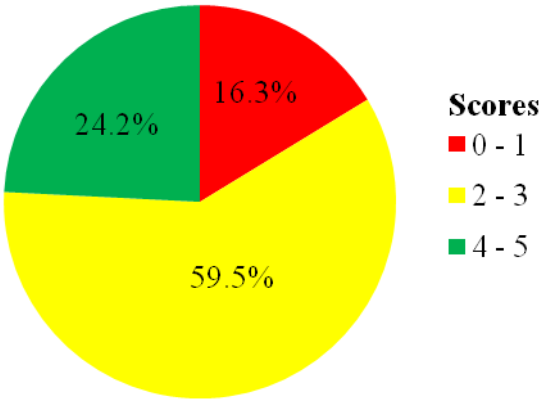


Figure 2: *The candidates' performance on question 2.*

Figure 2 shows that 2,330 (83.7%) of the candidates scored from 2 to 5 and therefore, the general performance in this question was good. This performance could be attributed to the fact that the candidates were familiar with the Microsoft word text alignments.

The analysis carried out on the scripts of the candidates revealed that the candidates who failed to score high marks faced difficulties in answering items (iii) and (iv).

Item (iii) required the candidates to identify lines of the text arrangement equally along both the left and right margin. The correct answer was B, *Justify alignment* but some candidates chose incorrect options. Most of them chose option F, *full alignment*. This signifies that the candidates made direct translation to the term "full alignment".

Item (iv) required the candidates to identify lines of the text arranged equally along both the left and right margin even when a line had only a few words. The correct answer was H, *Force justified alignment*. Most of the candidates chose incorrect options. Some candidates who chose option *B, justify alignment* could not differentiate between the effect of "justify" and "force justified" alignment. The candidates who chose *C, first line alignment* failed to understand that, "first line alignment" is not a type of alignment in Ms-word. This indicates that, the candidates lacked knowledge on the formatting text in Microsoft word.

2.3 Question 3: Jumbled Questions

In this question, the candidates were required to re-arrange the given sentences in sequential order beginning with the first step to the last step. The question intended to measure the candidates' ability to apply the knowledge of internet on composing and sending an email. The following steps were given.

A Type the message in the text box.
B Type the recipient address or get it from the address book.
C Click the send button.
D Click the compose button.
E Type the subject of the message.

The statistics show that 2,749 (98.7%) candidates attempted this question. Out of whom 672 (24.4%) scored 0 to 1 marks, 1,263 (45.9%) scored 2 to 3 marks and 814 (29.6%) scored 4 to 5 marks out of the 5 marks allocated. Figure 3 presents the candidates' performance on this question.

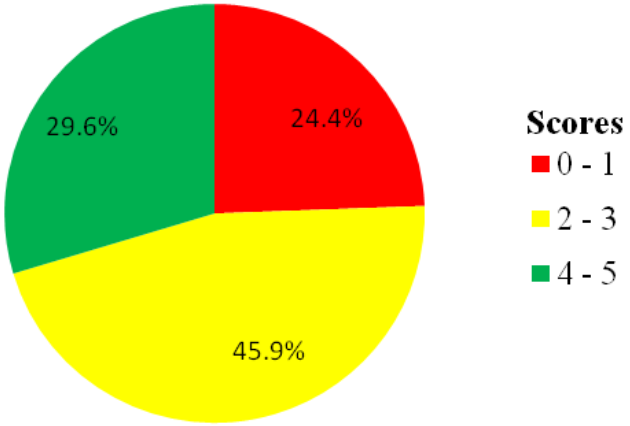


Figure 3: *The candidates' performance on question 3.*

Figure 3 illustrates that the performance of the candidates on this question was good as 74.6 per cent scored from 2 to 5 marks as shown in the figure 3. The candidates gave correct steps of composing and sending an email because they were able to arrange the letters according to the requirements. Apart from good performance, some of the candidates failed to write the first step. The candidates wrote step *E, type the subject of the message* as the first step instead of "Click the compose button". Other candidates started with A, *type the message in the text box.* This made them lose the marks. These also lost some marks

However, some of the candidates gave correctly first and last step, but failed to arrange middle steps.

2.4 Question 4: Desktop Publishing Software (DTP)

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

(a) Identify the software required to prepare an invitation card and a monthly calendar as well as to give the reason.

(b) Identify the steps required to follow when inserting the date in the invitation card.
(c) Write four publications apart from invitation cards and a monthly calendar that can be designed by using the software mentioned in part (a).

This question was attempted by 2,767 (99.3%) candidates. Out of whom 357 (12.9%) scored 0 to 2.5 marks, 1,984 (71.7%) scored 3.0 to 6.0 marks and 426 (15.4%) scored 6.5 to 10 marks out of the 10 marks allocated. Figure 4 presents the candidates' performance on this question.

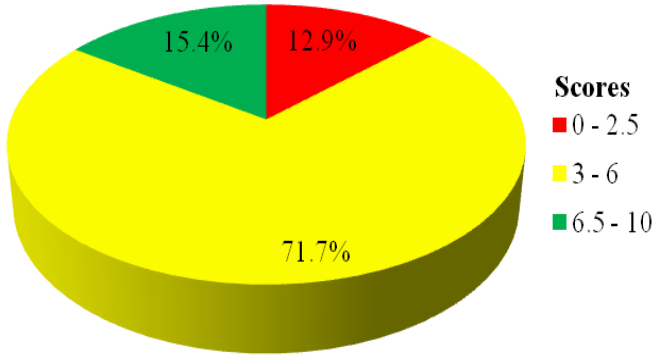
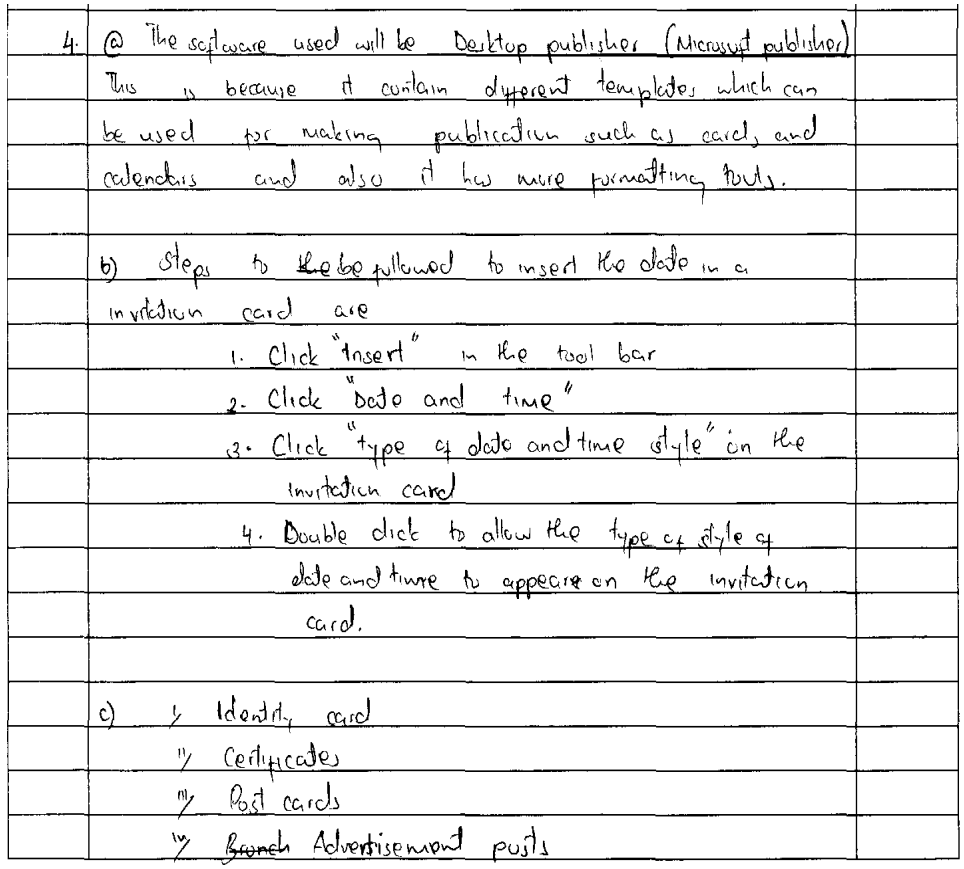


Figure 4: *The candidates' performance in question 4*

The general performance on this question was good because 87.1 per cent of the candidates scored above 2.5 marks. The analysis showed that (15.4%) candidates who scored high marks 6.5 to 10 managed to identify the required software that can be used to prepare an invitation card and a monthly calendar. They also provided correct reason for their choice in part (a). These candidates identified correctly four publications apart from invitation cards and the calendar in part (b). Some candidates could not write all the steps to be followed in order to insert data in the invitation cards. Hence, they lost some marks. Others wrote correct steps for inserting data in the invitation card with incorrect reasons for using publication software to prepare an invitation card in part (a). A few candidates wrote *letters* and *memos* as publications designed by publication software in part (c). This indicates that the candidates could not differentiate between publications designed by word processors from Desktop Publisher software. Extract 4.1 presents a sample of a good response.



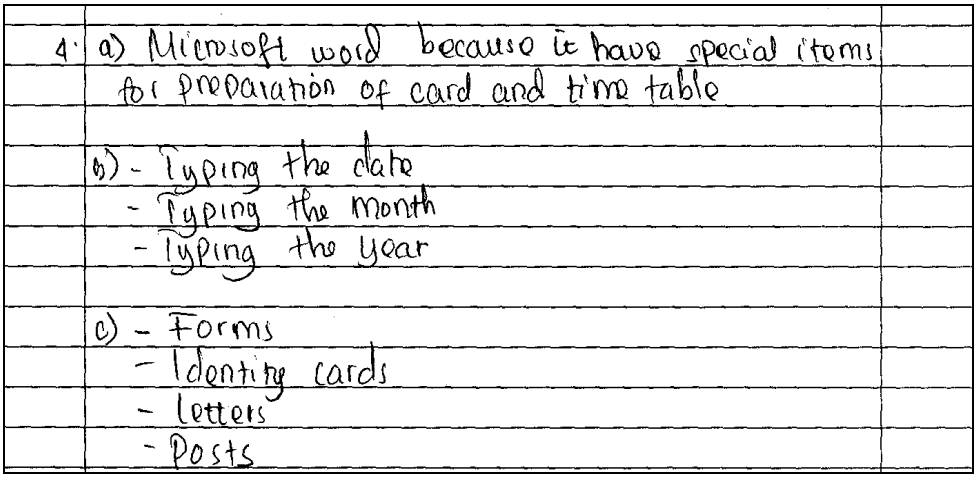
Extract 4.1: A sample of correct answer on question 4.

The responses of a candidate provided in Extract 4.1 shows that the candidate managed to write "Microsoft publisher" as a publication software to prepare invitation cards and calendars in part (a). Also, the candidate wrote correctly the steps to follow in order to insert the date in an invitation card in part (b). In part (c), the candidate managed to write publications that can be designed using Microsoft publisher.

Furthermore, (71.7%) of the candidates who scored average marks (3 to 6) wrote correctly the software required to prepare an invitation card and a calendar but failed to give the reason for their choice. Most of them wrote examples of the publication software instead of the advantages of using publication software in part (a). In part (b), the candidates gave incomplete steps for inserting the date in the invitation card. Some of them failed to outline all the steps required for inserting date in the invitation card. It was

observed that most of them failed to write correctly the first step "position a cursor where you want to insert data". They also did not write the last step "click OK". This indicates that the candidates had insufficient knowledge on Microsoft publisher. Some of them mixed up steps of inserting date in publisher designing body part with the header/footer part. For example, one candidate wrote *Insert→header/footer→date/time→ok.* In part (c), most of the candidates gave four correct publications but some of them gave correctly only three publications.

On the other hand, (12.9%) of the candidate who scored low marks from 0 to 2.5 wrote correctly the software required to prepare an invitation card and a calendar but they failed to give the reason for choosing such a software in part (a). Some of the candidates wrote other application software such as *Ms-word, Ms-access* or *notepad*. This shows that the candidates were not familiar with publication software. However, the candidates failed to write steps for inserting the date in the invitation card in part (b). They wrote few publications designed by publication software in part (c). Some of the candidates repeated the same type of publications. For example, one candidate wrote *Award certificate* and *Academic certificate*. This led them to lose some marks. Extract 4.2 presents a sample of such incorrect responses.

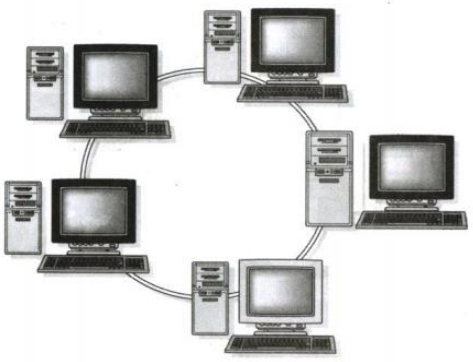


Extract 4.2: A sample of an incorrect answer to question 4.

The responses of a candidate provided in Extract 4.2 shows that the candidate who wrote Microsoft word instead of Desktop Publisher software in part (a). In part (b), the candidate wrote parts of the date instead steps for inserting the date in invitation cards. In part (c), the candidate managed to write identity card as a publication but failed to write other publications.

2.5 Question 5: Computer Networking and Communication

This question had two parts, (a) and (b). The candidates were required to study the given Figure that represented network topology used by a certain company.



The asked questions were:

(a) What is the type of the network topology used by the company? Explain three disadvantages of using that kind of network.
(b) Suggest proper type of network topology that will help the company to address three advantages that a company will get using the proposed topology.

This question was attempted by 2,764 (99.2%) candidates out of whom 1,748 (63.2%) scored 0 to 2.5 marks, 747 (27.0%) scored 3 to 6 marks and 269 (9.7%) scored 6.5 to 10 marks out of the 10 marks allocated. The general performance in this question was poor because 63.2 per cent of the candidates scored below 3 marks. Figure 5 presents the candidates' performance for this question.

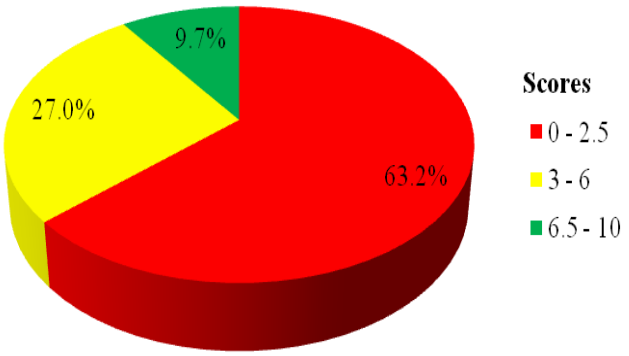
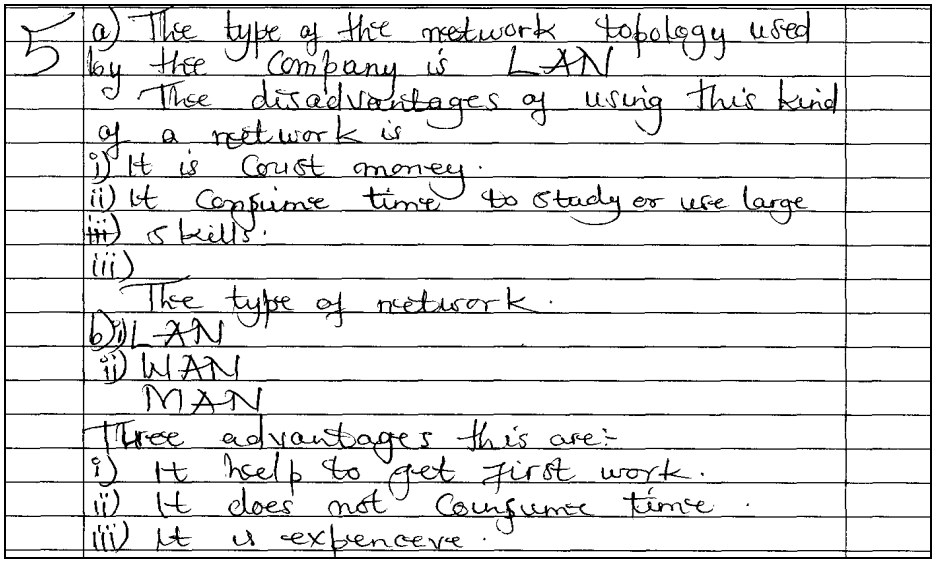


Figure 5: *The candidates' performance on question 5.*

Majority of the candidates (63.2%) who scored low marks (0 to 2.5) identified correctly the type of network topology used by the company in part (a), but failed to explain its disadvantages. Some of the candidates wrote disadvantages of using the internet instead of ring topology. For example, one candidate wrote *easy spread of virus, it is very costful, no privacy of data*. This indicates that the candidates did not understand the demand of the question. In part (b), the candidates managed to suggest the proper network topology that would help the company but they failed to address the advantages of the suggested network topology. Some of the candidates explained advantages of networking instead of star topology. For example, one candidate wrote *sharing of resources, allow communication and cover large geographical area*. Extract 5.1 presents a sample of such incorrect responses.



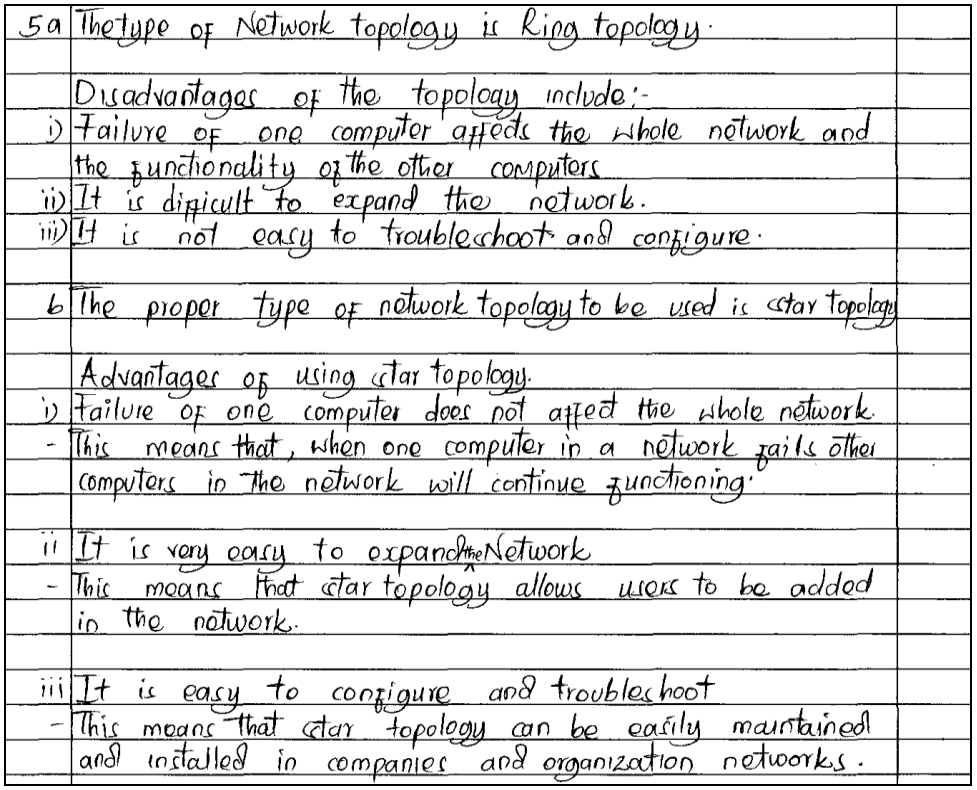
Extract 5.1: A sample of an incorrect answer on question 5.

The responses of a candidate provided in Extract 5.1 show that the candidate wrote type of networking, LAN instead of ring topology hence, the candidate failed to write disadvantages of ring topology in part(a). The candidate also wrote types of network in part (b) instead of network topology.

Moreover, (27.0%) of the candidates who scored average marks (3 to 6) gave the correct name of the network topology used in the company and explained its disadvantages in part (a). The candidates suggested correctly the network topology that would help the company but failed to address advantages the company will get by using such a topology in part (b). Some of the candidates wrote advantages of other network topology like bus or star topology while others mixed up the advantage of star topology and local area network (LAN). For example, one candidate wrote *star topology covers small geographical area*. This signifies that the candidates could not differentiate between types of networking that means LAN, MAN and WAN and physical arrangement of computers in a network topology. Others stated correctly the type of network topology but failed to write its disadvantages in part (a).

On the other hand, a few candidates (9.7%) who scored high marks from 6.5 to 10 managed to name the type of network topology and explained

correctly the disadvantages of that particular network topology in part (a). Some of the candidates mixed disadvantages of ring topology with other types of topology. For example, one candidate wrote, *Every node have connection to every other node* which is the disadvantages of mesh topology and not ring topology. This led them to lose some marks. In part (b), the candidates were able to suggest the proper network topology and give the advantages of the proposed topology. But, some of the candidates did not score all the marks as they wrote advantages of networking instead of star topology. Extract 5.2 presents a sample of such a response.


5a The type of Network topology is Ring topology.

Disadvantages of the topology include:-
i) Failure of one computer affects the whole network and the functionality of the other computers
ii) It is difficult to expand the network.
iii) It is not easy to troubleshoot and configure.

b The proper type of network topology to be used is star topology

Advantages of using star topology.
i) Failure of one computer does not affect the whole network.
- This means that, when one computer in a network fails other computers in the network will continue functioning.

ii It is very easy to expand the Network
- This means that star topology allows users to be added in the network.

iii It is easy to configure and troubleshoot
- This means that star topology can be easily maintained and installed in companies and organization networks.

Extract 5.2: A sample of a correct answer in question 5.

The responses of a candidate provided in Extract 5.2 show that the candidate managed to write the required type of network topology used by the company. Also, the candidate wrote correctly the disadvantages of using such topology in part (a). In part (b), the candidate wrote proper type of topology and its advantage to the company.

2.6 Question 6: Spreadsheet

This question had four parts; (a), (b), (c) and (d). The candidates were required to study the given worksheet and answer the questions that follow;

	A	B	C	D	E	F	G	H	I
1	S/N	NAME	PHYSICS	CHEMISTRY	COMPUTER	MATHEMATICS	AVERAGE	GRADE	POSITION
2	1	Adallah	68	64	60	69	65.3	B	2
3	2	Ally	50	45	52	68	53.8	C	5
4	3	Angel	35	40	36	62	43.3	C	7
5	4	Ismail	45	50	40	67	50.5	C	6
6	5	Issa J.	58	65	80	57	65	B	3
7	6	Jema	65	70	61	58	63.5	C	4
8	7	Rachel	98	75	85	80	84.5	A	1

Hints: (The grade is “A” if the average is >= 75, “B” if the average is >= 64 and “C” if the average is >=45)

The asked questions were;

(a) Which steps would you follow to align the heading in worksheet vertically?

(b) Suppose you want to validate the marks to be entered by a user to whole number from 0 to 100 inclusive; which steps would you follow to accomplish this task?

(c) Which functions were used to assign grade and position?

(d) Which function was used to calculate the average marks?

A total of 2,726 (97.8%) candidates attempted this question. Among them, 1,566 (57.4%) scored 0 to 2.5 marks, 1,035 (38.0%) scored 3 to 6 marks and 125 (4.6%) scored 6.5 to 10 marks out of the 10 marks allocated. The general performance for this question was average because 42.6 per cent of the candidates scored above 2.5 marks. Figure 6 presents the candidates' performance in this question.

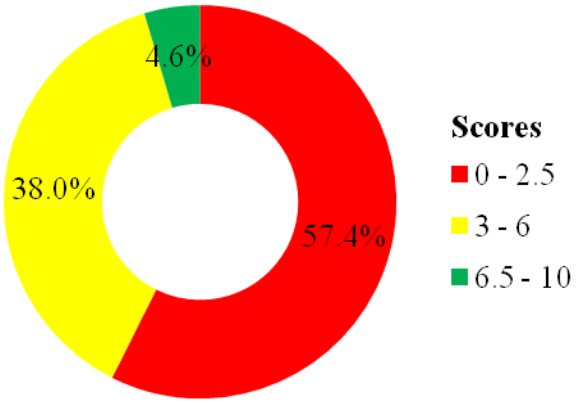
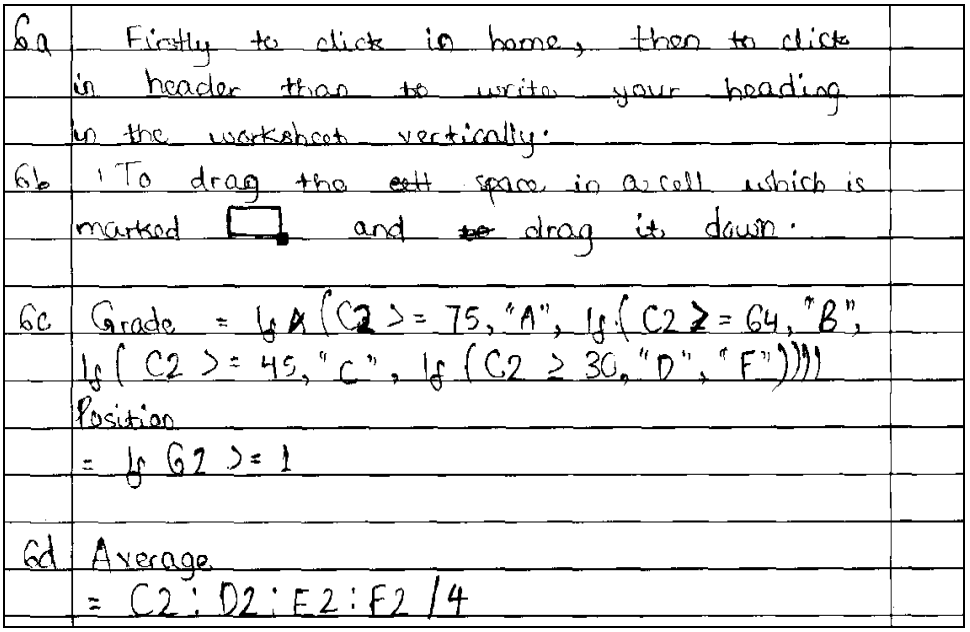


Figure 6: *The candidates' performance on question 6.*

The analysis showed that (57.4%) of the candidates who scored low marks 0 to 2.5 in part (a) did not list the steps required to align the heading vertically in the worksheet. Some of the candidates gave correctly only the first step while other responses were incorrect. Likewise, in part (b), most of the candidates wrote wrong steps to validate the marks entered by a user from 0 to 100 inclusive. Some candidates wrote *click home page →open database→validation rule*. This implies that the candidates failed to distinguish steps of data validation in Ms Access from Ms Excel. In part (c), the candidates failed to write the functions required to assign grades and position. Some of the candidates used "GRADE" as a function name to assign grades instead of "IF". This indicates that the candidates lacked knowledge on the spreadsheet functions. In part (d), majority of the candidates wrote correctly the function required to calculate on average marks. Some of the candidates gave incorrect function name. For example, one candidate wrote, *=AVG(C2:F2)* instead of =average(C2:F2) while others did not write an equal sign "=". This indicates that the candidates lacked practical skills on spreadsheet. Extract 6.1 presents a sample of incorrect responses.



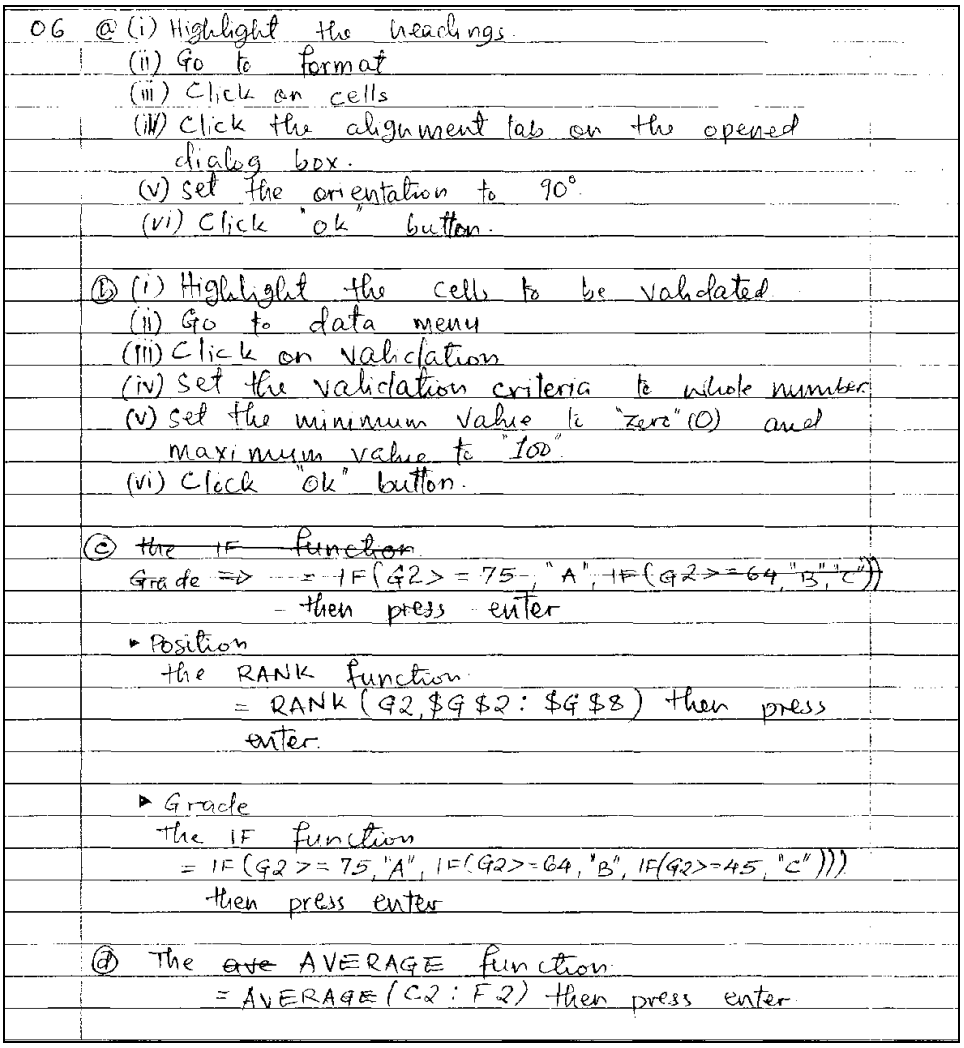
Extract 6.1: A sample of an incorrect answer on question 6.

In extract 6.1, the candidate wrote the steps for inserting header in a worksheet in part (a), instead of starting with highlight the cells that would be affected by the changes. The candidates also wrote wrong cell reference in assigning grade. However, the candidate managed to start the function with an equal sign but failed to write the correct function name and argument in part (d).

On the other hand, the candidates who scored average marks (3 to 6) listed some of the steps required to align the heading vertically and to validate marks in part (a) and (b). They also wrote correctly functions used to assign grades but failed to write the correct function name to assign position in part (c). Some of the candidates wrote function name as "position" in assigning grades instead of "Rank". For example one of the candidates wrote, *=position(G2; $G$2:$G$8).* Instead others wrote the correct function name but failed to write dollar sign which defined the range of the data. This indicates that the candidates did not know the importance of the dollar sign in the rank function.

Further analysis showed that the candidates (4.6%) who scored high marks (6.5 to 10) were able to list the correct steps in parts (a) and (b). However,

some of the candidates could not score all marks because they failed to use correct reference cells in parts (c) and (d). Other candidates wrote the function without including an equal sign which is necessary to every formula and function in spreadsheet. Extract 6.2 provides a sample of good responses.


06 (a) (i) Highlight the headings
(ii) Go to format
(iii) Click on cells
(iv) Click the alignment tab on the opened dialog box.
(v) set the orientation to 90°
(vi) Click "ok" button.

(b) (i) Highlight the cells to be validated
(ii) Go to data menu
(iii) Click on validation
(iv) set the validation criteria to whole number
(v) set the minimum value to "zero" (0) and maximum value to "100"
(vi) Click "ok" button.

(c) ~~the IF function~~
Grade => = IF(G2>=75, "A", IF(G2>=64, "B", "C"))
- then press enter

- Position
the RANK function
= RANK(G2, $G$2:$G$8) then press enter

- Grade
the IF function
= IF(G2>=75, "A", IF(G2>=64, "B", IF(G2>=45, "C")))
then press enter

(d) The ~~ave~~ AVERAGE function
= AVERAGE(C2:F2) then press enter

Extract 6.2: A sample of a correct answer on question 6.

The responses of a candidate provided in extract 6.2 show that the candidate wrote correctly all the required steps in parts (a) and (b). The candidate also identified correctly the cell reference, function name and argument for grade, position and average.

2.7 Question 7: Computer Evolution

This question had three parts (a), (b) and (c) with the following questions:

(a) Differentiate digital computers from analog computers.

(b) By giving two examples, explain special purpose computers.

(c) The headmaster of a certain secondary school preferred to buy a computer for his office activities. Based on the advice given, he decided to buy a supercomputer. As an IT expert, do you think the headmaster got the correct advice? Give two reasons for your answer.

The statistics of performance show that the question was attempted by 2,750 (98.7%) candidates, out of whom 1,088 (36.9%) scored 0 to 2.5 marks, 772 (28.1%) scored 3 to 6 marks and 890 (32.4%) scored 6.5 to 10 out of the 10 marks allocated. The general performance for this question was good because 60.5 per cent of the candidates scored above 2.5 marks. Figure 7 presents the candidates' performance for this question.

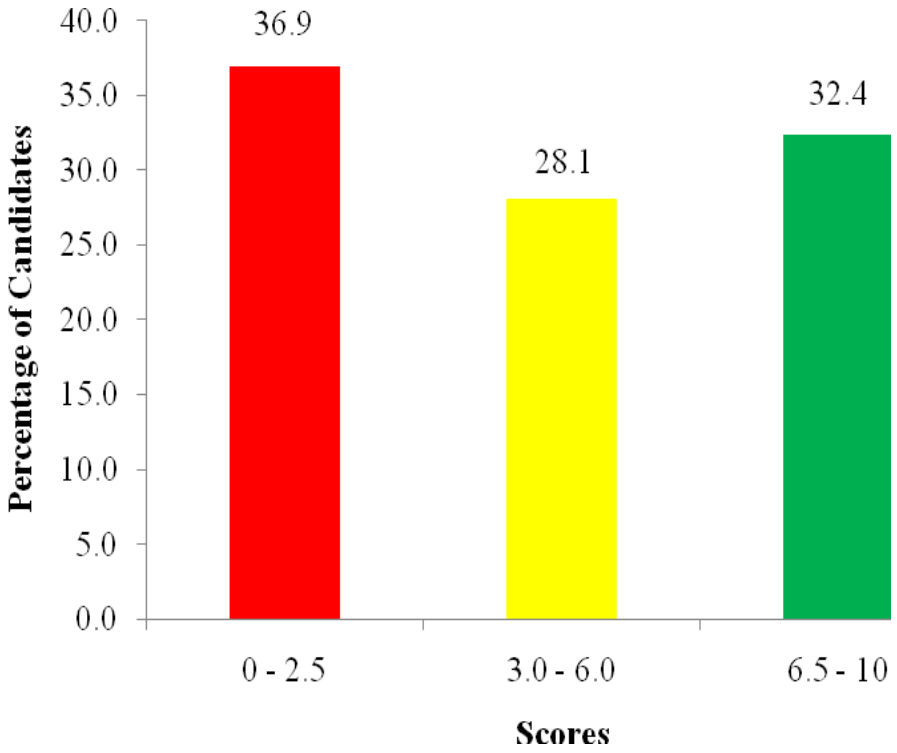
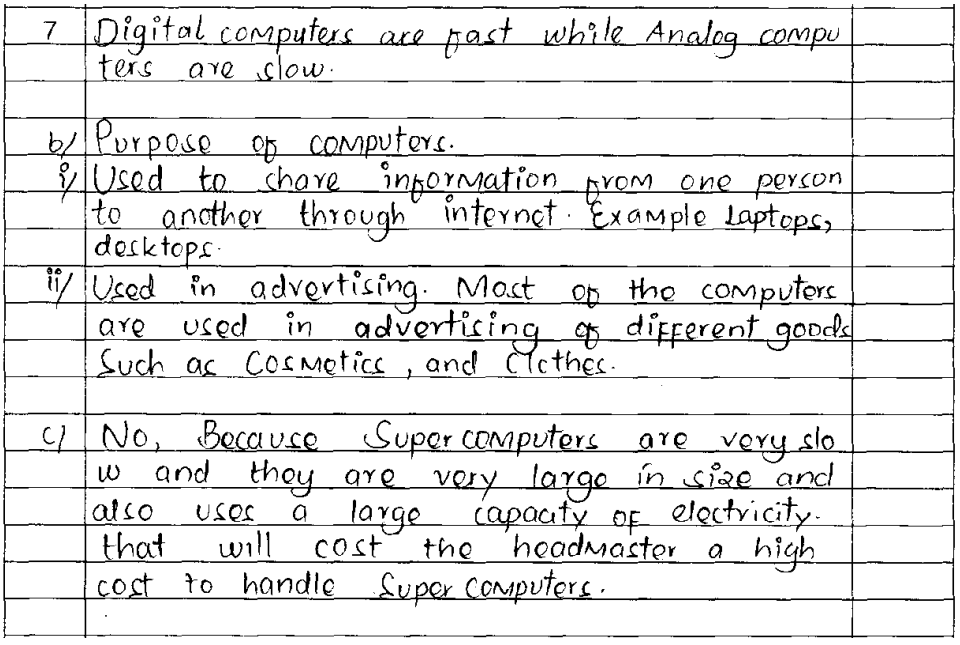


Figure 7: *The candidates' performance on question 7.*

The analysis carried out in the candidates scripts showed that (36.9%) of the candidates who scored low marks 0 to 2.5 in part (a) were able to differentiate digital computers from analog computers. Some of the candidates concentrated only on drawing diagrams without giving explanations. This indicates that the candidates had inadequate knowledge on computer evolution. Others differentiated digital from analog computers based on time period without giving a clear meaning of the terms. For example, one candidate wrote, *digital computers are advanced technology used in current years while analog computers are old over*. This led them to lose some marks. In part (b), some of the candidates explained correctly the term "special purpose" computers but failed to provide examples of special purpose computers. They wrote other types of computers such as supercomputer, mainframe, minicomputer or microcomputer instead of calculators, mobile phones or robots. In part (c) the candidates accepted that supercomputer was a correct choice to the headmaster but failed to give reasons. This indicates that the candidates had insufficient knowledge on the functions of supercomputer. Extract 7.1 presents a sample of an incorrect response.


7 Digital computers are past while Analog computers are slow.

b/ Purpose of computers.

i/ Used to share information from one person to another through internet. Example Laptops, desktops.

ii/ Used in advertising. Most of the computers are used in advertising of different goods such as Cosmetics, and Clothes.

c/ No, Because Super computers are very slow and they are very large in size and also uses a large capacity of electricity. that will cost the headmaster a high cost to handle Super computers.

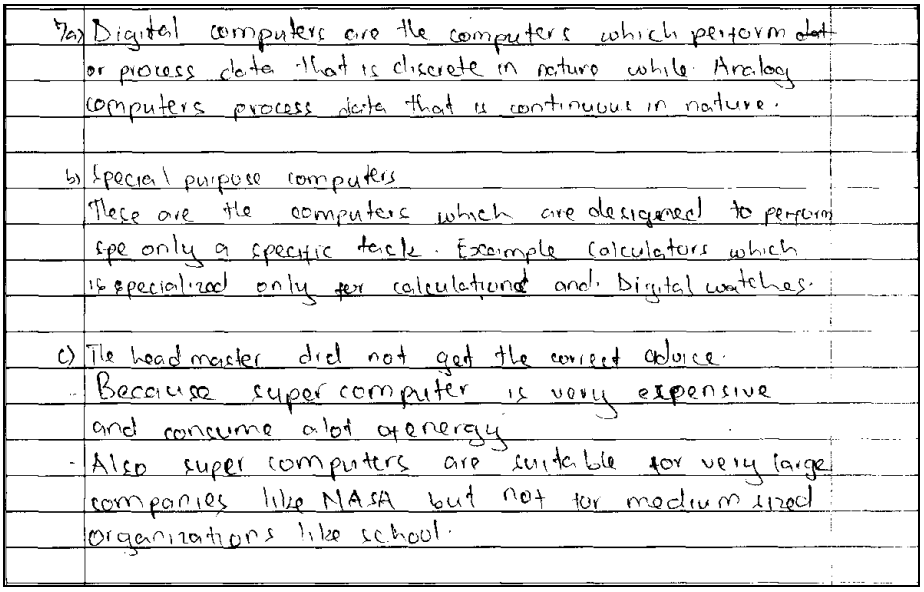
Extract 7.1: A sample of an incorrect answer on question 7.

The responses of a candidate provided in Extract 7.1 shows that the candidate wrote wrong differences between digital and analog computers and failed to explain about special purpose computer. The candidate gave correct advice to the headmaster with wrong reasons.

However, the candidates who got an average marks (3 to 6) in part (a) were able to differentiate digital computers from analog computers. Some of the candidates interchanged the meaning of digital computers into analog computers. They explained that digital computer is in continuous form and not discrete in nature. This indicates that the candidates had insufficient idea on digital and analog computers. Further analysis showed that in part (b) the candidates explained correctly the term "special purpose computer" but failed to give two examples required. Others were able to give correct examples with incorrect explanations of the term "special purpose computer". Some of the candidates failed to understand the requirement of the questions. They wrote purposes of using computer instead of giving the meaning of special purpose computer. For example, one of the candidates wrote *computer is used for communication, searching material, simplify work etc*. In part (c), most of the candidate managed to state that the headmaster got wrong advice when he decided to buy supercomputer but failed to give reasons. Some of the candidates focussed on the general characteristics of supercomputer which were irrelevant to the question. For example, the candidates wrote, *it has high speed* and *the processor used is big in capacity*. The candidates should know that the headmaster cannot afford to buy a supercomputer because it is designed to process complex calculation and not for normal office activities.

On the other hand, the candidates who performed well (6.5 to 10) in part (a) were able to state clearly the difference between digital computers and analog computers. Some of the candidates wrote that, *digital computer process data which is discrete in nature* while *analog computers process data that are continuous form.* Some of the candidates explained correctly the meaning of special purpose computers but they could not give the correct examples of special computers. For example, one of the candidates gave the examples of *scanner* and *printer* instead of calculator, digital watch, etc. Other candidates who wrote smart phones did not know that smart phones conduct many tasks including communication, recording,

searching and downloading of data, etc. In part (c), most of the candidates managed to give the correct advice to the headmaster and provided the correct reasons for their suggestions/advice. However, some of the candidates failed to score all marks because they gave insufficient explanations. Extract 7.2 shows a correct response from one of the candidates.


7a) Digital computers are the computers which perform dat or process data that is discrete in nature while Analog computers process data that is continuous in nature.

b) Special purpose computers
These are the computers which are designed to perform spe only a specific task. Example calculators which is specialized only for calculations and Digital watches.

c) The headmaster did not get the correct advice.
Because super computer is very expensive and consume a lot of energy
Also super computers are suitable for very large companies like NASA but not for medium sized organizations like school.

Extract 7.2: A sample of a correct answer on question 7.

Extract 7.2 shows a response of a candidate who differentiated analog computers from digital computers. The candidate managed to explain correctly the special purpose computers and was able to advise the headmaster with correct reasons.

2.8 Question 8: Database as Information System

This question had three parts, (a), (b) and (c) with the following sub questions:

(a) Differentiate each of the following concepts as used in databases;
  (i) Validation rule and validation text.
  (ii) Select query and Action query.

(b) An electronic database depends on a Database Management System (DBMS). Why do you think the DBMS is important software in developing electronic databases?

(c) Consider you have been given a database that is not safe due the lack of protection. Which steps you would use to protect a database by using a password?

The statistics showed that 2,616 (93.9%) of the candidates attempted this question, of which 2,018 (77.1%) scored 0 to 2.5 marks, 571 (21.8%) scored 3 to 6 marks and 27 (1.0%) scored 6.5 to 10 marks out of the10 marks allocated. Figure 8 summarizes the candidates' performance for this question

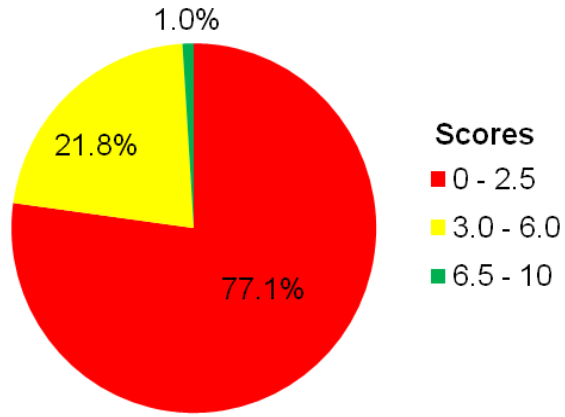
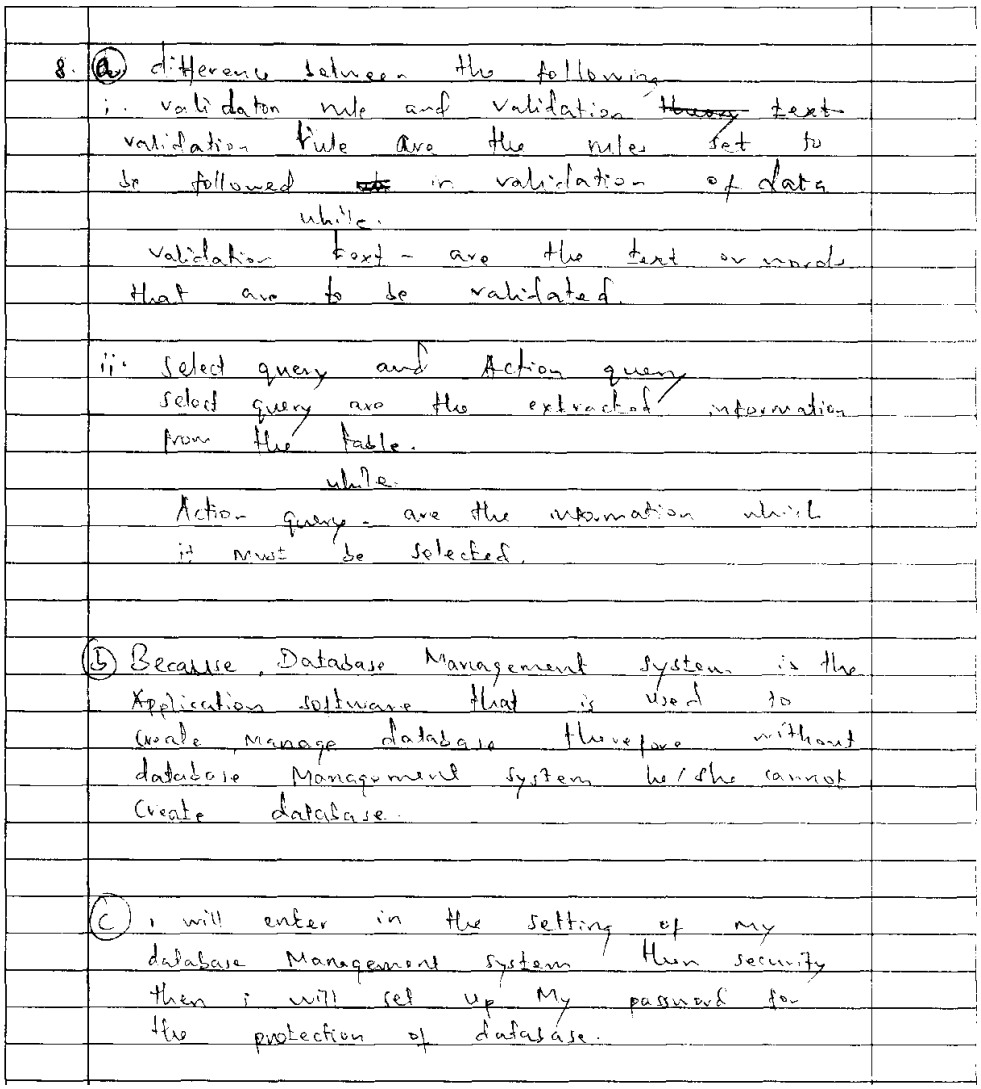


Figure 7: *The candidates' performance on question 7.*

The general performance of the candidates in this question was poor because 77.1 per cent scores below 3 marks. Majority of the candidates (77.1%) who scored low marks (0 to 2.5) in part (a) (i) failed to differentiate between the term "validation rule" and "validation text". Some of the candidates explained validation rule as a password in the database. They also failed to distinguish between select query and action query in part (a)(ii). Most of the candidates interpreted to the terms correctly. For example, one candidate wrote *Action query is the query that does action to the information*. In part (b), some of the candidates managed to write the importance of database management system (DBMS) but not in detail. This shows that the candidates had partial understanding of the database which led them to lose some marks. In part (c), the candidates failed to write steps to protect database by using a password. Extract 8.1 provides a sample of such incorrect responses.



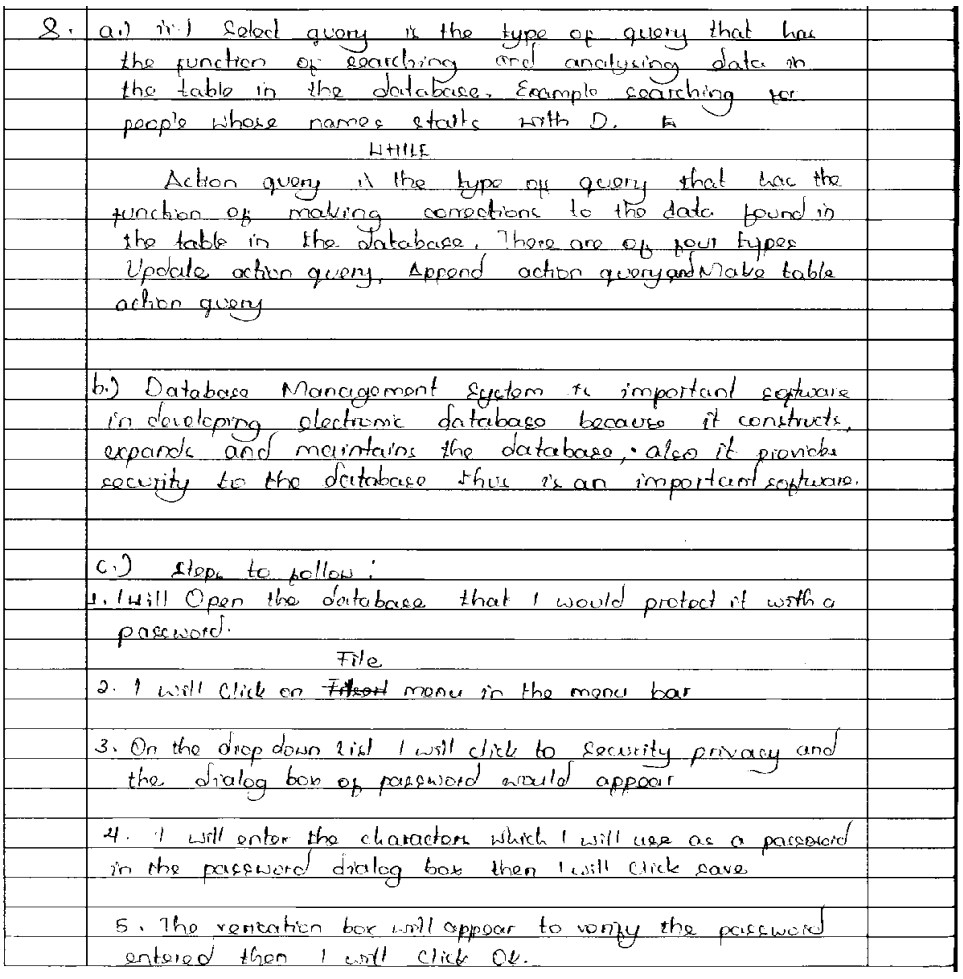
Extract 8.1: A sample of an incorrect answer on question 8.

In extract 8.1, the candidate was not able to differentiate between "validation rule" and "validation text". The candidate also gave wrong explanation on the importance of DBMS as well as the steps that would be taken to protect a database by using a password.

On the other hand, the candidates (21.8%) who scored average marks (3.5 to 6) were able to give correct responses on part (a) and (b). Some of the candidates did not get all the marks in part (a) because they gave unsatisfactory explanations on the difference between "select" and "action

query". In part (c), some of the candidates listed wrong steps to be followed to protect a database by using a password. They mixed-up the steps to be followed in Microsoft office word with those used in a database. For example, one candidate wrote, *select database tools from the menu bar, select security then password, type the password from the password text box , confirm the password from confirm text box, save*. Other candidates had an idea of creating a password to protect database but they failed to follow all the required procedures in a sequential order. This concludes that the candidates had inadequate knowledge on database.

Moreover, a few candidates (1.0%) who scored high marks (6.5 to 10) differentiated correctly the given terms in part (a). The candidates managed to explain the importance of DBMS in developing database in part (b). Some of the candidates wrote incomplete steps to protect a database by using a password in part (c). This led them to lose some marks. Extract 8.2 presents a sample of good responses.


8. a.) i.) Select query is the type of query that has the function of searching and analysing data in the table in the database. Example searching for people whose names starts with D. E

HTTLE

Action query is the type of query that has the function of making corrections to the data found in the table in the database. There are of four types Update action query, Append action query and Make table action query

b.) Database Management System is important software in developing electronic database because it constructs, expands and maintains the database, also it provides security to the database thus is an important software.

c.) Steps to follow:

1. I will Open the database that I would protect it with a password.

File

2. I will Click on ~~Filsort~~ menu in the menu bar

3. On the drop down list I will click to Security privacy and the dialog box of password would appear

4. I will enter the characters which I will use as a password in the password dialog box then I will Click save

5. The verication box will appear to verify the password entered then I will Click OK.

Extract 8.2: A sample of a correct answer on question 8.

Extract 8.2 shows a response of a candidate who gave correct difference in part (a) and wrote correctly advantage of DBMS in developing database. Also, the candidate managed to write correct steps to protect database by using a password.

2.9 Question 9: Web Development

This question had two parts; (a) and (b). The candidates were required to:

(a) State HTML tags which can be used to link
   (i) An image "log.gif"
   (ii) A page "home.html"

(b) Study the following HTML codes and give the output expected.

```
<html>
<body>
<h2> Welcome to the ICT World</h2>
Name:<input type="text" name="uname"><br><br>

Gender:<input type="checkbox" name="unradio" value="Fmale">Female
<input type="checkbox" name="uadio" value="male">Male<br><br>
Married:<input type="radio" name="unradio" value="Female">Yes
<input type="radio" name="unradio" value="Female">No <br><br>

Comments: <br>
<TEXTAREA NAME="Comments" WRAP></TEXTAREA><br><br>

Submit information :<input type="submit" value="Send"><br>

</body>
</html>
```

The question was attempted by 2,688 (96.5 %) candidates out of whom 414 (15.4%) scored 0 to 2.5 marks, 935 (34.8%) scored 3 to 6 marks and 1,339 (49.8%) scored 6.5 to 10 marks out of the 10 marks allocated.

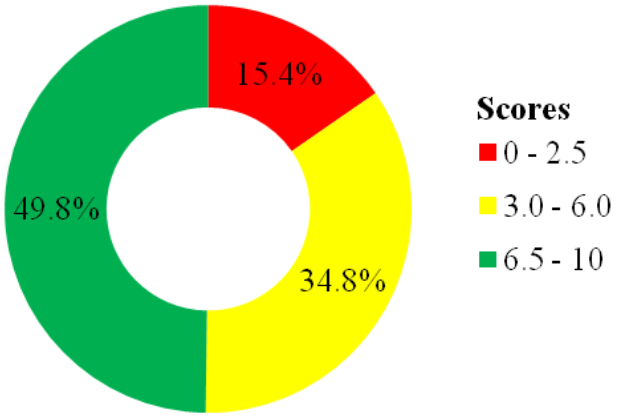
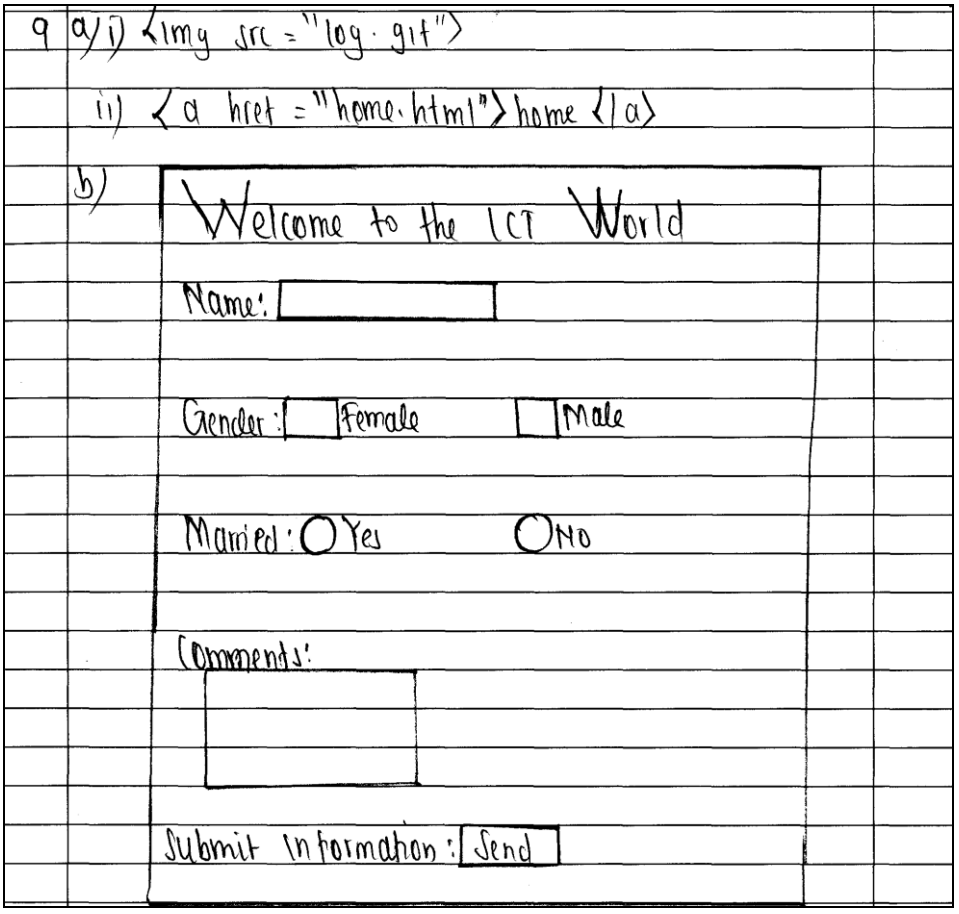


Figure 9: *The candidates' performance on question 9.*

The general performance for this question was good because 84.6 per cent of the candidates scored above 2.5 marks. The analysis showed that (49.8%) of the candidates performed well. In part (a), the candidates stated correctly HTML tags required to link an image “log.gif” and a page “home.html”. However, some of the candidates failed to score all marks because they wrote tags of image and page with a semicolon or colon instead of an equal sign. For example, one candidate wrote, “<img src:log.gif>” to link an image instead of <img src = log.gif>. Other

candidates made mistake on using tag which gives a source of the image; they wrote “scr” instead of “src”. Furthermore, a few candidates wrote <a href> instead of <img> to link an image. In part (b), the candidates managed to display the expected output from the given HTML codes. Some of the candidates also failed to display text “Welcome to the ICT World” to the required size <h2>. Others displayed submit button with the value “submit” instead of the value “send”. This shows that the candidates lacked practical skills on HTML codes. Extract 9.1 gives a sample of a correct response for this question.

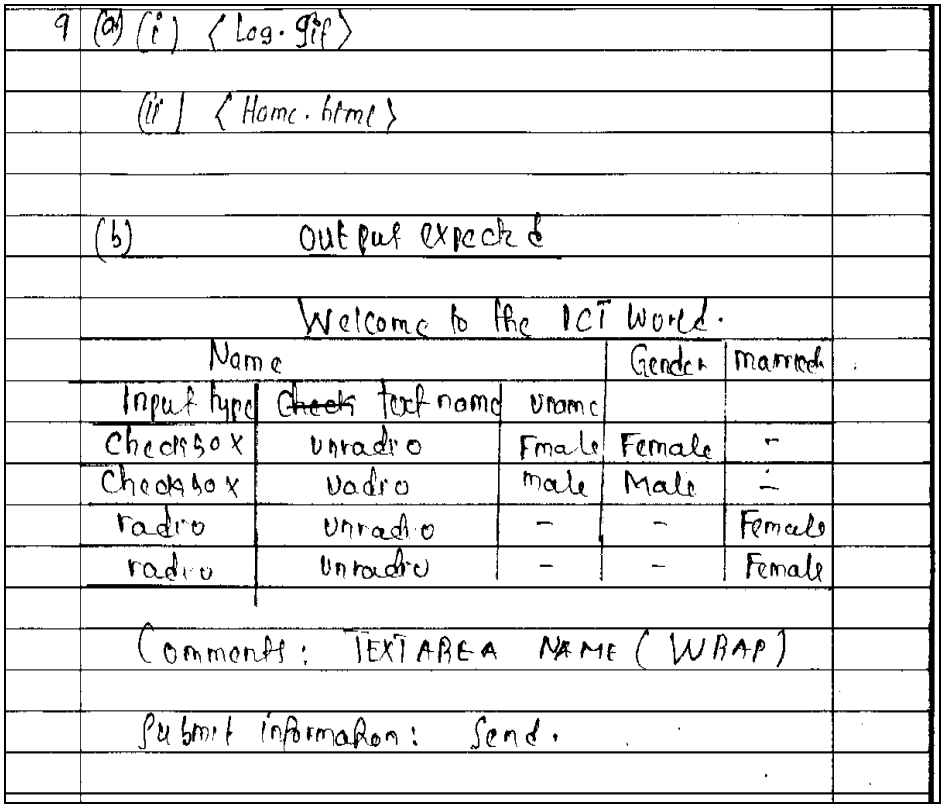


Extract 9.1: A sample of a correct answer on question 9.

Extract 9.1 shows a response from a candidate who wrote the correct tags to link an image and a page in part (a). The candidate also gave the correct in part (b).

Further analysis showed that some of the candidates (34.8%) who got average marks stated an image tag “img” but they could not include the image source “src” to link the image “log.gif”. For example, one of the candidates wrote *<img></img>* in part (a). Other candidates managed to state the required codes to link the page but wrote the incorrect closing tag . For example, one of the candidates wrote * home</a href>* instead of <ahref = home.html>home. This indicates that the candidates lacked practical skills on designing web page by using HTML codes. In part (b), some of the candidates managed to provide the expected output but they interchanged checkboxes with radio buttons. Others explained the terms “log.gif” and "home.html" instead of giving tags to link the image and the page. For example, one of the candidates wrote *log.gif links the image to the webpage* and *home.html links the page to the webpage*.

Furthermore, (15.4%) of the candidates who performed low marks (0 to 2.5) displayed correctly all texts from the given HTML codes in part (b). But they failed to state the codes required to link an image “log.gif” and a page “home.html” in part (a). Some of the candidates wrote <image> to link an image instead of <img>. Other candidates repeated to write the same HTML codes provided from the question. This signifies that the candidates did not understand the requirement of the question. Extract 9.2 gives a sample of a poor response.


9 (a) (i) <Log.gif>

(ii) <Home.html>

(b) Output expected

Welcome to the ICT World.

Name			Gender	married
Input type	~~Check~~ text name	Name		
Checkbox	Unradio	Fmale	Female	-
Checkbox	Radio	male	Male	-
radio	Unradio	-	-	Female
radio	Unradio	-	-	Female

Comments: TEXTAREA NAME (WRAP)

Submit information: Send.

Extract 9.2: A sample of an incorrect answer on question 9.

Extract 9.2 shows the response of a candidate who was not able to write tags to link an image and a page in part (a). Also, the candidate mentioned input type, textname and gender type instead of arranging and drawing them.

2.10 Question 10: Multimedia

This question had three parts (a) and (b) with the following questions:

(a) Form Four students in your neighbour secondary school are expecting to conduct their graduation ceremony. They are required to give a presentation on their success in the four years of study in secondary education. The students asked you to prepare an animated script with a combination of their pictures, text that describes the pictures and a background sound related to the content.

(i) What concepts does animated script prepared represent?

(ii) Which one out of images, text and sound consumes a small space in a storage media?

(b) Explain the usefulness of the combination of pictures, text and sound in education, public places, industry and medicine.

This question was attempted by 2,686 (96.4%) candidates out of whom 1,926 (71.7%) scored 0 to 2.5 marks, 625 (23.3%) got 3 to 6.0 marks and 135 (5%) scored 6.5 to 10 marks out of 10 the marks allocated. Figure 10 summarizes the candidates' performance for this question.

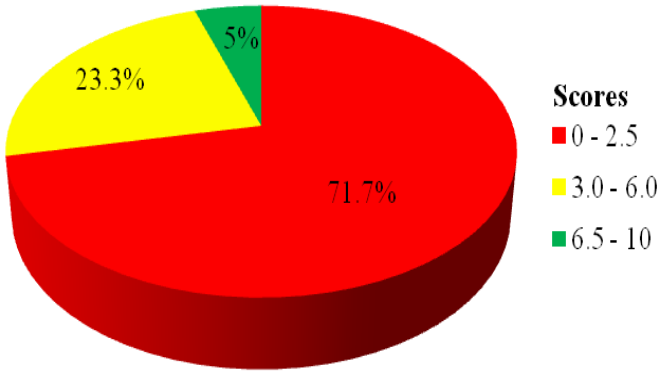
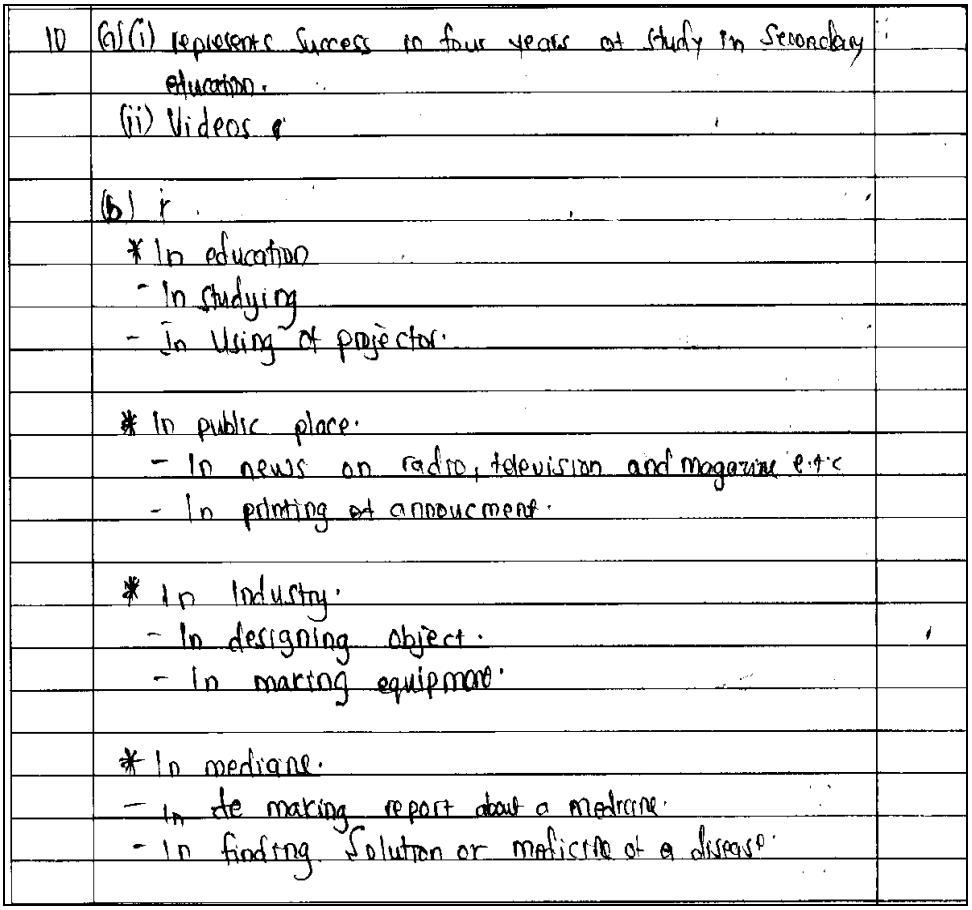


Figure 10: *The candidates' performance on question 10.*

The general performance of the candidates for this question was poor because 71.7 per cent of the candidates scored below 3 marks. The analysis carried out in the scripts of the candidates showed that most of the candidates who scored low marks (0 to 2.5) wrote Power point which is presentation. The candidates misinterpreted the term “presentation” which used PowerPoint. The candidates failed to understand that text, animated pictures and background sound are the key elements of multimedia. However, in part (a) (ii), some of the candidates wrote image or sound consume small space in a storage media instead of text. This shows that, the candidates were not aware with the size of multimedia elements. In part (b), most of the candidates were able to show the usefulness of multimedia in education, public places, industry and medicine. However, they failed to explain in detail how those elements can be applied to solve different problems related to the given areas. This indicates that the candidates had insufficient knowledge on multimedia. Extract 10.1 presents the sample of incorrect responses.



Extract 10.1: A sample of an incorrect answer on question 10.

Extract 10.1 shows responses of a candidate who failed to give the software which is used to prepare animated scripts. The candidate wrote video instead of text as a multimedia element that consumes a small size of a storage media. The candidate also wrote the uses of computers in education, public places, industry and medicine instead of multimedia.

Moreover, the candidates who scored average marks (3 to 6.0) wrote in part (a) multimedia as the concept of animated script prepared. They also wrote text as the multimedia element which consumes small space in the storage media out of image and sound. In part (b), the candidates were able to explain how multimedia helps teachers in teaching subjects but they could not explain the importance of multimedia in their learning processes. Some of the candidates explained that multimedia gives good attraction to the

advertisement in public but they did not explain how the message can be delivered to the audience. They also had an idea that multimedia increases production in industry but they failed to explain the means provided by multimedia to increase production. Other candidates could not understand the usefulness of multimedia in medicine. For example, one candidate wrote, *it can help patient to use medicine.* This shows that the candidates made a direct translation of the term "medicine" as it is found from the question.

On other hand, a few candidates who performed well in this question answered correctly part (a). They also managed to give the correct usefulness of the combination of picture, text and sound in education, public space, industry and medicine in part (b). Some of the candidates gave unsatisfactory explanations on the use of multimedia in medicine. The candidates wrote explanations based on medicine and diseases. Furthermore, they failed to relate multimedia and treatment done by the doctor to the patient. This led them to lose some marks. Extract 10.2 presents a sample of good responses.

10. a/ i/ Multimedia application.

ii/ Text consumes a small space.
Because, in text 1 character = 1 bit.

b/ The combination of pictures, text and sound in general is referred to as Multimedia. It is very useful in the following fields;

i/ In Education, Multimedia is used to prepare learning and teaching materials for instance videos like tutorials, notes and practicals.
It is also used to prepare speeches and various presentations for the students or learners.
It is also used by researchers to present their discoveries through videos captured in their studies.

ii/ In Public places; Multimedia is used to provide information, warnings and alerts and instructions for various activities proceeding in the area. For instance through images and sound or videos.

iii/ In industry, Multimedia is used to execute various basic instructions to the workers, information and warnings.
It is used to decorate the products manufactured for instance by printing labels with images of which to attract consumers.

iv/ In medicine, Multimedia is used to prepare the images of surgeries and infections in the human bodies.
It is also used in registration and administering of patients in the hospitals and other medical centres For instance, by their images / pictures.

Extract 10.2: A sample of a correct answer on question 10.

Extract 10.2 shows the response of a candidate who managed to mention the software that can be used to prepare animated scripts. The candidate also wrote text as a multimedia element that consumes small size in a storage device and explained correctly uses of multimedia in education, public places, industry and in medicine.

2.11 Question 11: The Internet

This was an optional question which required the candidates to explain four points to support the motion which stated that "Internet causes more harm to students than benefit".

This question was opted by 2,677 (96.1%) of candidates, out of whom 308 (11.5%) scored 0 to 2.5 marks, 1,333 (49.8%) scored 3 to 6 marks, 1,036 (38.7%) scored 6.5 to 10 marks out of 10 the marks allocated. Figure 11 presents the candidates' performance for this question.

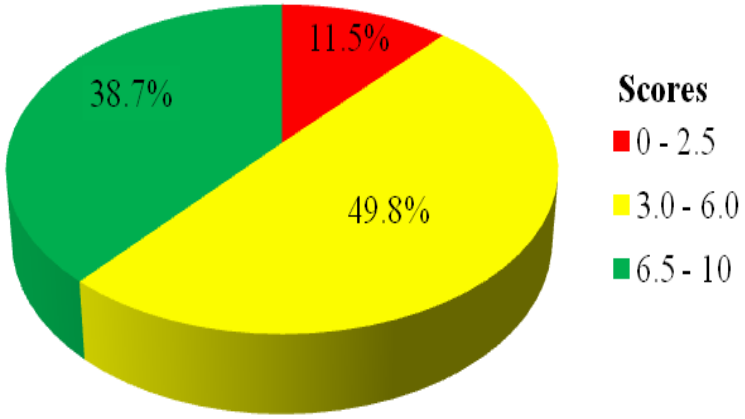


Figure 11: *The candidates' performance on question 11.*

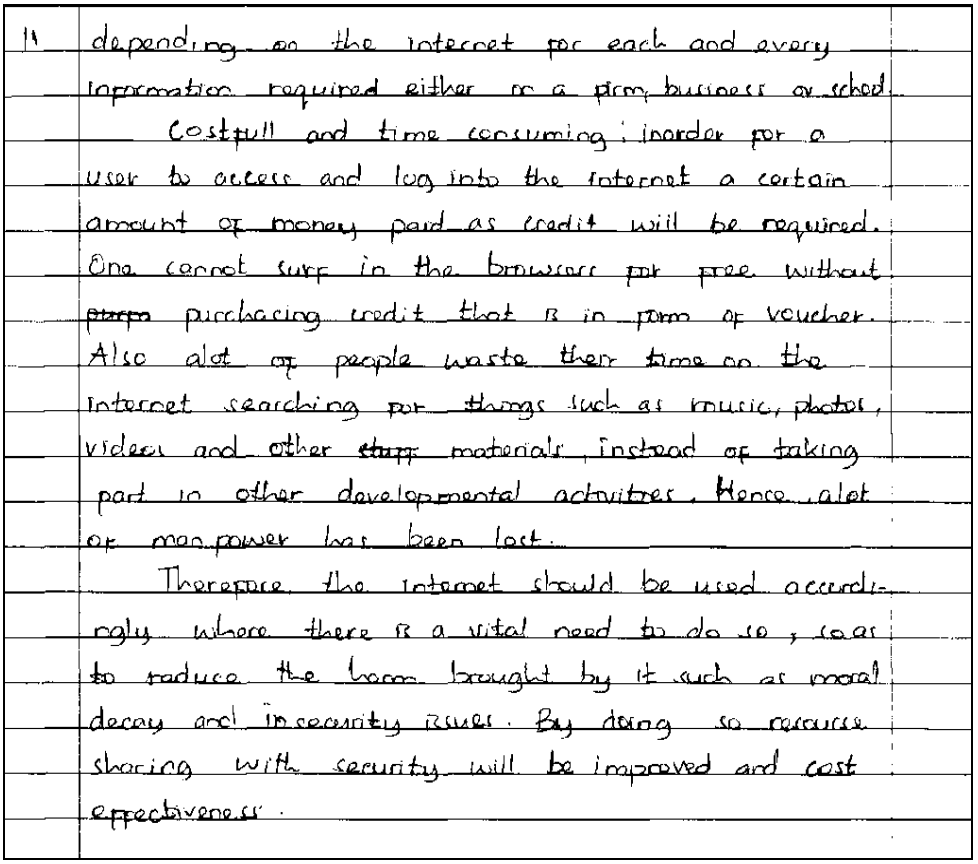
Figure 11 illustrates that, 88.5 per cent of the candidates scored above 2.5 marks. These indicate that the candidates had adequate knowledge on the topic on internet. The analysis showed that (38.7%) of the candidates who scored high marks (6.5 to 10) was able to give the correct points required to support the motion as well as to give correct explanations. Some of the candidates managed to give the correct points but failed to give the correct introduction as well as the conclusion. Other candidates wrote the correct points which supported the motion with correct introduction and conclusion but failed to give sufficient explanations to all points. A few candidates repeated all points explained as the conclusion instead of making conclusion which gives measure to control effect of internet to student. Extract 11.1 shows a sample of a correct response.

11 Internet is a world wide connection of networks. It was established ~~for the purpose of~~ increasing interconnectedness among computer networks and people so that it can help in resource sharing, distributed facilities and remote communication. Through Browsers and search engine one is able to retrive data, information or files and search for narrow, specific information. Although internet is of benefit there are some disadvantages accompained by it. The following are the harms brought by the internet.

Moral decay; through the internet, youth have been increasingly deviating from their culture, values and norms. The social networks example facebook and instagram have been the leading sites where youth get the chance to view other celebrities way of life ~~or~~ in the metropolitan, ~~or~~ upload pictures which are indescent. Also people have been greatly exposed to drugs, poor dressing style and lifestyle ~~of intruble~~. In whole.

Insecurity issues; the internet has paved a way to various crimes related with the network issues. such as hacking, cyberbullying and fraud. Unauthorized users invade into someone's confidental information and mess with the contents. Example one can transfer money from someone's else account without the person's notice or permission. Thus, it has been an issue in storing information.

Over-reliance on the internet; through the Internet one can download information to the computer, access academic information. But people have been over-reliant on the internet such that they fail to brainstorm their minds,


11 depending on the internet for each and every information required either as a firm business or school.
Costfull and time consuming; inorder for a user to access and log into the internet a certain amount of money paid as credit will be required. One cannot surf in the browsers for free without purchasing credit that is in form of voucher. Also alot of people waste their time on the internet searching for things such as music, photos, videos and other ~~stuff~~ materials, instead of taking part in other developmental activities. Hence, alot of man power has been lost.
Therefore, the internet should be used accordingly where there is a vital need to do so, so as to reduce the boom brought by it such as moral decay and insecurity issues. By doing so resource sharing with security will be improved and cost effectiveness.

Extract 11.1: A sample of a correct answer on question 11.

Extract 11.1 shows a response of a candidate who managed to support correctly the motion. The candidate also gave a correct introduction, conclusion and explained correctly points in support of the motion "Internet causes more harm to students than benefit".

Further analysis showed that (49.8%) of the candidates who got average marks (3.0 to 6) managed to give some of the points with correct explanations but failed to write and explain other points. Some of the candidates focused on explaining the indicators of moral decay instead of explaining the main points. For example, one of the candidates wrote pornography, drug abuse, dressing style, hair style and abusive language as the main points. This led them to lose some marks. Others mentioned points with insufficient explanation.

On the other hand, some of the candidates (11.5%) who scored low marks (0 to 2.5) mentioned some points but failed to give proper explanations. They also wrote correctly the introduction on the internet. Some of them addressed debate procedures as they introduced the motion to the audience. For example, one candidate introduced as, *Thank you chairperson, headmaster, student and all members of the flow*. Other candidates failed to understand the requirements of the question. These ones mentioned the benefit of internet instead of points that will cause harm to students from the internet. For example, one candidate wrote *It help on searching material, It help for learning, It simplify work* and *It create awareness*. Extract 11.2 provides a sample of incorrect responses.

11.

MOTION,
"INTERNET CAUSES MORE HARM TO STUDENTS THEN BENEFIT"

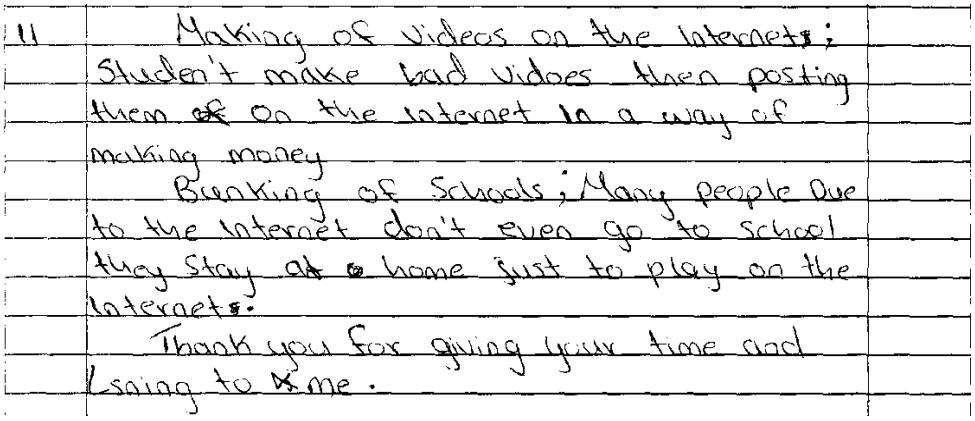
Honorable, guest of honor, Assistant Time keeper, And my dear fellow Student, Good ~~A~~ Evening To you all.

Asmalam alykum, Shikamo. Today is a very beatiful evening I hope you all are enjoing that we are gathered around here today of for the debate.

Todays debates motione is "INTERNET CAUSES MORE HARM TO STUDENTS THEN BENEFIT". I am here to Oppose the motion Yes Internet is a harm to Students I agree with it. The following are the reasons.

Watching of bad videos on the Internet; Example of videos are "pron videos" 18+ videos, this is a big harm to the Students because they Study less and there all mind is on the videos.

Students don't Study; Student are not Studing and there using phones for Internet and doing things they are not Supposed to do, Example; Many Students west there all time on using phones while they have a lot of time to go and Study for them selfs infact no any Students use Internet in a good way.


11 Making of videos on the internets; Studen't make bad vidoes then posting them ~~of~~ on the internet is a way of making money
Breaking of Schools; Many people Due to the internet don't even go to school they stay ~~at~~ home just to play on the internets.
Thank you for giving your time and Listing to me.

Extract 10.1: A sample of an incorrect answer on question 10.

Extract 11.2 shows a response of a candidate who gave incorrect points to support the motion with incorrect introduction and conclusion.

2.12 Question 12: Computer Handling

This question was optional and it required the candidates to explain four risks the school faces by not creating a backup.

This question was opted by few candidates. The statistics show that 85 (3.1%) candidates opted this question. Among them 33 (38.8%) scored 0 to 2.5 marks, 28 (32.9%) scored 3 to 6 marks, and 24 (28.2%) scored 6 to 10 marks out of the 10 marks allocated. Figure 12 gives the summary of the candidates' performance for this question.

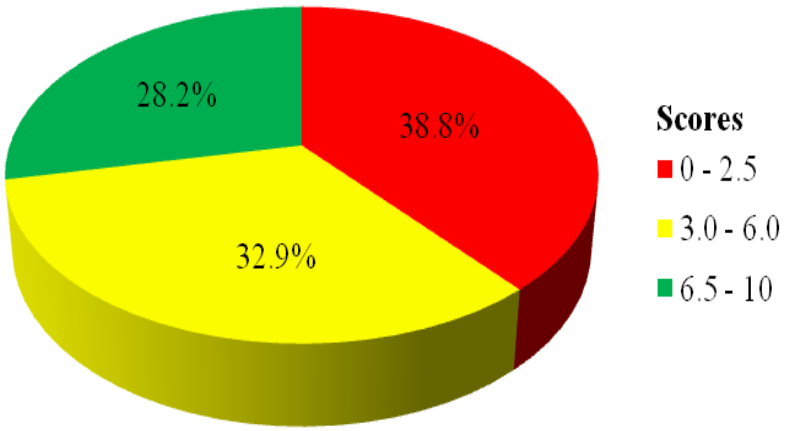


Figure 12: *The candidates' performance on question 12.*

Figure 12 illustrates that the general performance for this question was good as 61.1 per cent of the candidates scored above 2.5 marks. The analysis showed that (38.8%) candidates who scored low marks (0 to 2.5) failed to explain the risks the school faces by not creating a backup. Instead, they explained the consequences the school faces for not creating a backup. For instance, some of the candidates wrote; *the school will lose the students database, the school will incur some expenses to have new database, the school will incur some expenses to have new database, the dean would be healed responsible for loosing data that may lead the dean to be fired*. The candidates seemed not to understand that the risks for not creating a backup included virus attack, unexpected malfunction, disk failure, natural calamities or computer theft. Some of the candidates managed to define data backup but failed to explain the risks. One of the candidates regarded data backup as antivirus; the candidate explained that data backup help a computer to be away from the virus. Extract 12.1 presents a sample of incorrect responses.

12

Backup is the process of storing files and folders in external drives for safety if the original files get destroyed or lost. The following are the importances of not backing up files.

By not creating backups you are in the risk of not having backed up information if the original one is destroyed or forgoten

Loosage of time because if files are destroyed ~~your~~ or lost, you are automatically forced to create knew files what will take a long time to make.

Also not creating backup there is a risk of not having reserve files which can help you in the future if ~~the~~ you delete the file.

If files are not backed up it will cause a problem in the future if the ~~ob~~ dean is relocated and a new deem comes and want to know previous academic performances and he find there are no files which were backedup for safety reason.

Without backing up our files we can not manage storage of files manually because sooner or later they will be damaged and destroyed or lost which leaves us with nothing so I advise fregnent back ups of file for our own safety

Extract 12.1: A sample of an incorrect answer on question 12.

Extract 12.1 shows the response of a candidate who managed to define the term "back up" and make conclusion but failed to explain four risks the school faces by not creating a backup.

Furthermore, (32.9%) candidates who had average performance (3 to 6) marks managed to write the introduction and explained some risks. Some of the candidates listed the points without giving explanations.

Further analysis shows that (28.2%) candidates who got high scores (6.5 to 10) marks were able to give an appropriate introductions, explanations of the risks the school faces by not creating a backup and giving appropriate conclusions. Other candidates failed to explain in detail some of the risks which led them to lose some marks. Extract 12.2 presents a sample of correct responses.

12. Back up is the act of making copies of files and documents to ensure safety of the data from data loss. Back up is an utility software that does routine tasks for the user. One can back up his/her files in primary and secondary storage devices. Secondary secondary devices include flash, floppy disk, optical storage such as compact disk, digital versatile disk, hard disk, Magnetic disk and many other storage devices. Back up is important as it helps in availability of data even when there is loss of original data. Keeping school's important information through back up is very important. Failure to do this one can get into many risks. The following are some of the risks that the school may face by not creating a backup for their important school information.

Failure to create back up can lead to data loss through Malicious Software. Malicious Software are programms that does things in the computer without the users consent. Examples of such Malware are such as Virus, Worm, Trojan horse, Adware, Spyware. These software some such as Virus attach itself to a document and make it to produce its own copy. Also Worms replicate themselves. All these can cause damage to the data and the data can be lost. Thus because there won't be any back up of information the whole information will be lost.

12. Failure to create back up can lead to misinforming of users due to Alteration. Alteration is the illegal modification of data for the purpose of mis-informing or misleading the users. Now when there won't be any back up for the information the users might get mislead information if anyone in the school will do alteration. They won't have any place to look or again to check if the information being represented is true or not. They will be mislead because they didnot have any back up for their information that its easy to alter the information and misleading them and thus causing alot of problems, such as loss of money due to theft and other crimes.

Failure to create back up for the Information may cause data destruction through Sabotaging. Sabotage is the illegal destruction of data or information for the purpose of creating great loss to an organization. If the school won't create back up for their information they are at risk of their information to be destructed and bringing great loss to the school. As they won't have any reliable thing or place where they can replace or retrieve their information back. And they will loose everything which is a very great loss. The ones who does sabotage might be their competors who want to succeed more than them. Therefore the school needs to create back up to their information so as even when there is Sabotage they can still have somewhere else where they can be assure of reliable information of theirs and preventing loss to the organisation.

Failure to create back up for the Information can cause data loss due to Piracy. Piracy is the illegal / intellectual illegal copying of data. If

12. the school didnot create back up they are at risk of loseing their data due to piracy. When the data is stolen they won't have any place where they can get their data or Information again. And those who stole the data can use it against themselves and cause great damage to the organization. Example they can use the data to get money from them. And thus because they do not have any other choice they pay for their own data and thus loose money which is a very great loss.

Conclusively these are the risks which the school may face by not creating a back up to their important school's information. Back up is very impeitant to an organisation. As it prevents data loss, data destruction, misinforming / misleading of the users, prevent loss of money and ensures availability of the data whenever it is needed even though the origin data is destructed. Thus the organisation needs to create back up for the Information so as to prevent all the risks.

Extract 12.2: A sample of a correct answer in question 12.

Extract 12.2 shows the response of a candidate who managed to explain correctly the four risks the school faces by not creating a back up. The candidate also, gave the correct introduction and a sound conclusion.

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

3.1 Question 1: Spreadsheets

The candidates were required to read the information given in the worksheet which showed the end of the year 2019 promotional results of the Form Two (F2) students from Modern Secondary School. The following worksheet was given.

	A	B	C	D	E	F	G	H	I	J
1	FORM THREE ANNUAL EXAMINATION RESULTS 2019									
2	Index No	STUDENT NAME	MATHEMATICS	ENGLISH	COMPUTER	PHYSICS	TOTAL	AVERAGE	POSITION	COMMENT
3	S0104/23	Mike J.	87	63	70	45				
4	S0104/24	John M.	78	46	67	61				
5	S0104/25	Flavia H.	57	45	87	32				
6	S0104/26	Fred N.	67	56	32	45				
7	S0104/27	Fahad A.	65	26	33	25				
8	S0104/28	Joseph B.	47	79	86	15				
9	S0104/29	Oliver J.	79	58	54	38				
10	S0104/30	Mercy G.	23	27	36	75				
11	S0104/31	Isa A.	12	85	71	62				
12	S0104/32	Deo R.	39	46	14	65				
13	S0104/33	Ally Z.	79	18	20	8				
14		TOTAL								

The asked questions were as follows:

(a) Create the given worksheet and save it as “Modern SS”.

(b) Use the function to calculate the total marks and the average marks for each student (round off the average marks to one decimal place).

(c) Use appropriate function to generate the position for each student.

(d) Students with an average of 65 and above are to be “promoted to F3”; students with an average of 50 to 64 must “reseat the examination” while students with an average below 50 should “repeat F2”. Use functions to generate the comments accordingly.

(e) Insert a row in cell A15. Merge cells (A to J) and type "The total number of students required to repeat F2".
(f) Generate a function in K15 which will return the number of students who scored an average of below 50.
(g) Validate the students marks to be entered by a user to whole number from 0 to 100 inclusive. Use an appropriate warning message to alert a user.
(h) Create a three dimensional pie chart (with labelled data) of total marks for each subject against subject names.
(i) Print your document.

This question tested the candidates' knowledge on the application of spreadsheet. A total of 2,466 (88.6%) candidates attempted this question, out of whom 140 (5.7%) scored 0 to 7 marks, 1,155 (46.8%) scored 7.5 to 16 marks and 1,171 (47.5%) scored 16.5 to 25 marks out of the 25 marks allocated. Figure 13 illustrates the candidate's performance in this question.

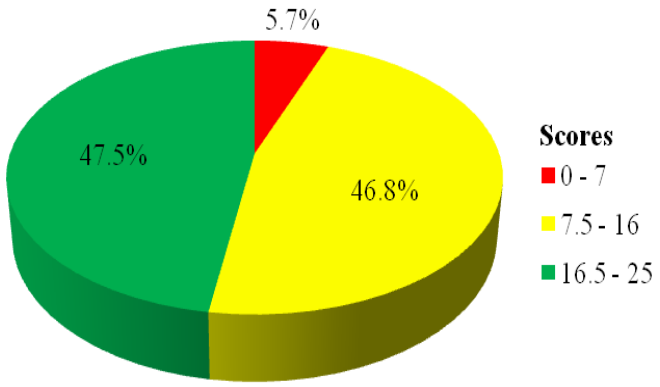
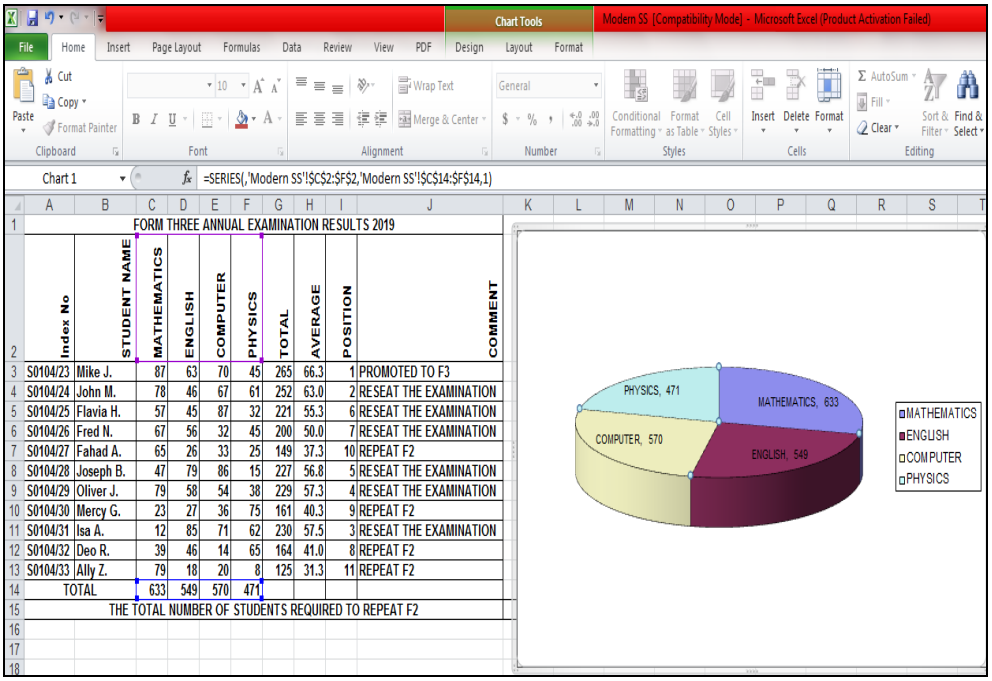


Figure 13: *The candidates' performance on question 1.*

Figure 13 shows that 94.3 per cent of the candidates scored above 7 marks. Generally, the candidates' performance for this question was good. The candidates (47.5%) who scored high marks were able to open Ms Excel, create the worksheet and save it as ''Modern SS". They were also able to perform most of the required formatting like merging cells and text orientation to 90^0, applying bolding and entering the required data correctly. The analysis revealed that the candidates also were able to use the functions to calculate total for each subject and each student's averages

and assigning a position for each student. It was observed that some of them managed to generate comments for each student based on the criteria given. The candidates created three dimensional pie charts with labelled data of total marks for each subjects against subject names and finally print out their work. This shows that these candidates had enough knowledge and skills on Microsoft excel (spreadsheet). On the other hand, some candidates had difficulties in selecting the proper data required to create the three dimension pie chart i.e. subject names against total subject marks which led them to lose some marks. Extracts 3.1.1 signifies a sample of such correct responses.



FORM THREE ANNUAL EXAMINATION RESULTS 2019

Index No	STUDENT NAME	MATHEMATICS	ENGLISH	COMPUTER	PHYSICS	TOTAL	AVERAGE	POSITION	COMMENT
S0104/23	Mike J.	87	63	70	45	265	66.3	1	PROMOTED TO F3
S0104/24	John M.	78	46	67	61	252	63.0	2	RESEAT THE EXAMINATION
S0104/25	Flavia H.	57	45	87	32	221	55.3	6	RESEAT THE EXAMINATION
S0104/26	Fred N.	67	56	32	45	200	50.0	7	RESEAT THE EXAMINATION
S0104/27	Fahad A.	65	26	33	25	149	37.3	10	REPEAT F2
S0104/28	Joseph B.	47	79	86	15	227	56.8	5	RESEAT THE EXAMINATION
S0104/29	Oliver J.	79	58	54	38	229	57.3	4	RESEAT THE EXAMINATION
S0104/30	Mercy G.	23	27	36	75	161	40.3	9	REPEAT F2
S0104/31	Isa A.	12	85	71	62	230	57.5	3	RESEAT THE EXAMINATION
S0104/32	Deo R.	39	46	14	65	164	41.0	8	REPEAT F2
S0104/33	Ally Z.	79	18	20	8	125	31.3	11	REPEAT F2
TOTAL		633	549	570	471				

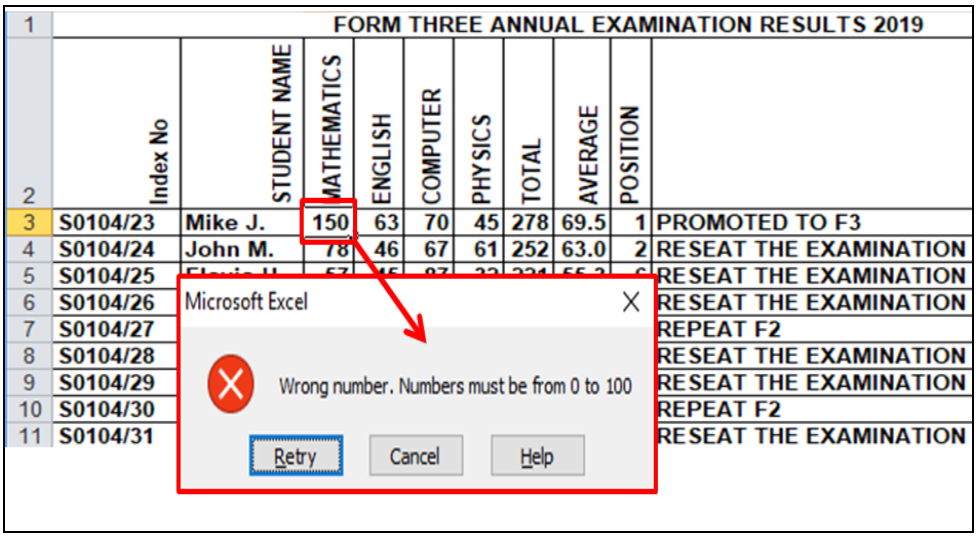
THE TOTAL NUMBER OF STUDENTS REQUIRED TO REPEAT F2

2	Index No	STUDENT NAME	MATHEMATICS	ENGLISH	COMPUTER	PHYSICS	TOTAL	AVERAGE
3	S0104/23	Mike J.	87	63	70	45	=SUM(C3:F3)	=AVERAGE(C3:F3)
4	S0104/24	John M.	78	46	67	61	=SUM(C4:F4)	=AVERAGE(C4:F4)
5	S0104/25	Flavia H.	57	45	87	32	=SUM(C5:F5)	=AVERAGE(C5:F5)
6	S0104/26	Fred N.	67	56	32	45	=SUM(C6:F6)	=AVERAGE(C6:F6)
7	S0104/27	Fahad A.	65	26	33	25	=SUM(C7:F7)	=AVERAGE(C7:F7)
8	S0104/28	Joseph B.	47	79	86	15	=SUM(C8:F8)	=AVERAGE(C8:F8)
9	S0104/29	Oliver J.	79	58	54	38	=SUM(C9:F9)	=AVERAGE(C9:F9)
10	S0104/30	Mercy G.	23	27	36	75	=SUM(C10:F10)	=AVERAGE(C10:F10)
11	S0104/31	Isa A.	12	85	71	62	=SUM(C11:F11)	=AVERAGE(C11:F11)
12	S0104/32	Deo R.	39	46	14	65	=SUM(C12:F12)	=AVERAGE(C12:F12)
13	S0104/33	Ally Z.	79	18	20	8	=SUM(C13:F13)	=AVERAGE(C13:F13)
14	TOTAL		=SUM(C3:C13)	=SUM(D3:D13)	=SUM(E3:E13)	=SUM(F3:F13)		
15								THE TOTAL NUMBER OF STU

XAMINATION RESULTS 2019

POSITION	COMMENT
=RANK(H3,$H$3:$H$13,0)	=IF(H3>=65,"PROMOTED TO F3",IF(H3>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H4,$H$3:$H$13,0)	=IF(H4>=65,"PROMOTED TO F3",IF(H4>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H5,$H$3:$H$13,0)	=IF(H5>=65,"PROMOTED TO F3",IF(H5>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H6,$H$3:$H$13,0)	=IF(H6>=65,"PROMOTED TO F3",IF(H6>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H7,$H$3:$H$13,0)	=IF(H7>=65,"PROMOTED TO F3",IF(H7>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H8,$H$3:$H$13,0)	=IF(H8>=65,"PROMOTED TO F3",IF(H8>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H9,$H$3:$H$13,0)	=IF(H9>=65,"PROMOTED TO F3",IF(H9>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H10,$H$3:$H$13,0)	=IF(H10>=65,"PROMOTED TO F3",IF(H10>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H11,$H$3:$H$13,0)	=IF(H11>=65,"PROMOTED TO F3",IF(H11>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H12,$H$3:$H$13,0)	=IF(H12>=65,"PROMOTED TO F3",IF(H12>=50,"RESEAT THE EXAMINATION","REPEAT F2"))
=RANK(H13,$H$3:$H$13,0)	=IF(H13>=65,"PROMOTED TO F3",IF(H13>=50,"RESEAT THE EXAMINATION","REPEAT F2"))

DENTS REQUIRED TO REPEAT F2 =COUNTIF(H3:H13,"<50")



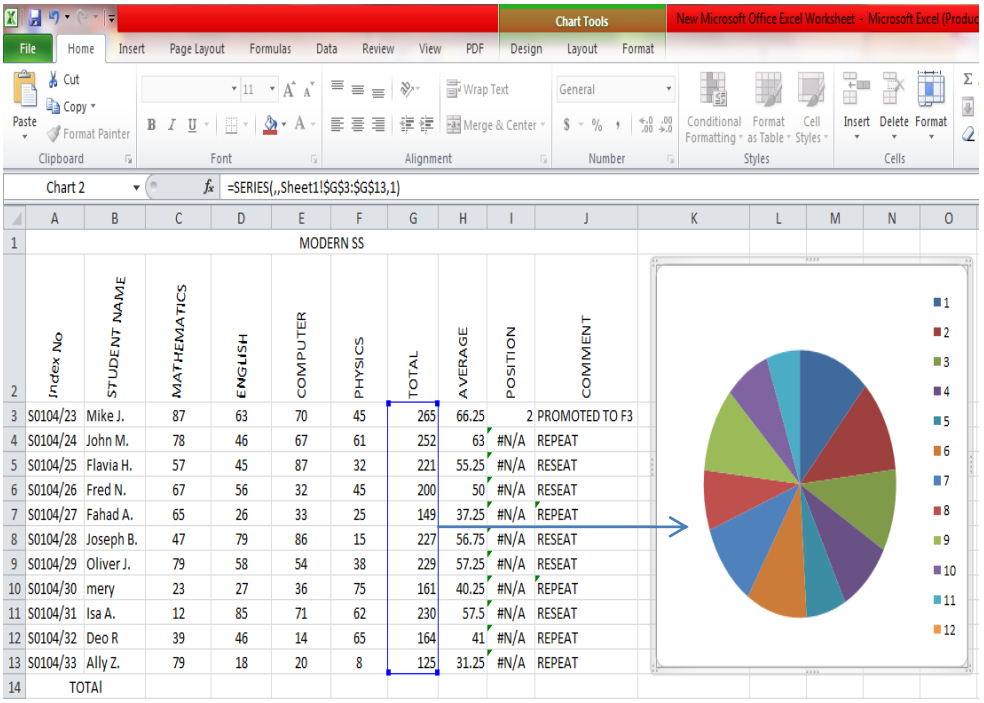
Extract 3.1.1: A sample of correct answer on question 1.

Extract 3.1.1 shows a sampled candidate who entered the data correctly, merged cells, aligned texts, and entered the correct functions for calculating totals, average, and positions. The candidates also generated comments and inserted a three dimension pie chart with the labelled data required. Likewise, the candidate was able to set data validation rule that prevents users from entering invalid data in cell. The candidate was also able to set the validation text to guide the user on the range of data required for that particular cell.

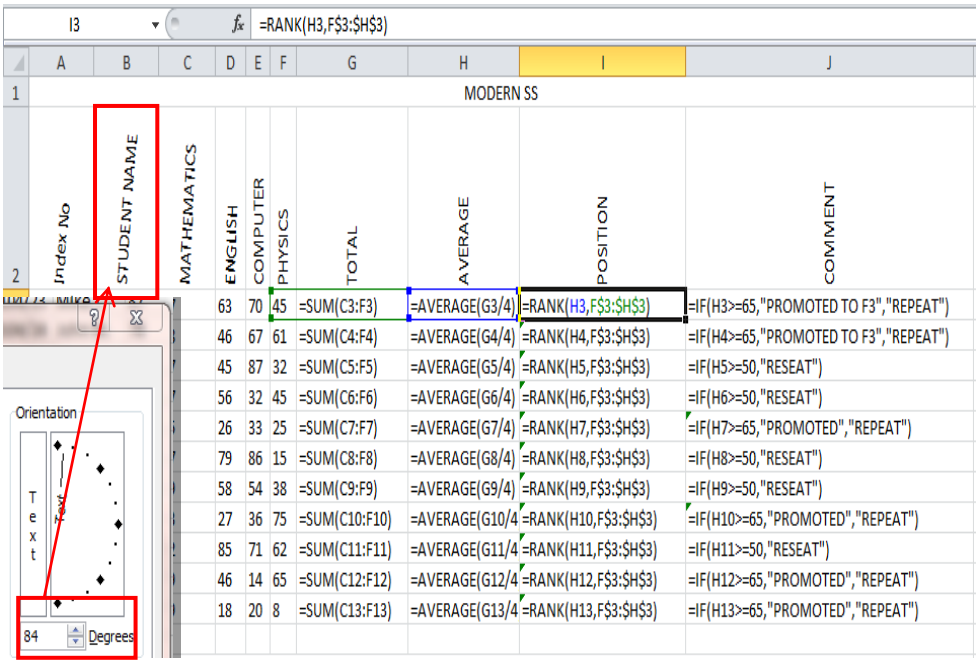
However, some of the candidates who scored average marks (7.5 to 16) created a correct worksheet but could not add borders, merge the title, add data in a pie chart and set data validation that prevent users to enter invalid data in subject cells i.e. marks from 0 to 100 inclusive. It was observed that some of the candidates failed to use appropriate function to calculate position and to generate comments. For example, one of the candidates wrote *"=IF (H3>=65,"PASS")"* instead of *"=IF (H3>=65,"promoted to F3", IF (H3>=50,"reseat the examination", IF(H3<50,"repeat F2")))"*.

The candidates (46.8%) who scored low marks (0 to 7) were able to create the worksheet, enter the data in the worksheet, manage to merge cells in the worksheet, bold, align and orient texts but failed to write accurate functions to find totals, average, positions and to generate comments. They also, used a formula to calculate the total for each subject, position and comment

instead of using functions. For example, one of the candidates wrote "*=(C3+D3+E3+F3) or =SUM/4"* for average. Some of the candidates created a two dimensional pie chart instead of a three dimensional pie chart as required. Moreover, they were unable to apply borders, rounding off students' average to one decimal place and dragging the formula. This shows that the candidates had poor knowledge and skills on using Microsoft excel. Extract 3.1.2 provides a sample of an incorrect response to question 1.



	A	B	C	D	E	F	G	H	I	J
1	MODERN SS									
2	Index No	STUDENT NAME	MATHEMATICS	ENGLISH	COMPUTER	PHYSICS	TOTAL	AVERAGE	POSITION	COMMENT
3	S0104/23	Mike J.	87	63	70	45	265	66.25	2	PROMOTED TO F3
4	S0104/24	John M.	78	46	67	61	252	63	#N/A	REPEAT
5	S0104/25	Flavia H.	57	45	87	32	221	55.25	#N/A	RESEAT
6	S0104/26	Fred N.	67	56	32	45	200	50	#N/A	RESEAT
7	S0104/27	Fahad A.	65	26	33	25	149	37.25	#N/A	REPEAT
8	S0104/28	Joseph B.	47	79	86	15	227	56.75	#N/A	RESEAT
9	S0104/29	Oliver J.	79	58	54	38	229	57.25	#N/A	RESEAT
10	S0104/30	mery	23	27	36	75	161	40.25	#N/A	REPEAT
11	S0104/31	Isa A.	12	85	71	62	230	57.5	#N/A	RESEAT
12	S0104/32	Deo R	39	46	14	65	164	41	#N/A	REPEAT
13	S0104/33	Ally Z.	79	18	20	8	125	31.25	#N/A	REPEAT
14	TOTAl									



Extract 3.1.2 A sample of incorrect answer on question 1.

Extract 3.1.2 shows the sample of an incorrect response from the candidate who failed to calculate subject totals, select proper data for the pie chart but also create a two dimensional pie chart instead of a three dimensional pie chart. The candidate also oriented some of the heading fields to 84^0 instead of 90^0 and gave incorrect functions to calculate average, rank and to enter comments.

3.2 Question 2: Management of Database as Information Systems

The question was as follows:

The manager of Korosho Sacco's (KS) decided to shift the members details from the local database (manual files) to the electronic database due to its efficiency in data manipulation. As an IT expert, you are required to:

(a) Create a database called “Mkulima” for keeping members details.

(b) Design two tables named "Employee" and "Loan" in the database created in part (a). The fields for each table are given in the following table;

Employee	Loan
PNo	Loan
NationalId	LoadDate
Firstname	Monthyl_Installement
LastName	Loan_Amount
Sex	PNo
Age	
Date_Employeed	
Salary	

Note: Use the appropriate data type for each field.

Table's descriptions

- Validate the age field so that members with the age below 20 should not be allowed in the database. Use appropriate message to inform the user.
- The letters to be used for gender/sex should be “F” and “M”.
- Validate a sex field so that a system should display a message “No such gender” when a user enters different character.

(c) Create a form by using form wizard and use it to enter the following records in the employee table. Save it as Employeeform.

PNo	NationalID	FirstName	LastName	Sex	Age	Salary	Date_Employed
201	12234	Alice	Shem	F	35	850,000	5/6/2000
203	12454	Daniel	Kam	M	38	700,000	27/1/1999
207	22734	Angel	Luga	F	26	200,000	3/4/2008
208	12534	Partricia	Goha	F	40	150,000	9/8/2012

(d) Create a form by using form wizard and use it to enter the following records in the Loan table. Save it as Loanform.

LoanNo	LoanDate	Monthly_instalments	Loan_Amount	PNo
1100	6/5/2011	200,000	1,000,000	201
1200	27/9/2006	100,000	1,200,000	203
2000	1/6/2013	50,000	600,000	207
1430	9/2/2014	25,000	500,000	208

(e) (i) Create a query that displays the PNo, NationalID, FirstName, LastName, LoanNo, LoanDate, Monthly_instalments and a calculated field "Total" which shows the instalments for each member per year. Save the query as Loanquery.

(ii) Generate a report based on Loanquery created in part (e) (i). Save it as Loan report.

(f) Print your document.

This question was attempted by 1,541(55.4%) candidates, out of whom 77(5.0%) scored 0 to 7 marks, 341 (22.1%) scored 7.5 to 16 marks and 1,123 (72.9%) scored 16.5 to 25 marks out of the 25 marks allocated. Figure 14 illustrates the candidate's performance for this question.

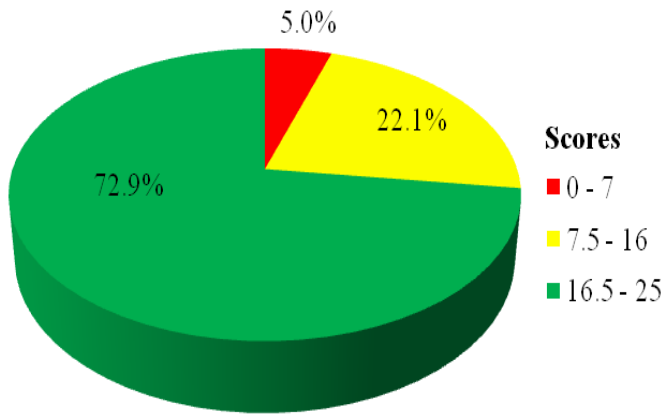
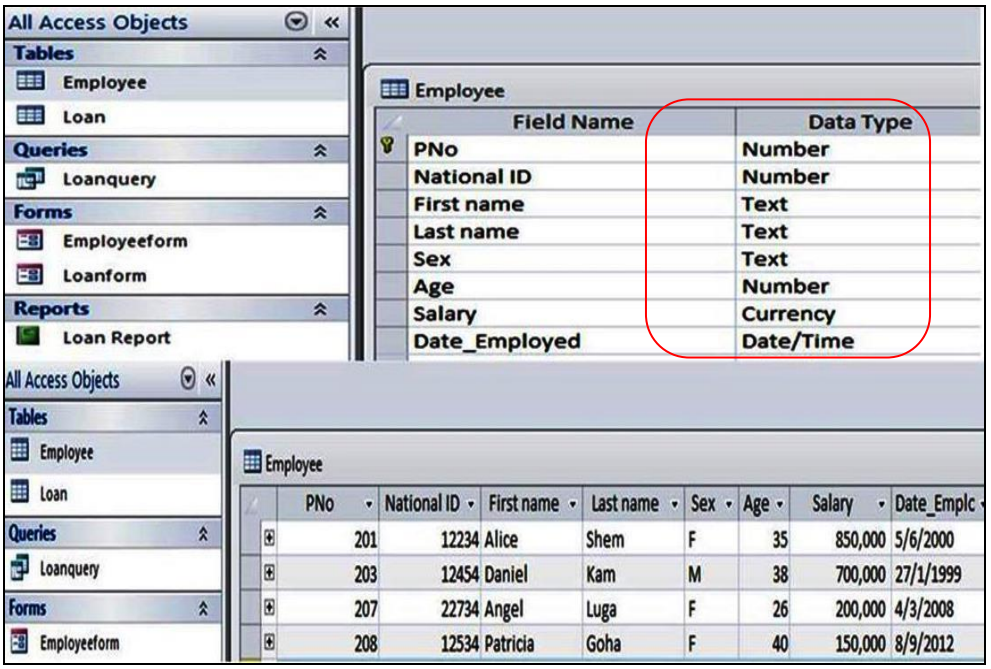
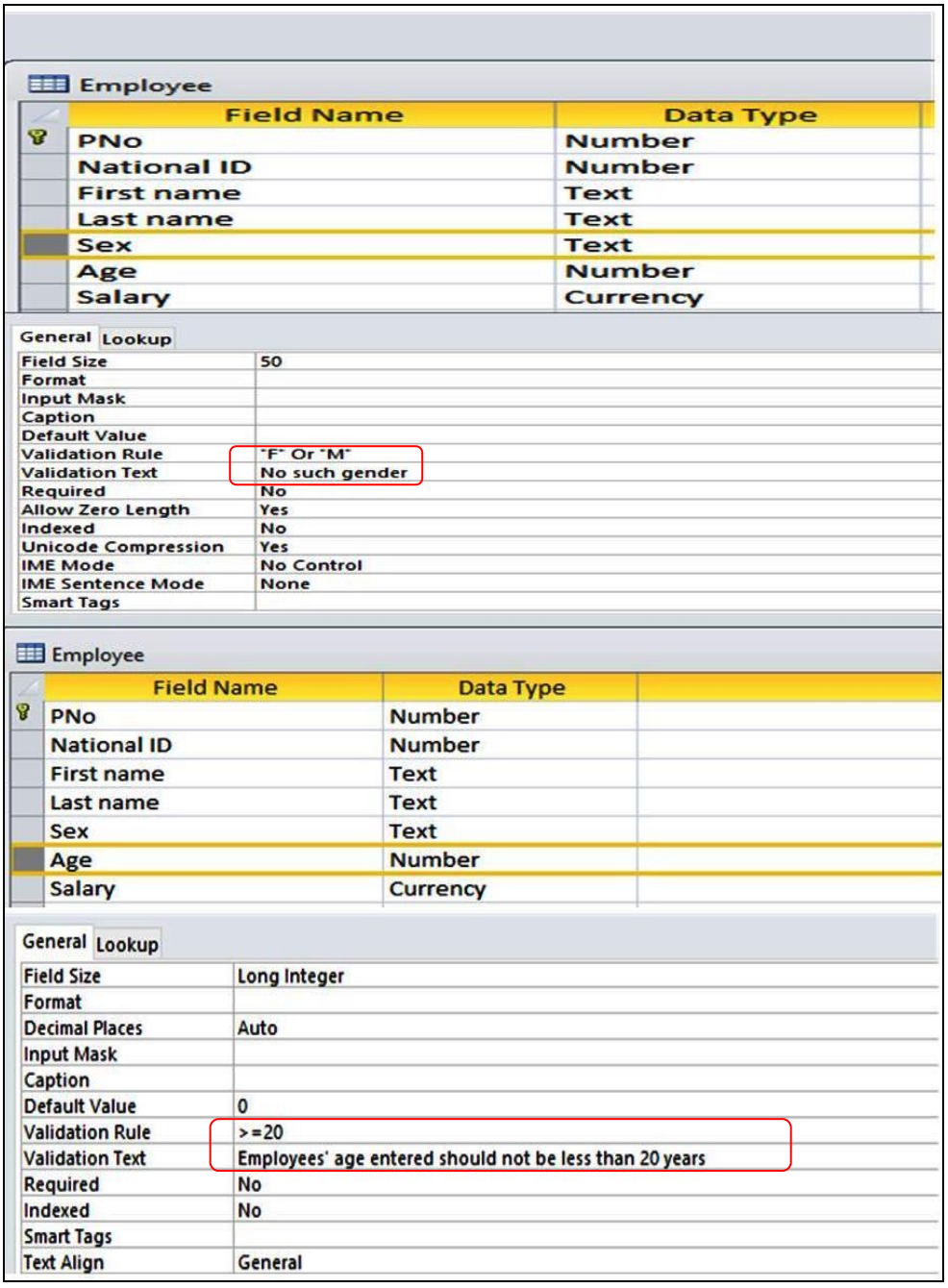


Figure 14: *The candidates' performance on question 2.*

The general performance of the candidates in this question was good because 95.0 per cent scored above 7 marks. Majority of the candidates (72.9%) who scored high marks were able to create the database correctly with its appropriate name and data types. It was noted that some candidates designed tables and created forms with proper names and a query which displays the instalment of each member per year. Moreover, some of the candidates were able to validate the field values for "Age" and "Gender" together with the appropriate validation text to be displayed when the rule/condition is violated. They also inserted a calculated field called "Total" in the Loanquery. Some of the candidates wrote correctly the

formula for finding members' total instalments per year. The correct formula was supposed to be written as "***Total: [Monthly_instalments]*12***". This revealed that those candidates had enough knowledge and skills required to design and manage database systems. Extracts 3.2.1 shows a sample of correct responses.





Employee

Field Name	Data Type
PNo	Number
National ID	Number
First name	Text
Last name	Text
Sex	Text
Age	Number
Salary	Currency

General | Lookup

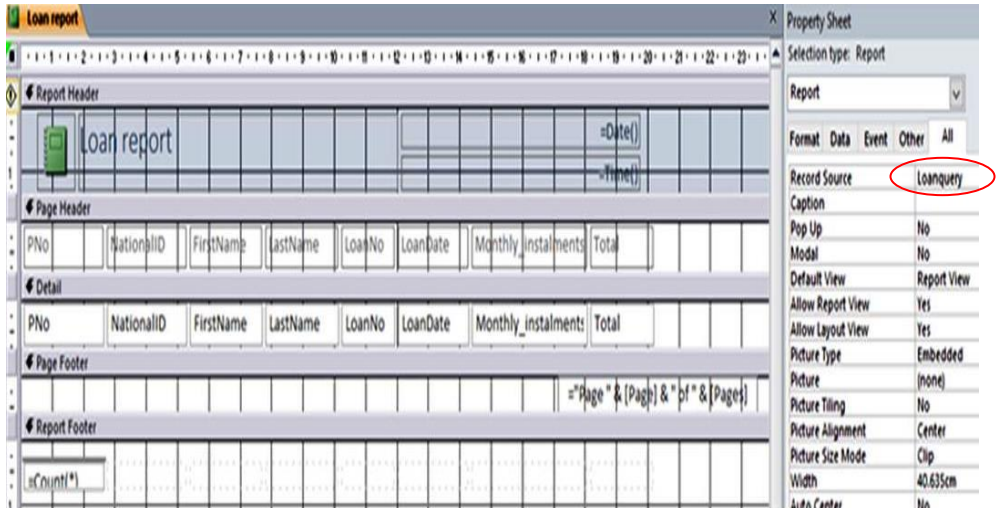
Field Size	50
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	"F" Or "M"
Validation Text	No such gender
Required	No
Allow Zero Length	Yes
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

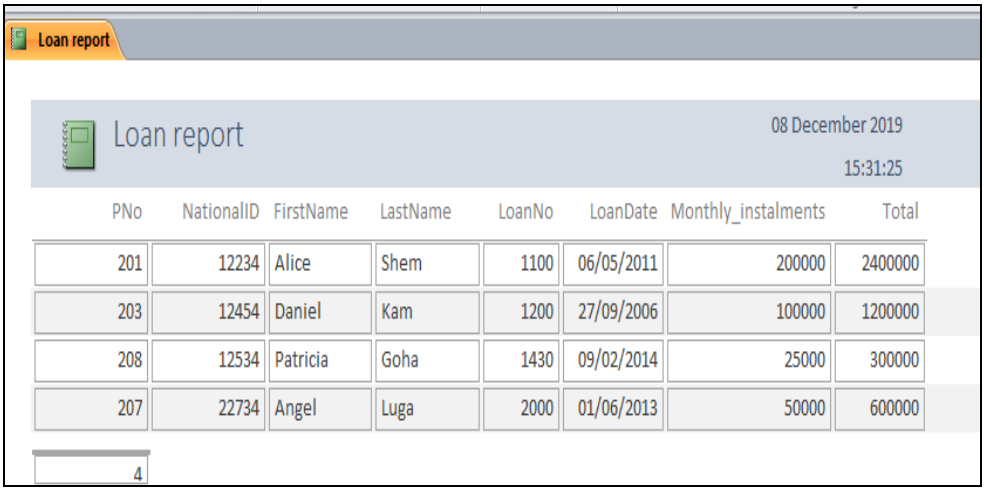
Employee

Field Name	Data Type
PNo	Number
National ID	Number
First name	Text
Last name	Text
Sex	Text
Age	Number
Salary	Currency

General | Lookup

Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	>=20
Validation Text	Employees' age entered should not be less than 20 years
Required	No
Indexed	No
Smart Tags	
Text Align	General





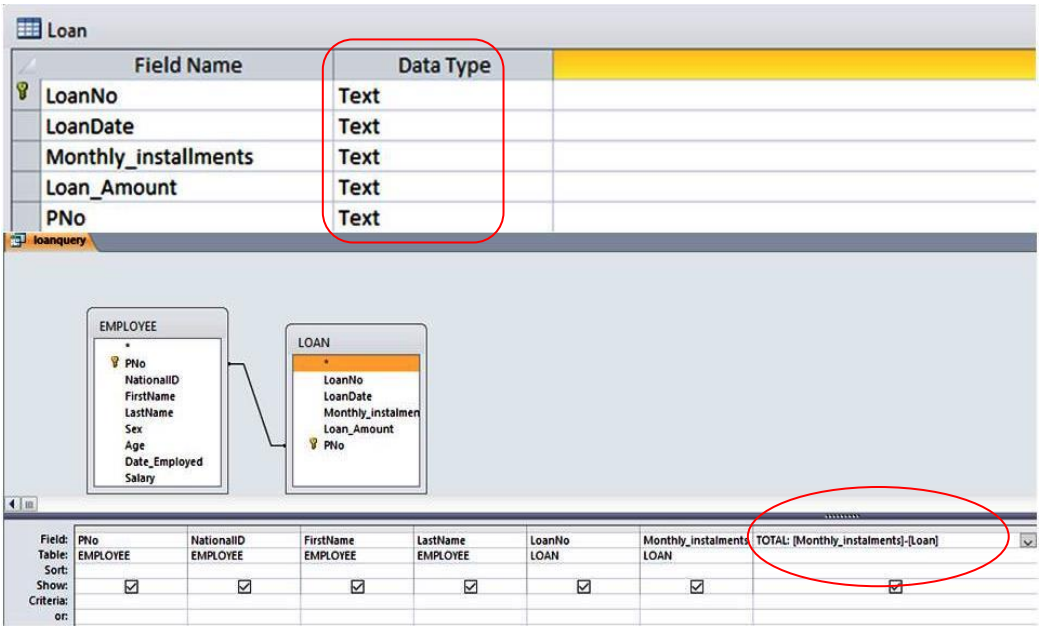
Extract 3.2.1: A sample of correct answer on question 2.

Extract 3.2.1 shows a sample of a candidate's response for the one who managed to design the table correctly with appropriate data types as well as the validation rule and validation text for Age and Gender fields. The candidate also managed to create a loan report which retrieves data from the loan query as demanded in the question.

On the other hand, (22.1%) candidates who scored average marks (7.5 to 16) managed to design tables, create forms from wizard and generate loan report from the loan query created, although they had difficulties in choosing the appropriate data types for particular field names. For example, some candidates assigned the data type "Memo" to FirstName and

LastName fields instead of data type “Text”. This indicates that the candidates had insufficient knowledge on the application of data types. Others were incapable of setting the validation rule and validation text, creating the relationship between the Employee table and Loan table as well as linking the appropriate field names for the relationship.

Lastly, a few candidates 77(5%) who scored low marks (0 to 7) had no knowledge and skills on the basics of Ms Access database. Some of them failed to create the database as instructed in the question. Others used Ms Office-word to create a table instead of Ms Access. On the other hand, some of them failed to choose appropriate data types for particular field names. It was noted that some of the candidates managed to create the database, setting primary keys, creating forms and designing query but they faced difficulties in saving the database as well as using wrong fields in creating the relationship between database tables created. Extract 3.2.2 shows a sample of an incorrect answer from one of the candidates.

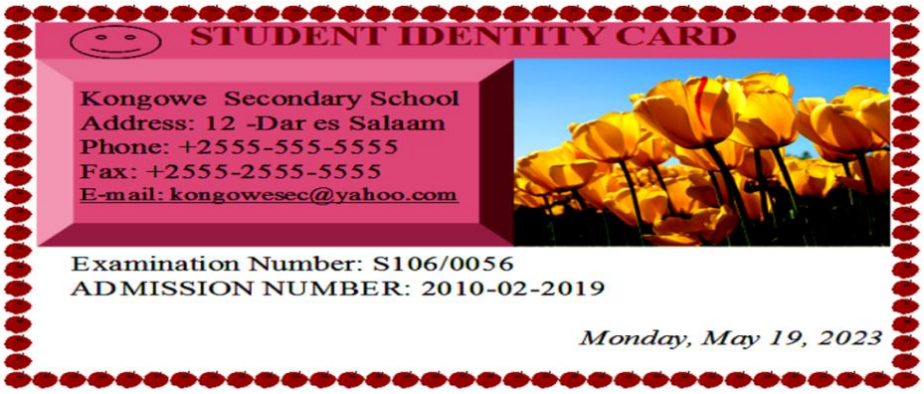


Extract 3.2.2: A sample of an incorrect answer on question 2.

Extract 3.2.2 shows a sample of a candidate’s response who failed to assign the correct data type to the field names as well as insert correct formula for calculating employee instalments per year.

3.3 Question 3: Desktop Publishing and Presentation

(a) Use Microsoft office Publisher to design the following Student Identity Card:



Identity card descriptions

- The number S106/0056 should be replaced by your Examination Number.
- The date must be the current.
- The background colour of the contact and heading should be Pink.
- You can use any border and picture from the picture library available in your computer.
- Your Identity Card must be grouped.

(b) You have been appointed by your school management to prepare a presentation which should be held on the Form One students careers day in the orientation week. The aim of the presentation is to sensitize the students about the Information and Communication Technology (ICT). As an expert of Information and Computer Studies (ICS), prepare five slides as follows:

- Insert uniform appropriate design view.
- Include your Examination Number on each slide.
- The slide should run automatically after 5 seconds.
- Insert the fixed date and slide number as footer/header of your slides.
- Use ⟸ symbol to link each slide with the first slide.
- Use clip art to insert the picture of the laptop computer in the first slide.

(i) **Slide I** should include the title "Information and Communication Technology" and three active links namely Application, Opportunities and Advantages (use art tools to create links). (HINT: Each link must connect the appropriate slide).

(ii) **Slide II** should include two areas where Information and Communication Technology (ICT) has been applied.

(iii) **Slide III** should include two career opportunities available in the field of ICT.

(iv) **Slide IV** should include two self- employments which can be achieved by using a computer or other ICT devices.

(v) **Slide V** must include the conclusion of your presentation.

(c) Save and print your document.

A total of 1,461 (52.5%) candidates attempted this question. Out of whom, 195 (13.3%) scored 0 to 7 marks, 666 (45.6%) candidates scored 7.5 to 16 marks and 600 (41.1%) scored 16.6 to 25 marks out the 25 marks allocated. Figure 15 represents the candidate's performance on this question.

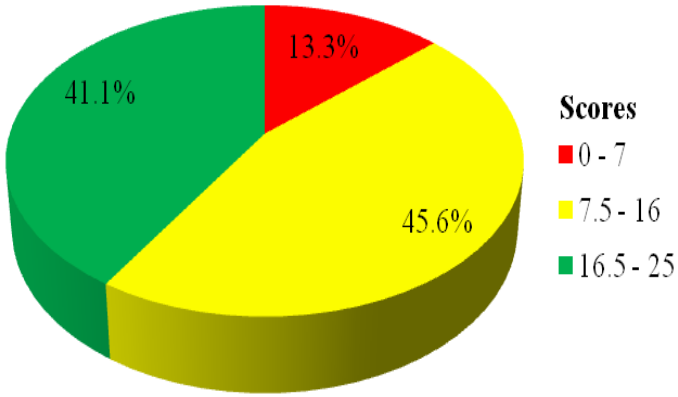
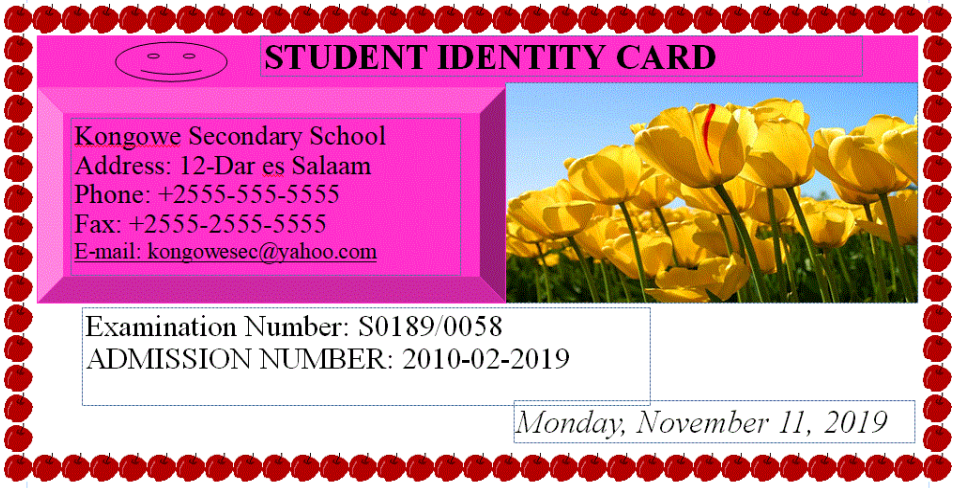
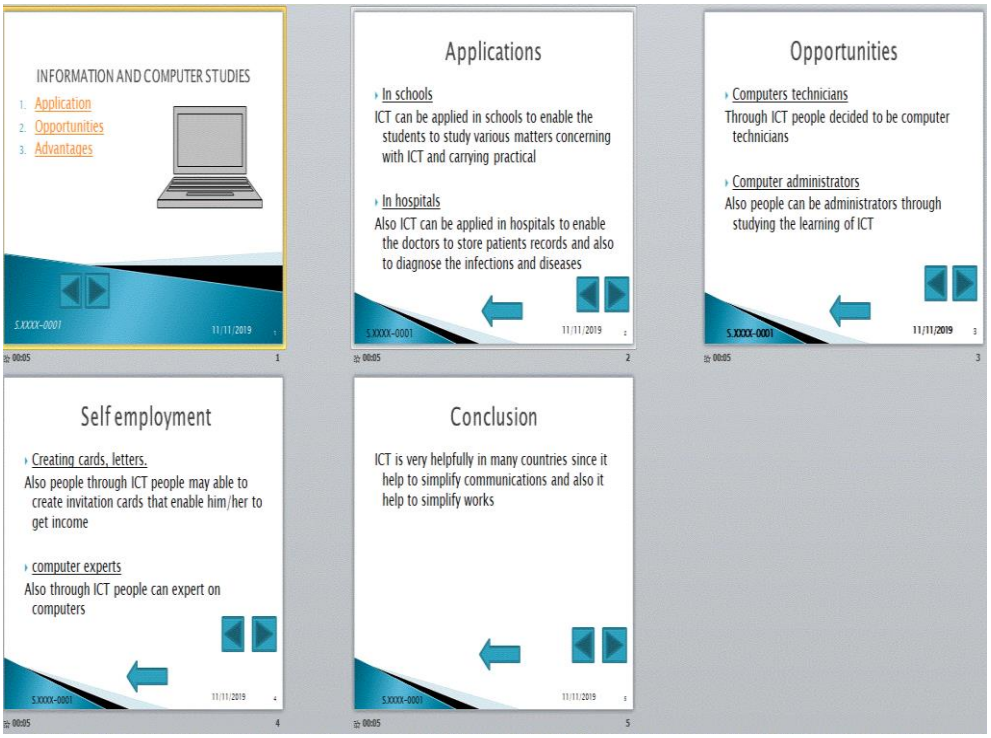


Figure 15: *The candidates' performance on question 3.*

The general performance for this question was good because 86.7 per cent of the candidates scored above 7 marks. Some of the candidates (41.1%) who attempted this question were able to score higher marks due to sufficient skills and knowledge on Ms Publisher and Ms Power Point. Most of the candidates were able to design the student's identity card according to the instructions given, whereby, most of them were able to open the Microsoft office publisher, insert the text boxes, typing contact information, underline email, insert picture, bevel shape, background

colour in contact information, heading, border and eventually print the card. However, it was observed that some of the candidates under this category had difficulties in grouping the items inserted in the card, inserting the current date but instead they inserted a fixed date. In part (b), the candidates were able to open the Ms Power Point to create slides. Most of the candidates were able to insert the design view, insert on slide footer the fixed date, slide number and the examination number. They were also, able to set the correct time for animation and insert the laptop picture. Moreover, the candidates were able to apply the general skills and knowledge of ICT in the community by attempting the parts that required them to write the application of ICT from the different areas, determine different careers that are associated with the ICT, and the appropriate self-employment that is contributed by ICT. Extract 3.3.1 shows one among the best candidates' responses to question 3.





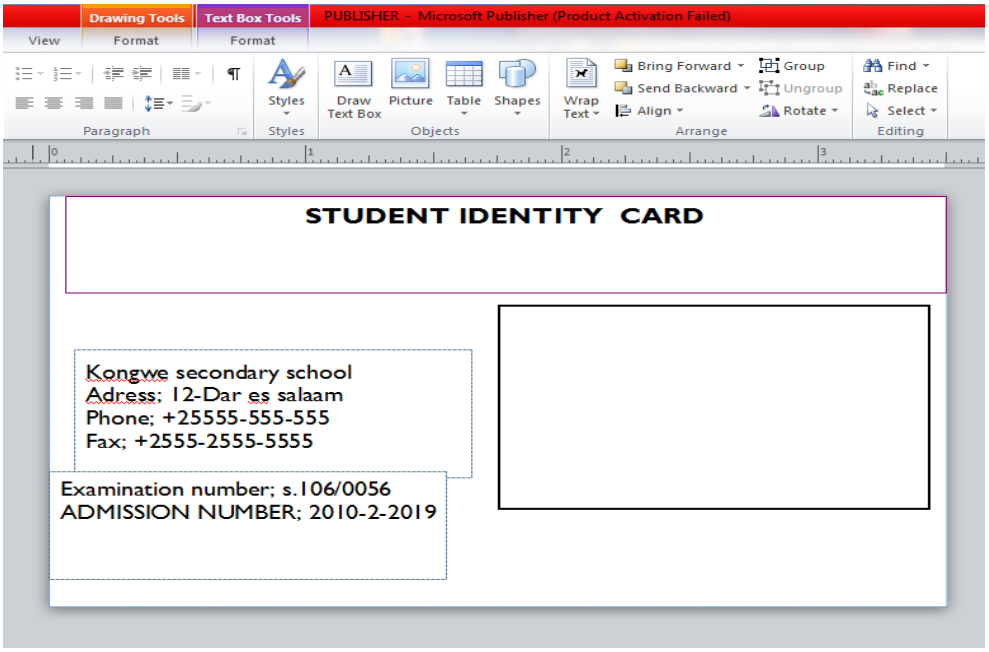
Extract 3.3.1: A sample of a correct answer on question 3.

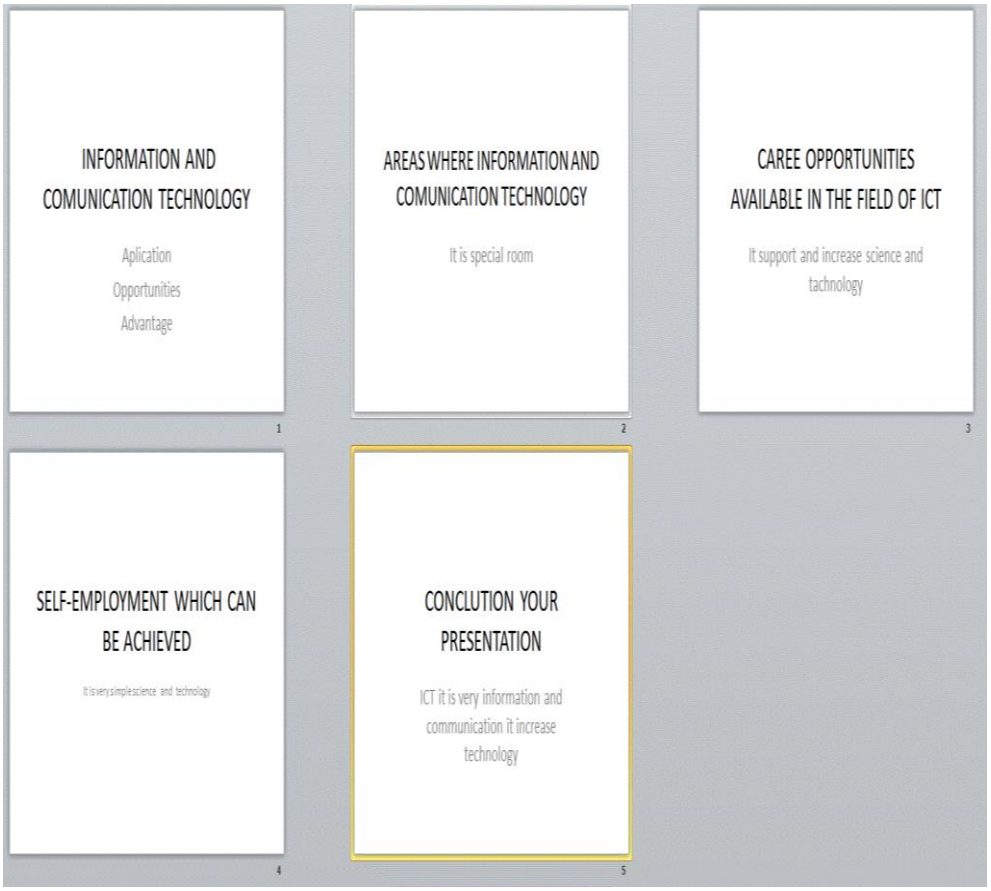
Extract 3.3.1 shows one among the candidates' correct responses to question 3 where the candidate able to insert border, colour and typed the information required. The candidate was also able to create slides, create links among slides, and insert back arrow and laptop picture.

The candidates (45.6%) who scored average marks (7.5 to 16) were able to open the Microsoft office publisher, to add the text boxes, type the contact information, underline email address and to insert the picture. However, in part (a), they failed to insert the bevel shape on the card and type on it the contact information, insert background colour and borders. In part (b), the candidates were able to prepare the correct slides but failed to design and write the content within the slides as required in the question. Some of the candidates failed to create links which could not connect to the specified page.

Likewise, the candidates (13.3 %) who attempted this question scored low marks (0 to 7). In part (a), some of the candidates were able to type the address information such as examination number, admission number and

saved their work. Others failed to insert borders, pictures, underline the email address and also could not group the card. In part (b), the candidates failed to create links, insert design view, fixed date and slide number in the slide footer and examination number. The candidates also failed to set time for animation that was to run each next slide in every 5 seconds, insert a back-arrow that links on slides 2 to 5 with a link to the first slide. Some of the candidates did not manage to insert the laptop picture on the first slide. The analysis showed that these candidates failed to perform the mentioned activities due to lack of skills in the specific aspects. The candidates also were not able to mention application of general ICT knowledge like application areas of ICT, self-employment from ICT and career opportunities that can found from ICT. Some of the candidates used Microsoft Office Word to design the card and presentations instead of using the appropriate applications like publisher and Power point. Extract 3.3.2 gives one among the incorrect responses in question 3.





Extract 3.3.2: A sample of an incorrect answer on question 3.

Extract 3.3.2 shows sample response of a candidate who inserted some text boxes but failed to group them, insert pink colour. The candidate also did not type E-mail address, border and was also the card contents in part (a). In part (b), the candidate was unable to insert back arrows signs and link the slides. The candidate also failed to provide the relevant content on ICT.

4.0 PERFORMANCE OF CANDIDATES PER TOPIC

The analysis done in relation to each topic showed that most of the candidates performed well. It was observed that the candidates performed well in multiple choice items (91.3%) which were set from the following topics: *Computer Evolution, Database as Information System, Computer Handling, Presentation, Computer Hardware, Computer Software, Word Processing, Web Designing and Computer Networking.* The performance was also good in the questions set from the topic on *Desktop Publishing*

(86.9%), *Web Development (*84.6%*), Word Processing* (83.7%), *The Internet* (82.0%) and *Spreadsheet* (68.4%). The candidates' performance was average in the question based on the topic on *Computer Handling* (61.1%), *Computer Evolution* (60.5%), *Database as Information System* (58.9%) *and Computer Network and Communication* (36.7%). This performance is due to insufficient knowledge on the concepts taught under these topics. Their performance was poor in the question based on *Multimedia* (28.3%). Because, these candidates lacked practical skills on Multimedia. The *Appendix* shows the performance of the candidates for each topic.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

Generally, the candidates' performance in the 2019 Information and Computer Studies Examination was good. However, some of the candidates had difficulty in attempting a few questions due to insufficient knowledge on the tested concepts; lack of practical skills; and failure to understand the demands of the questions.

The analysis of the candidates in each question has shown that majority of the candidates 1,926 (71.7%) had difficulty in attempting question 10 in paper 1 which was constructed from the Multimedia topic. These candidates did not know the basic concepts and how to combine a picture, a text, video and audio data. This implies that most of the candidates had insufficient knowledge on the Multimedia concepts.

5.2 RECOMMENDATIONS

In order to improve performance for the Information and Computer Studies examinations, the following are recommended:

(a) Education stakeholders, such as parents and school managers, should ensure that schools have ICT laboratories equipped with necessary ICT facilities which will improve teaching and learning process. Such laboratories will improve teaching and learning and ultimately performance will be improved.

(b) Since the data showed evidence for lack of knowledge on some topics, it is recommended that teachers should provide more exercises, tests

and examinations to enhance students' mastery of theoretical concepts and practical skills.

(c) Teachers should advise students to read questions carefully so that they can understand them well and adhere to the given instructions before attempting them. This will be important because it has been observed that one of the causes for failure is candidates' misunderstand of the questions.

(d) Students should be encouraged to put more efforts in learning English Language. Failure of students to use English language appropriately has been observed in essay type of questions.

(e) The candidates should read the examination instructions and questions carefully so as to understand clearly the requirements of the questions before answering them.

APPENDIX

Analysis of Candidates Performance per Topic

S/n	Topic	No. of Questions	Percentage of Students who Scored 30% Marks or Above	Remarks
1	Computer Evolution, Database as Information System, Computer Handling, Presentation, Computer Hardware, Computer Software, Word Processing, Web Designing and Computer Networking and Communication.	1	91.4	Good
2	Desktop Publishing	2	86.9	Good
3	Web Development	1	84.6	Good
4	Word Processing	1	83.7	Good
5	The Internet	2	82.0	Good
6	Spreadsheet	2	68.4	Good
7	Computer Handling	1	61.1	Average
8	Computer Evolution	1	60.5	Average
9	Database as Information System	2	58.9	Average
10	Computer Network and Communication	1	36.7	Average
11	Multimedia	1	28.3	Poor