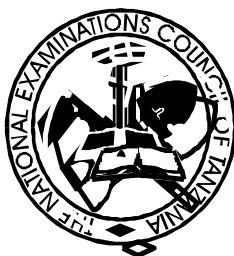**THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA**

CANDIDATES' ITEM RESPONSE ANALYSIS REPORT FOR DIPLOMA IN SECONDARY EDUCATION EXAMINATION (DSEE) 2019

738 INFORMATION AND COMMUNICATION TECHNOLOGY

THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

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FOREWORD

The National Examinations Council of Tanzania is pleased to issue the report on Candidates' Item Response Analysis (CIRA) in Information and Communication Technology subject for the year 2019. The purpose of this report is to inform teachers, parents, candidates, policy makers and other education stakeholders on how the candidates responded to the examination questions. The report will enable the stakeholders to understand the topics which need more emphasis in teaching and learning process and take appropriate measures in order to improve the performance of candidates.

The analysis presented in this report is intended to contribute towards understanding some of the reasons behind the performance of candidates in the examination. The report highlights the factors that made the candidates to give the correct or incorrect responses. The analysis revealed that candidates who performed well provided appropriate responses because they had adequate knowledge on the subject content and good mastery of the English Language. Also they were able to identify the requirements of the questions. The report also highlights the reasons that made some candidates fail to score high marks. Such factors include failure to identify the tasks of the questions inability to express themselves in English language and lack of knowledge on the tested concepts.

The National Examinations Council of Tanzania believes that the education stakeholders will take proper measures to overcome the identified challenges in order to improve the candidates performance in this subject in future examinations.

Finally, the Council would like to thank all the Examination Officers, Examiners and all who participated in the preparation of this report.

Dr. Charles E. Msonde
EXECUTIVE SECRETARY

1.0 INTRODUCTION

This report analyses candidates' item responses for Diploma in Secondary Education Examination in Information and Communication Technology subject for the year 2019. The paper was set according to the 2009 Information and Communication Technology syllabus for Diploma in Secondary Education.

The number of candidates who sat for this examination in 2019 was 3,074, whereby 3,072 candidates sat for the first time and 2 were repeaters, out of which 99.84 percent passed the examination and 0.16 percent failed. In 2018, 907 candidates sat for the examination of which 99.78 percent passed and 0.22 percent failed. Therefore, the performance of candidates has increased by 0.06 percent.

The paper consisted of three (3) sections, A, B and C with a total of 16 questions. Section A consisted of ten (10) short answer questions in which question 1, 2, 3, 5, 7, 8 and 10 carried 4 marks each; questions 4 and 9 carried 3 marks each; and question 6 carried 6 marks. Section B had 3 optional questions each carrying 15 marks. Section C had 3 optional questions each carrying 15 marks. Candidates were required to answer all questions in section A, 2 questions from section B and 2 questions from section C to make a total of 14 questions to be attempted.

The analysis of the candidates' performance in each question/topic, is regarded as good if the candidate scored from 70 to 100, average if they scored from 40 to 69 and poor if they scored from 0 to 39. In this report, the candidates' performance is presented in different charts and tables using colours whereby the red colour represents poor performance, yellow represents average performance and green shows good performance.

The analysis shows the requirements of the question, what the candidates were able to do, and the challenges encountered in answering the given questions. Samples of extracts for good and poor responses from the candidates are given to elaborate the stated cases. Lastly, the report ends with conclusions and recommendations.

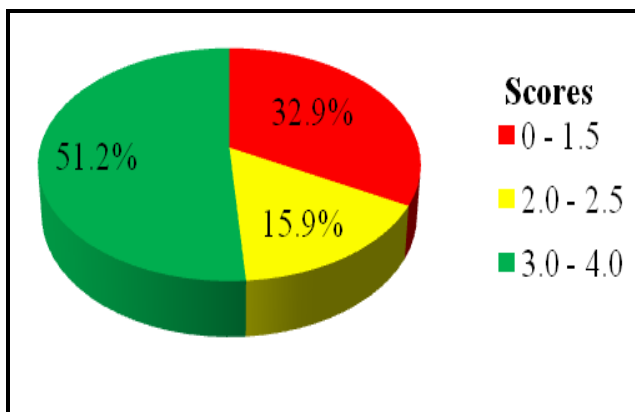## 2.0 ANALYSIS OF THE CANDIDATES' PERFOMANCE IN EACH QUESTION

2.1 Question 1: The Fundamentals of Information and Communication Technology

The question consisted of two (2) parts; (a) and (b). The Candidates were required to:

(a) define the term "Source of Information".

(b) outline three categories of sources of information.

All 3074 candidates (100%) attempted this question, out of which 1,010 (32.9%) scored from 0 to 1.5 marks, 491 (15.9%) scored from 2.0 to 2.5 marks and 1,573 (51.2%) scored from 3 to 4 out of 4 the marks allocated. The data shows that the candidates' general performance in this question was good, because 67.1 percent scored above 1.5 marks. Figure 1 shows the candidates' performance in this question.

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

The analysis of this question indicates that the majority of the candidates (51.2%) who scored 3 to 4 marks had correct responses. Some of these candidates defined correctly the term source of information in part (a) and outlined all three categories of sources of information in part (b). In addition, some of the candidates in this category failed to score full marks because, they were able to define the term source of information correctly, but mentioned only two categories of sources of information. Also, others failed to define source of information, but they managed to outline all three

categories of sources of information. Extract 1.1 shows a sample of a correct response from one of the candidates.

Extract 1.1: A sample from a candidate who managed to define source of information in part (a), and outline three categories of sources of information in part (b).

The analysis shows further that the candidates who scored average marks (2 to 2.5) were able to define the term source of information in part (a), but outlined one category of sources of information in part (b). Other candidates failed to give a clear definition due to poor proficiency in the English language.

On the other hand, the analysis shows that most of the candidates (32.9%) who scored low marks failed to outline categories of sources of information in part (b). Some of them mixed up the elements of effective communication with the sources of information. For example, one candidate gave the following responses*: sender, message receiver and feedback.* Another candidate wrote, *radio, internet, and television* which are examples of electronic media of information and not the categories of sources of information. Extract 1.2 shows a sample of an incorrect response from one of the candidates.

1 (a)	Source of Information	
	→ This is the process data which gives the Information and Meaning	
	(b) Categories of source of Information	
	i/ Processed data	
	ii/ Internet	
	iii/ Ratio and Television	

Extract 1.2: A sample of a response from a candidate who defined information instead of source of information in part (a) and mentioned examples of electronic media of information instead of categories of sources of information in part (b).

2.2 Question 2: The Computer Basics and Networks

The question intended to measure the candidates' knowledge on computer network topology. The question had two parts; (a) and (b). In part (a), the candidates were required to give the meaning of star topology while in part (b) they were required to give three advantages of a star topology as far as a computer network is concerned.

A total of 3,074 candidates (100%) attempted this question, out of which 853 (27.7%) scored from 0 to 1.5 marks, 744 (24.3%) scored from 2.0 to 2.5 marks and 1,477 (48.0%) scored from 3 to 4 out of 4 the marks allocated. The data shows that the general candidates' performance in this question was good, because 72.3 percent scored above 1.5 marks. Figure 2 shows the candidates' performance in this question.
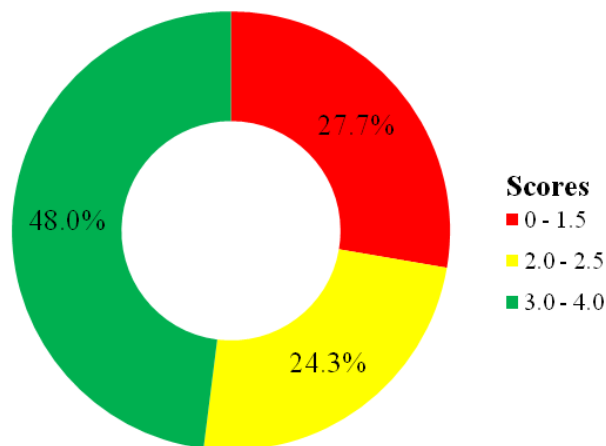
Figure 2: *The candidates' performance in question 2.*

The analysis shows that most candidates (48.0%) who scored 3 to 4 were able to define the term star topology in part (a) and provided three advantages of star topology in part (b). Some of the candidates could not score full marks because they failed to give clear meaning of star topology. Extract 2.1 shows a sample of a correct response from one of the candidates.

02(a)	Star topology, Refers to the every node a Computer workstation 'n any other peripheral is Connected to a Centre node. Data on a star, network passes through the hub, switch n Concontrator before Continuing to its destination. The hub, switch or Concentrator cranages and Controls all functions of the network.
2(b)	i) As the analysis of traffic is easy, the topology poses lesser security risk. ii) Adding or removing network nodes is easy and Can be done without affecting the entire network iii) Due to its Centralized nature, the topology offers simplicity of operation

Extract 2.1; A sample of a response from the candidate who was able to give correct definition of star topology in part (a) and advantages of star topology in part (b).

Moreover, analysis shows that the candidates (24.3%) who had average marks from (2.0 to 2.5) were able to define star topology in part (a) and give one advantage of star topology in part (b). It was also observed that, some candidates mixed up the advantages of star topology with other types of topologies like bus topology, ring topology and mesh topology. Apart from that, others explained the advantages of internet. Such responses signify that the candidates had partial knowledge on the topic of computer networking.

On the other hand, the candidates (27.7%) who scored low marks from (0 to 1.5) had a misconception of the definition of star topology in part (a). Some of the candidates gave the definition of internet instead of that of star topology. Others defined topology instead of defining star topology. For example, one candidate defined star topology as *the type of network topology which cover small area*, which is actually the definition of Local Area Network. In part (b), some of the candidates provided advantages of internet instead of a star topology, while others provided the uses of internet. These findings imply that, the candidates did not understand the question requirements or had insufficient knowledge of star topology. Extract 2.2 shows an example of an incorrect response from one of the candidates who attempted this question.


Extract 2.2: A sample of a response from a candidate who defined Local Area Network instead of a star topology in part (a) and failed to give correct advantages of star topology in part (b).

2.3   Question 3: Generic Application Software

The question consisted of two parts: (a) and (b). In part (a), the candidates were required to give the meaning of a word processor document. In part (b), they were required to list the steps to be followed in opening a new Microsoft word document.

All 3,074 candidates (100%) attempted this question, out of which 556 (18.1%) scored from 0 to 1.5 marks, 1,232 (40.1%) scored from 2.0 to 2.5 marks and 1,286 (41.8%) scored from 3 to 4 out of 4 the marks allocated. The data shows that, the candidates' general performance in this question was good, because 81.9 percent of the candidates scored above 1.5 marks. Figure 3 shows the candidates' performance in this question.

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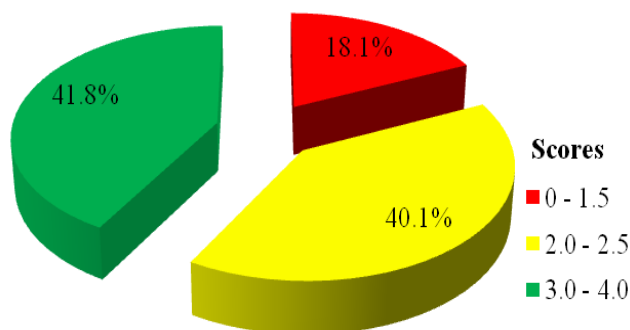
Figure 3: *The candidates' performance in question 3.*

Most of the candidates who scored high marks from (3 to 4) were able to give the correct meaning of a word processor document in part (a), and correctly listed the steps to be followed in opening a new Microsoft word document in part (b). For example, one of the candidates wrote *start, all programs, Microsoft office* then *Microsoft office word.* However, few of the candidates could not score full marks because they did not sequence correctly the steps for opening a new word document. Extract 3.1 shows a sample of a correct response from one candidate who attempted this question.

Extract 3.A sample of a response from a candidate who gave correct definition of word processor document in part (a) and correctly listed the steps used to open a Microsoft word document in part (b).

Moreover, the analysis shows that the candidates (40.1%) who had average performance from (2.0 to 2.5) marks were able to give the meaning of a word processor in part (a), but failed to list correctly the steps for opening a new Microsoft word document. For example, one of the candidates wrote: *Click*

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all programs → word 2016 → small blanks → format the document. Instead of Start → All Programs → Microsoft Office → Microsoft Office Word. Also, other candidates failed to write clear definition of word processor in part (a). For example, one candidate wrote: *a word processor document refers to computer program which deals with text and editing.*

On the other hand, the candidates who scored low marks from (0 to 1.5) gave incorrect definition of Microsoft word document in part (a). For example, one candidate wrote: *Word processor document is the program which enable the users to process documents in the computer*. Another candidate wrote: *Word processor document refers to the document which have been processed through the Microsoft work*. In part (b), some candidates listed the steps for opening Ms Excel instead of a new Microsoft word document. Extract 3.2 shows an example of an incorrect response from one of the candidates who attempted this question.

Extract 3.2 A sample of a response from a candidate who listed the steps for opening Ms excel instead of Ms word in part (b).

2.4 Question 4: Computer Programming Languages

The question consisted of three parts: (a), (b) and (c). The candidates were required to explain briefly the following terms as they are used in computer programming: (a) Algorithm, (b) Pseudo code and (c) Source code.

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A total of 3,074 candidates (100%) attempted this question, out of which 2,741 (89.2%) scored from 0 to 1 mark, 272 (8.8%) scored from 1.5 to 2.0 marks and 61 (2.0%) scored from 2.5 to 3.0 out of 3 the marks allocated. The data shows that the candidates' general performance in this question was poor, because 10.8 percent of the candidates scored above 1.0 mark. Figure 1 shows the candidates' performance in this question.
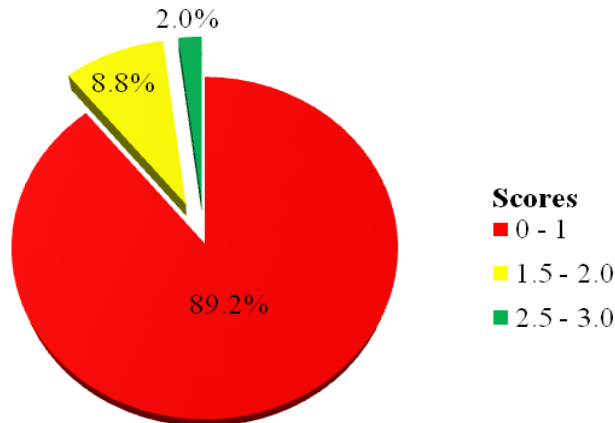
Figure 4: *The candidates' performance in question 4.*

The analysis shows that majority of the candidates (89.2%) who scored poor marks from (0 to 1) mark, faced difficulty in responding to most parts of the question. Some of them failed to understand the requirements of the question because they mixed up the concepts of computer programming languages with other concepts. Moreover, the analysis revealed that, majority of the candidates lacked knowledge in this topic. For example, in part (a), one candidates wrote: *Algorithm is the programmes in computer which is used to perform all function which involves the calculation in computer*, which is the function of Microsoft Excel and not algorithm. In part (b), the candidate wrote, *Pseudo code is an program which is used to lock and open the program which you may decide to put the security* instead of sequence of steps that will meet the program requirement. Pseudo code uses a mixture of English and Code like statement. and in part (c) the candidate wrote: *Source code is the application where you can find different kind of code to be used in the computer program* which is also incorrect. Extract 4.1 shows a sample of a poor response from one of the candidates.

4	(a). Algorithm, is the File in the computer which use the symbols computer Languages		
	(b). Pseudo code. is the key which allow the user to access a certain File.		
	(c). Source code. is the code or File which allow the File to open after entering the code or key.		

Extract 4.1: A sample of a response from a candidate who defined algorithm, pseudo code and source code incorrectly.

The analysis further shows that the candidates (8.8%) who had average performance from (1.5 to 2.0) marks were able to define correctly only one of the terms and partially defined other terms. For example, one candidate was able to define algorithm but failed to provide clear definitions of pseudo code and source code as follows: *Algorithm is the step by step procedures on solving a particular problems this involves various methods on solving various problems* on a computer programming, *Pseudo code is the compact and informal high level description on a program process* and *Source code is the originator or initiator where a particular problem appear.*

On the other hand, the candidates who scored high marks (2.5 to 3) were able to define at least two terms. Their responses suggest that these candidates had sufficient knowledge on computer programming language. Extract 4.2 shows a sample of a correct response from one of the candidates.

4	a) Algorithm is the sequence step by step followed by the computer used to solve the problem. The re are three types of algorithm that are selection, sequence and loop.
4	b) Pseudo code is the programmatically language that used to perform algorithm. There two ways to develop algorithm that are Pseudocode and Flow chart.
4	c) Source code is an programming language. This is a programming language in which is readable by human language to machine language.

Extract 4.2: A sample of a response from a candidate who gave correct definitions of algorithm, pseudo code and source code.

2.5 Question 5: Website Design and Development

The question intended to measure the candidates' knowledge on website development. The question had two parts: (a) and (b). In part (a), the candidates were required to give the distinction between web page and website. In part (b), they were required to give the distinction between html and web browser.

A total of 3,074 candidates (100%) attempted this question, out of which 2,051 (66.7%) scored from 0 to 1.5 marks, 504 (16.4%) scored from 2.0 to 2.5 marks and 519 (16.9%) scored from 3 to 4 out of 4 the marks allocated. The data shows that the general candidates' performance in this question was poor, because only 33.3 percent of the candidates scored above 1.5 marks. Figure 5 shows the candidates' performance in this question.
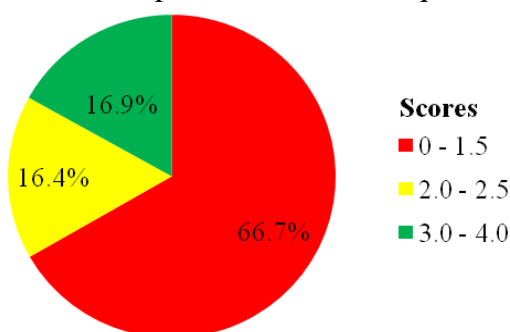

Figure 5: *The candidates' performance in question 5.*

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Most of the candidates who scored low marks (0 to 1.5) in this question, failed to provide correct descriptions of web page and website. For example, one candidate wrote: *Web page is the collected during dealing with website, while Web site is the collection of web page* instead of writing Webpage is an electronic page which may be created using programming languages such as HTML, sun micro-systems Java and Microsoft ASP while Website is collection of individual but related web pages that are usually stored together and hosted by a web server. Furthermore, most of the candidates were unable to give the distinction between html and web browser in part (b). Some of these candidates wrote: *html is the high technology millennium language, while web browser is the one used for searching the information in the given page example Http browser* instead of writing html is a text-based language used to develop web pages, while a Web browser is an application software used to retrieve/access and translate web pages. Such response imply that the candidates lacked knowledge on website development. Extract 5.1 is an example of a poor response from one of the candidates who attempted this question.

Extract 5.1: A response from a candidate who wrote incorrect distinctions in part (a) and (b) of the question.

On the other hand, the candidates who scored average marks were able to give the distinction between webpage and website in part (a), but they failed to give the distinction between html and web browser in part (b). Most of the candidates were able to give the long form of HTML as *Hyper Text Mark-up Language*. For example, one candidate wrote: *html is the abbreviation of Hyper Text Mark-up Language, a language which develop a program while web browser is the program which used in searching other web addresses*.

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Finally, the candidates (16.9%) who scored high marks in this question, were able to give distinctions between web page and website in part (a) and html and web browser in part (b). However, some of the candidates in this category, failed to score full marks because they were not able to provide clear explanations in part (b). Extract 5.2 shows a sample of a response from candidate who answered the question correctly.

Extract 5.2: A sample of a response from a candidate who was able to give distinctions of web page and website in parts (a) and html and web browser in part (b) correctly.

2.6 Question 6: Socio - Economic and Cultural Aspects of ICT

The question intended to measure the candidates' knowledge on the socio-economic and cultural aspects of ICT. The candidates were required to explain three uses of ICT in education sector and give an example in each case.

All 3,074 candidates (100%) attempted this question, out of which 268 (8.7%) scored from 0 to 2.0 marks, 990 (32.2%) scored from 2.5 to 4.0 marks and 1,816 (59.1%) scored from 4.5 to 6 out of 6 the marks allocated. The data shows that the general candidates' performance in this question was good, because 91.3 percent scored above 2.0 marks. Figure 6 shows the candidates' performance in this question.
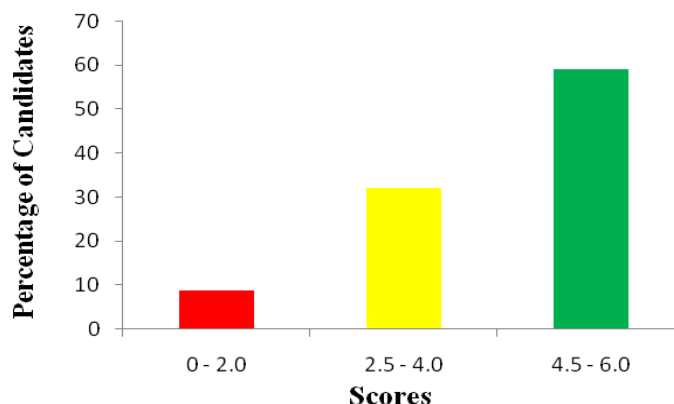
Figure 6: *The candidates' performance in question 6.*

The analysis shows that the candidates (59.1%) who scored high marks (4.5 to 6) were able to explain three uses of ICT in education sector and gave correct examples for each case. However, some candidates did not score full marks because they explained the uses of ICT in education sector without giving examples. Extract 6.1 shows a sample of a correct response from one of the candidates.

Extract 6.1: A sample of a response from a candidate who explained correctly the uses of ICT in education sector and gave an example for each case.

The analysis further shows that the candidates (32.2%) who scored average marks from (2.5 to 4), were able to give three uses of ICT in education sector,

but they did not manage to give clear explanations. However, few candidates in this category were able to explain the three uses of ICT in education sector without giving examples.

On the other hand, the candidates (8.7%) who scored low marks managed to give one or two uses of ICT in education sector. These candidates did not understand the requirements of the question. Few candidates provided the general uses of ICT instead of being specific to education sector. For example, one of the candidates wrote: *the ICT is used in business, banking and sociology*. Another candidate wrote, *ICT is used in choosing and storing a network topology in education sector that enhance them to communicate effectively example of network topology is like bus, star, mesh etc*. This candidate thought that, network topology is a tool used for communication. Furthermore, some of the candidates failed to give explanations with examples. For example, one of the candidates wrote: *In ranking the candidates name in the examination* instead of writing ICT is used in teaching and learning in the classroom for example making analysis of candidates results. Extract 6.2 shows an incorrect response from one of the candidates.


Extract 6.2: A sample of a response from a candidate who mentioned the uses of ICT in other sectors instead of education sector.

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2.7   Question 7: Multimedia

The question had two parts: (a) and (b). In part (a), the candidates were required to give the meaning of multimedia. In part (b), they were required to give two differences between linear multimedia and non-linear multimedia.

A total of 3,074 candidates (100%) attempted this question, out of which 1,910 (62.1%) scored from 0 to 1.5 marks, 684 (22.3%) scored from 2.0 to 2.5 marks and 480 (15.6%) scored from 3 to 4 out of 4 the marks allocated. The data shows that the general candidates' performance in this question was poor because 37.9 percent of the candidates scored above 1.5 marks. Figure 7 shows the candidates' performance in this question.
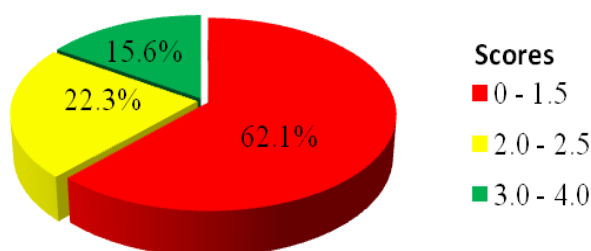
Figure 7: *The candidates' performance in question 7.*

The analysis shows that most of the candidates (62.1%) scored low marks from (0 to 1.5) marks in this question. The candidates responses revealed that the candidates had insufficient knowledge on multimedia. For example, one candidate wrote: *Multimedia is a media which can perform more than one task at the same time for example typing in the computer while listening the music*. Another candidate wrote: *multimedia is the multiple function of things. Example video you see and hearing*.

Likewise, in part (b), some candidates provided incorrect meaning of linear multimedia and non-linear multimedia. For example, one candidate wrote, *linear multimedia is the arrangement of nodes and working together for same time example use of television were hear sound and see picture also listening song or music, While non linear multimedia are like radio we hear the sound but not see who talking*. Moreover, other candidates were able to provide the meaning of multimedia in part (a), but failed to answer part (b). Extract 7.1 shows a sample of an incorrect response form one of the candidates.

Extract 7.1: A sample of a response from a candidate who wrote incorrect definition of multimedia in part (a) and failed to differentiate linear from non-linear multimedia in part (b).

Furthermore, the analysis shows that the candidates (22.3%) who scored average marks (2.0 to 2.5) were able to define multimedia in part (a) and managed to give one difference between linear and non-linear multimedia in part (b). Also, some candidates mixed - up the concept of multimedia with that of computer network, and others, mixed it up with the concept of internet. Other candidates in this category scored average marks because they failed to give clear explanations due to poor proficiency in English Language.

On the other hand, few candidates (15.6%) who scored high marks (3 to 4) were able to define the term multimedia in part (a) and provided two correct differences between linear and non-linear multimedia in part (b). Other candidates did not score full marks because they provide partial explanations in part (b). Extract 7.2 shows a sample of a correct response from one of the candidates.

> 7. a) Multimedia refers to the use of more than one media in presenting information usually of the same content. It can be by using text, graphics, videos, audio and animation
>
> b) DIFFERENCE BETWEEN LINEAR MULTIMEDIA AND NON LINEAR MULTIMEDIA
> i) Linear multimedia, It is the type of multimedia where by the user has no control over the sequence of operation WHILE Non linear multimedia the user have control over the sequence.
>
> ii) Linear multimedia you can not retrieve the information example in radios WHILE In non linear multimedia the information can be retrieved because of having control over the sequency example Watching movies in DVD's

Extract 7.2: A sample of a response a candidate who managed to define correctly the term multimedia in part (a) and clearly explained the differences between linear and non-linear multimedia in part (b).

2.8 Question 8: Computer Basics and Networks

The question intended to measure the candidates' knowledge on computer basics and networks. The candidates were required to briefly explain the two main parts of a computer and give two examples in each part.

All 3,074 candidates (100%) attempted this question, out of which 682 (22.2%) scored from 0 to 1.5 marks, 470 (15.3%) scored from 2.0 to 2.5 marks and 1,922 (62.5%) scored from 3.0 to 4.0 out of 4 the marks allocated. The data shows that the general candidates' performance in this question was good, because 77.8 percent scored above 1.5 marks. Figure 8 shows the candidates' performance in this question.
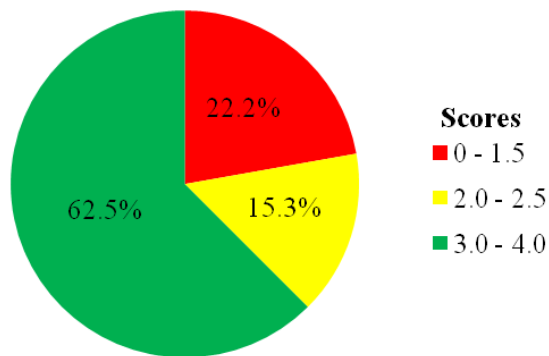
Figure 8: *The candidates' performance in question 8.*

The analysis shows that most of the candidates who scored high marks (3 to 4) were able to explain clearly the two main parts of a computer and gave correct examples. This indicates that, the candidates had enough knowledge on computer hardware and software. However, some of the candidates in this category, failed to score full marks because they gave incorrect examples. Extract 8.1 shows a sample of a correct response provided by one of the candidates.

Extract 8.1: A sample of a response from a candidate who managed to explain correctly the two main parts of computer.

Furthermore, the analysis shows that the candidates (15.3%) who scored average marks (2.0 to 2.5) were able to explain the computer hardware with examples, but they failed to explain clearly computer software with examples. For

example, one candidate wrote: *Computer software is program which tell the hardware what to do eg: screen, monitor.* The candidate defined correctly the term computer software but failed to give correct examples. The candidates gave examples of computer hardware instead of computer software

On the other hand, few candidates (22.2%) who scored low marks (0 to 1.5) failed to explain the two main parts of a computer with their examples. Some candidates explained the parts of computer as *Hard Computer* and *Soft Computer*, while others explained the Input and Output devices as the main parts of a computer. This reveals that, the candidates lacked knowledge on computer basics and networks. Extract 8.2 shows a sample of an incorrect response provided by one of the candidates.

Extract 8.2: A sample of a response from a candidate who failed to explain the two main parts of a computer.

2.9 Question 9: Computer Basics and Networks

The question intended to measure the candidates' knowledge on computer basics and networks. The candidates were required to outline three ways on how computer viruses can be spread.

A total of 3,074 candidates (100%) attempted this question, out of which 476 (15.5%) scored from 0 to 1 mark, 1,087 (35.3%) scored from 1.5 to 2.0 marks and 1,511 (49.2%) scored from 2.5 to 3.0 out of 3 the marks allocated. The data shows that the general candidates' performance in this question was good, because 84.5 percent scored above 1.0 mark. Figure 9 shows the candidates' performance in this question.

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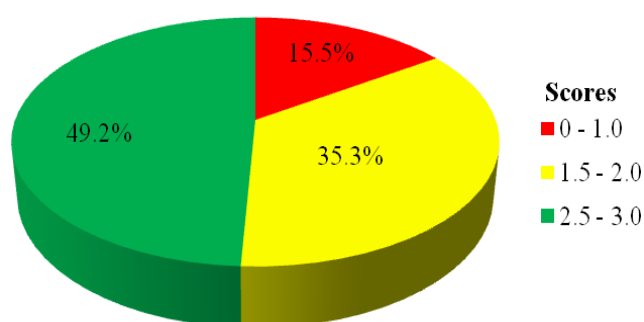
Figure 9: *The candidates' performance in question 9.*

The analysis shows that most of the candidates who scored high marks (2.5 to 3) were able to outline correctly three ways of spreading viruses. This implies that, the candidates had sufficient knowledge on computer basics. However, few candidates could not score marks because they did not provide clear explanations on how computer viruses are spread in the computer system. Extract 9.1 shows a sample of a correct answer provided by one of the candidates.

Extract 9.1: A sample of a response from a candidate who outlined correctly ways on how computer viruses are spread in the computer system.

Furthermore, the analysis shows that candidates (35.3%) who scored average marks (1.5 to 2.0) were able to outline either one or two ways of spreading viruses, but they failed to get full marks due to insufficient explanations and poor English language in their descriptions. These candidates often mentioned the use of affected flash disks and memory cards as the ways of spreading viruses.

On the other hand, the analysis shows that few candidates (15.5%) who scored low mark (0 to 1) failed completely to mention the ways of spreading

viruses. These candidates mentioned things like *slow performance of computer, fire and system* as the ways of spreading viruses. This shows that these candidates did not have knowledge on the concept of virus spreading in the computer system. Extract 9.1 shows a sample of an incorrect response from one of the candidates.
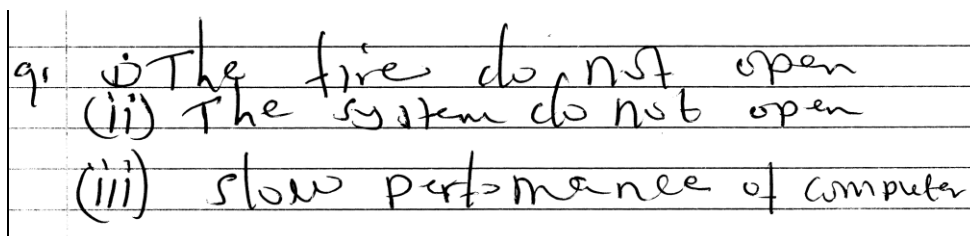
Extract 9.1: A sample of a response from a candidate who failed to outline the ways on how computer viruses can be spread.

2.10 Question 10: Socio-Economic and Cultural Aspects of ICT in Society

This question required the candidates to describe four advantages of Information and Communication Technology in business.

All 3,074 candidates (100%) attempted this question, out of which 75 (2.4%) scored from 0 to 1.5 marks, 109 (3.6%) scored from 2.0 to 2.5 marks and 2,890 (94.0%) scored from 3.0 to 4.0 out of 4 the marks allocated. The data shows that the general candidates' performance in this question was good, because 97.6 percent scored above 1.5 marks. Figure 10 shows the candidates' performance in this question.

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

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The analysis of candidates' responses shows that some candidates with high marks (3.0 to 4.0) were able to describe correctly four advantages of Information and Communication Technology in business. For instance, one candidate wrote: *it save time and money, it reduce number of worker in the business, it facilitate E business, it help in advertisement*. Other candidates in this group, were able to describe correctly only three advantages. The responses that these candidates gave, show that they had adequate knowledge in the topic. Extract 10.1 shows a sample of a correct response from by one of the candidates.

Extract 10.1: A sample of a response from a candidate who managed to describe correctly the advantages of information and communication technology in business.

The analysis further indicate that most candidates who scored average marks (2.0 to 2.5) managed to outline the advantages of information and communication technology in business. The candidates were able to show many real life experiences where information communication technology is applied in business. For instance, some candidates mentioned advertisement, E-commerce, networking and resource sharing as well as mobile transactions, without giving any descriptions. Others were not able to express themselves clearly in English language which made them score average marks.

Lastly, the analysis shows that few candidates (2.4%) performed poorly by scoring from 0 to 1.5 marks. The analysis shows that these candidates had inadequate knowledge on the subject matter. For example, one candidate wrote: *resource sharing eg network, help in communication eg phones, printing of materials and transportation of goods by the use of E-mail.*

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Extract 10.2 shows a sample of an incorrect response from one of the candidates.

10.	(i)	Information and communication technology enable to create licence form.
	(ii)	Information and communication technology help to create Risit
	(iii)	Information and communication technology help to prepare books for assets and reliabity.

Extract 10.2: A sample of a response from a candidate who failed to describe the advantages of information and communication technology in business.

2.11 Question 11: Socio Economic and Cultural Aspects of ICT

This was an essay type question which required the candidates to examine with examples five areas where ICT is applied.

A total of 3,026 candidates (98.4%) attempted this question, out of which 8 (0.3%) scored from 0 to 5.5 marks, 190 (6.2%) scored from 6.0 to 10.0 marks and 2,828 (93.5%) scored from 10.5 to 15.0 out of 15 the allocated marks. The data shows that the general candidates' performance in this question was good, because 99.7 percent scored above 5.5 marks. Figure 11 shows the candidates' performance in this question.

0.3%
6.2%
93.5%

Scores
- 0 - 5.5
- 6.0 - 10.0
- 10.5 - 15.0
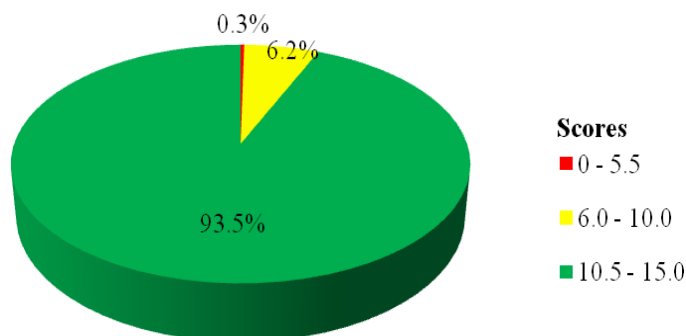
Figure 11: *The candidates' performance in question 11.*

The analysis of candidates' responses shows that candidates with high marks (10.5 to 15.0) were able to explain different areas where ICT is applicable with appropriate examples. For example, one candidate mentioned *bank, hospital, education, office, communication system* as the areas where ICT is applicable. The responses that the candidates gave, implies that they had adequate knowledge on where ICT is applicable. Also, these candidates scored high marks because they managed to write their essays logically, starting with an introduction ending with a good conclusion. However, some did not score full marks because their introductions and conclusions were incomplete. Extract 11.1 shows a sample of a correct response from one of the candidates.

11. ICT is the short form of Information Communication Technology. ICT refers to the application of hardware and software in different field. The Innovations of science and technology has lead ICT to be applied in many field. The following are the areas where ICI is applied:

Education; In education ICI is applied where by teachers and students use ICT to find different teaching and learning materials, Also registering students in different Course at schools, storing records of students, results or performance, And nowdays the Introduction of paying schools fees or College fees is done online by using a Control Number a student can pay the school fees.

11. Banking; Ici is applied in Banks where by people can use their mobile phones to transfer money from a bank to a phone or transfering of money from a phone to a bank. A customer or a we may get service bank services online from without going to bank. Forexample the use of (ATM) Automatic Teller Machine in drawing money from the account. The National Microfinance Bank (NMB) uses a system from South Africa which is super computer.

Hospitals; Also Ici is used in Hospitals whereby doctors can use the system in operating a patient. Also doctors can use ICI learn or to gain experience from those big hospitals with competent doctors. Also In hospitals they use ICI in paying the cost of the services to patients. Forexample the use of tembo card, ultra sound, and X-rays.

Transport; ICI is used in transport system to control and ensure the safety of passangers who use a certain transport Forexample In Airport they use ICI to communicate with a pilot who is flying with an aeroplane, and also they allow aeroplanes to land in a port or not to land. Also in Railways the use of standard gauge the trains which use electronic.

Offices; ICI is applicable in different offices whereby workers use ICI system to communicate or spreading informations. Forexample writing Typing meeting minutes, processing information and storing different informations or records.

Therefore; ICI is applicable or applied in many areas. And the application of ICI has brought to development either of a Community or at National levels.

Extract 11.1: A sample of a response from a candidate who correctly explained the application of ICT in different areas and including examples.

Moreover, the analysis indicates that some of the candidates who scored average marks, were able to write correct introductions and outline areas

where ICT is applied, but they could not give clear explanations. Others were able to give correct introductions and conclusions, and explain few areas where ICT is applicable.

On the other hand, few candidates (0.3%) who scored low marks had a problem of providing clear explanations. Also, they lacked essay writing skills and therefore they did not write introductions and conclusions. In addition, most of them wrote two, three or four areas which lead them to lose some marks. Extract 11.2 shows a sample of an incorrect response from one of the candidates.

11	Information and communication Technology; This refer to the use of mobile phote, Tv, internet and radio too to the result of transfering information or text from one to another area, or is the networking system which used in storing and transforming data from one area to another ICT it becomes an umblellor of network. The following are the uses of information and technology,	
	It is applied when we need to communicate; Means that in order communication to take place there must be the use of information and communication Technology. Forexample we can commucate through social media such as FB, world, wide web W.W.W. WATSUP.	
	It is applied when we need to search materials from the internet. Means that ICT can be used during searching the different materials from the internet. Forexample the use of Gogle.	
	It is applied when we need to use the process of E-learning. Means that without ICT no any interaction in accademic issues. Forexample we use the process of World Wide Web (W.W.W.) for sharing accademic in issues	
	ICT it is applied when we need to store data or information; Means that through the process of word microsoft word and also a microsoft excell we can success to store data and to retain for long time.	
	ICT applied when we want to transfer the	

11	the information from one area to another, and	
	it can be inside or outside the curty. For example	
	the sending to process of sending message	
	we use the process of short services Massage	
	Services [SMS]	
	Generally; The programme of having the	
	Information and communication Technology is	
	very important in the sous society even also	
	the country due to various work such as of	
	Storing data.	

Extract 11.2: A sample of a response from a candidate who failed to explain the application of information and communication technology in different areas.

2.12 Question 12: Socio Economic and Cultural Aspects of ICT

This was an essay type question which required the candidates to use five reasons to justify the notion that the usage of computers in offices is better than using other means of writing, processing and keeping information.

A total of 2,733 candidates (88.9%) attempted this question, out of which 270 (9.9%) scored from 0 to 5.5 marks, 1,124 (41.1%) scored from 6.0 to 10.0 marks and 1,339 (49.0%) scored from 10.5 to 15.0 out of 15 the allocated marks. The data shows that the general candidates' performance in this question was good, because 90.1 percent scored above 5.5 marks. Figure 12 shows the candidates' performance in this question.
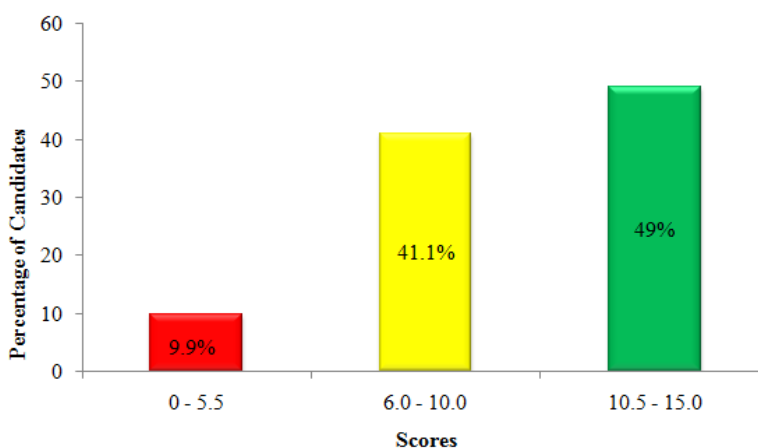
Figure 12: *The candidates' performance in question 12.*

The analysis of candidates' responses shows that candidates who scored high marks (10.5 to 15) were able to write correct introductions, conclusions and reasons for opting for computer in offices as the means of writing, processing and keeping information. Some of the candidates failed to write conclusions which made them lose few marks. Extract 12.1 shows a sample of a correct response from one of the candidates.

12.	Usage of computers in offices is better than using other means (5) ponig Justify
	Computores, refers to an electronic device in which information can be preserved. computer has the following types that are super computer, Mainframe computer, mini computer, mainframe micro computer, personal and palm computer It is true that usage of computer is better than using other means due to the following:
	Speed, the use of computer in various sector enable much production of good as well as simplifying work because computer perform varrous works in a short time, this include writing, editing, scanning, searching and others, all activities can be conducted clearly in shot time
	Accurance, the use of computer is much important than othe machine because it perform alot of activities with accurate there is no mistake in a computer, sing it works as instructed by a user, through this machine much people where able to perform well in their steedies as well as production activities
	Deligence, the use of computer in daily activities is much important to the people because the computer can not get tired, may perform billions of activity in all time, due to this factor people they are able to perform their activity through whole day day with helping of computer as a result of modern society

12.	Storage, the use of computer is much important in the offices because it enable the people to store various information in a computer for future life, the storage of computer enable more information to be preserved and updated when necessary	
	Capacity, the use of computer is much important than any other means because of high capacity, sometime the user may type error word during input data, but through computer, the word may underlied and the user understand that when error is made	
	Therefore through use of computer, people where able to perform many activities efficiently and at a short time, this factor made many people to develop much creativity in computer for application.	

Extract 12.1: A sample of a response from a candidate who managed to justify the notion that the usage of computers in offices is better than using other means of writing, processing and keeping information.

Moreover, most of the candidates who scored average marks (6 to 10) were able to explain correctly some reasons for opting using computer in offices rather than other means of writing, processing and keeping information, but failed to write clear introductions and conclusions. Others wrote correct introductions and conclusions but they gave wrong explanations of some points in the main body. Furthermore, some of the candidates concentrated in writing disadvantages of using computer as the means of writing, processing and keeping information in offices. For example, one of the candidates wrote: *It increases laziness among the office member. They depends only to use computer to every computation.*

On the other hand, the majority of the candidates who scored low marks (0 to 5.5) were able to write the reasons for opting for computer in offices as the means of writing, processing and keeping information, but failed to provide explanations of some of the points that they mentioned. Others had poor English language proficiency which prohibited them from giving correct

explanations. In addition, some of the candidates concentrated on explaining application of computer in school offices especially on the uses of office application programs such as word processor, excel and power point presentation instead of explaining the reasons for opting for using computer in offices rather than other means of writing, processing and keeping information. Others explained functions of computer such as input, output and processing data. This signifies that the candidates did not understand the requirements of the question. Extract 12.2 shows a sample of an incorrect response from one of the candidates.

12	in of other people to function/	
	They use more time to desplay the	
	practices that portrays Emmoral values/	
	sometimes people do using computers to	
	to observe some cultural values of other	
	people th which are not accepted In our	
	culture and destroys the good cultural values)	
	It can led to forget the proffessional	
	skills, the use of computers to the large	
	extents, lead to forgetiveness of some-	
	one proffessional skill, so the people should	
	not excessifully used the computer so that	
	to make active their proffessional skills,	
	Therefore it is not good to use a	
	computer In your work which did not spe-	
	cialized in computer study because you	
	tend to forget your previously skills such	
	away that when a computer is not there	
	yo cannot perform you work well, The person	
	who specialized In computer are one ones	
	who are likely to use a computer in their	
	proffessions,	

Extract 12.2: A sample of a response from a candidate who failed to justify the notion that using computers in offices is better than using other means of writing, processing and keeping information.

2.13 Question 13: Computer Programming Languages

In this question, the candidates were required to give factors to consider in selecting a programming language to use in preparing a certain program.

A total of 397 candidates (12.9%) attempted this question, out of which 91 (22.9%) scored from 0 to 5.5 marks, 104 (26.2%) scored from 6.0 to 10.0 marks and 202 (50.9%) scored from 10.5 to 15.0 out of 15 the marks allocated. The data shows that the general candidates' performance in this question was good, because 77.1 percent scored above 5.5 marks. Figure 13 shows the candidates' performance in this question.
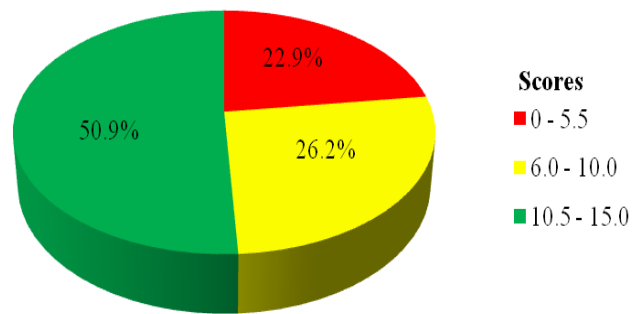
Figure 13: *The candidates' performance in question 13*

The analysis of candidates' responses shows that candidates who scored high marks in this question were able to mention correctly factors to consider in selecting a programming language. Most of them had sufficient knowledge on factors to consider in selecting a programming language. For example, one candidate wrote: *factors to choose and selecting a programming language are fit for purpose, speed of developing a program, easy to understand and learning and portability of the program.* However, some candidates failed to score full marks because they did not provide clear explanations. Extract 13.1 shows a sample of a correct response from one of the candidates.

13. programming language is the artificial language which used to write sequence instruction that can be runed by the computer.

The following as the factors that consider in selecting of programming language to use in preparing a certain program.

Must fit the purpose, This among the factors to consider in selecting programming language to use in program. Make sure that that language you selected must fit you purpose of you program.

Easy to locate error, This another factor that you can use to select programming language. your programming language must easy to locate error like C++ this help you to use good programming language.

Easy to use/read, This another factor that you can use to select programming that is easy to read by that type of programming language you use.

Easy to Understand, this another factor that you can use to select program which are very easy to understand that language.

Easy to debug this another factor that you can use to select good programming language that help you to easy to debug. when you consider this factor you can develop good program.

Therefore Gass when you want to develop your program you must follow this factors that it can help you to developing a program that is suitable.

Extract 13.1: A sample of a response from a candidate who correctly mentioned the factors to consider in selecting a programming language.

Furthermore, the analysis show that most of the candidates who scored average marks (6 to 10) were able to mention two to three factors, but they could not give sufficient explanations in the introductory part. For example, one candidate wrote the following introduction: *Programming language; this is the language designed in order to use in certain program, or is the language used by a programmer in a certain program*. This signifies that, the candidates lacked skills in writing introduction.

Furthermore, the candidates who scored low marks (0 to 5.5) were able to write introduction correctly but did not understand the requirements of the question. For example, one candidate wrote: *to define problem, to make plan of it, program design, program test and documentary program*, which are basically the stages of developing program and not factors to consider in selecting a certain programming language. This indicates that the candidates had insufficient knowledge of programming. Extract 13.2 shows an example of an incorrect response from one of the candidates.

13. Programming Language is the language Used by a computer inorder to translate Information. programing language have five stages of language program. The Following are the Factors to Consider Consider In selecting a programming language to use in preparing a certain program.

Problems Identify problems. People should be Selecting a programing by considering to Identify problems inorder to know the problem concerning

Planning a solution. People should be Solve the problems when he or she know the causes of the problems. So planning a solution Should be Applied.

Coding the program. Also the Solution of obtained should be coding the program inorder to Understanding more the problem

Implimentation. Also when finding the Solution about the problems also Implementation Should be applied inorder to make clarification of the problem.

Evaluation. After getting the Solution about A the Certain problem evaluation should be applied inorder to make clarification about the problems which occured.

Generally. programming language is the program which helps to know the steps to be Follow when Some body get the problems in order to make clarification about the problems

Extract 13.2: A sample of a response from a candidate who wrote the stages of developing a program instead of giving the factors to consider in selecting a certain programming language.

2.14 Question 14: Computer Laboratory Management Skills.

This was an essay type question which required the candidates to analyse five computer laboratory safety regulations.

A total of 3,049 (99.2%) candidates attempted this question, out of which 268 (8.8%) scored from 0 to 5.5 marks, 1,698 (55.7%) scored from 6.0 to 10.0 marks and 1,083 (35.5%) scored from 10.5 to 15.0 out of 15 the marks allocated. The general candidates' performance in this question was good, because 91.2 percent scored above 5.5 marks. Figure 14 shows the candidates' performance in this question.
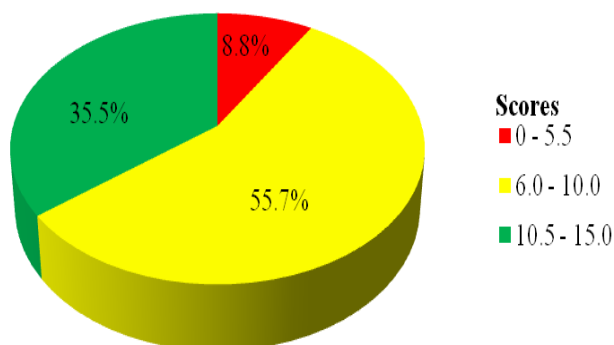
Figure 14: *The candidates' performance in question 14.*

Most of the candidates who scored high marks (10.5 to 15) wrote correct introductions and conclusions about computer laboratory safety regulations. However some of the candidates in this category failed to write correct conclusions which made them score fewer marks. Others gave and explained all the five computer laboratory safety regulations as it was required. Although some failed to explain in detail one or two points. Extract 14.1 shows a sample of correct responses provided by one of the candidates.

14. Computer Laboratory is the place or room or building in which the computer and other computer facilities are cept kept.

The following are the safety regulations of a computer Laboratory

Never store food in the computer Laboratory This is one of the safety regulations in the computer Laboratory because computer equipments needs safe area in which there is no any kind of dust when using it

Don't enter in the computer Laboratory with any kind of Liquid When you required to enter in the computer Laboratory your not allowed to enter with any kind of liquid in the computer Laboratory

Do not direct Computer to the direction of sun light. This also is the one of the safty regulation used in the computer Laboratory because When you direct the computer in to the sun light direction it will allow to disturb the computer system.

Turn off all electrical sources before you Live in the Computer Laboratory. before Living from the Laboratory your required to turn off all electrical sources so as to keep the computer Laboratory safe. If there is an any electrical shock happen Means the co source are off so there is no any effect

Do not A4 remove computer from its place or position without any problems In the computer Laboratory your not allowed to remove the Computer from its position without any kind of problems arise in the computer Laboratory.

The above explanation is about safety regulations for computer Laboratory so its very Important to observe those safety regulation in the computer Laboratory so as to keep the computer safe.

Extract 14.1: A sample of a response from a candidate who managed correctly to analyse five computer laboratory safety regulations.

Moreover, majority of the candidates who scored average marks (6 to10) were able to explain some safety regulations in computer laboratory but with poor English in the introductions and conclusions. Furthermore, few candidates wrote correct introduction and conclusion but gave wrong explanations to some of the points. For example, one candidate wrote: *do not allow sharing storage devices like flash and CD in computer laboratory*. This candidate did not know that sharing of storage devices like flash disc and CD is not a computer laboratory safety regulation, but a way to preventing the spread of computer virus from one computer to another.

On the other hand, the candidates who scored low marks (0 to 5.5) were able to give the meaning of computer laboratory but failed to analyse computer laboratory safety regulations. Others were poor in English which made them failed to give correct explanations. For example, one of the candidates wrote, *among the safety regulations in computer laboratory is to indicate position of air condition and uninterruptable power supply.* In addition, some of the candidates explained the computer laboratory requirements instead of computer laboratory safety regulations. Others explained factors to consider in setting up of computer laboratory such as space, ventilation and location of building. Such responses suggest that these candidates did not understand the requirements of the question. Extract 14.2 shows a sample of an incorrect response from one of the candidates.

14. **Computer laboratory** – Is the special room or building where computers and other peripheral devices are stored for practical-purposes. The following are laboratory safety regulations :-

Physical impirement: Sitting to the computer for long time causes pains in joints, muscles, tendons and other physical part of the body. Symptoms of physical impirement are headach, pains.

Eye impairement: The Sitting to the computer for the long time lead to eye impaire ment. Symptoms of eye impairement are red eyes, sore eyes and also headach, numbering.

Fatigue: Working for long time in a computer leads to fatigue where by a person feel much tit tired and fail to perform other task or other activities. So people should not stay to the computer for a long period of time since leads to fatigue.

Stress: Staying to the computer for a long period of time leads to stress. So it is not adviced to work on computer for a long period of time since can cause stress to a person working to the computer in long period of time.

Backbone diseases: Working to the computer for a long period of time can lead to backbone diseases which has lead to pain to the suffer due to the uses of computer for longtime.

Therefore people should not work for a long time to the computer also people should use adjustable chairs in in order to minimize these effects.

Extract 14.2: A sample of a response from a candidate who explained health problem caused by computer users instead of laboratory safety regulations.

2.15 Question 15: Assessment Procedures for Information and Computers Studies

This was essay type question which required the candidates to explain three advantages and two disadvantages of using essay test items in an examination.

A total of 3,007 candidates (97.8%) attempted this question, out of which 7 (0.2%) scored from 0 to 5.5 marks, 193 (6.5%) scored from 6.0 to 10.0 marks and 2,807 (93.3%) scored from 10.5 to 15.0 out of 15 the marks allocated. The data shows that the general candidates' performance in this question was good, because 99.8 percent scored above 5.5 marks. Figure 15 shows the candidates' performance in this question.
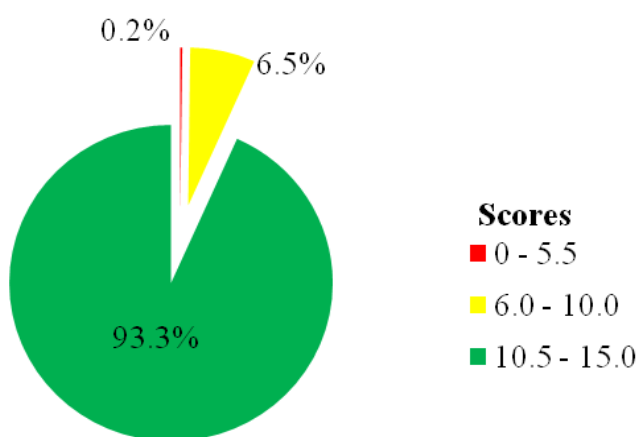
Figure 15: *The candidates' performance in question 15.*

The analysis shows that majority of the candidates who scored high marks (10.5 to 15) were able to explain correctly the advantages and disadvantages of essay type items. Also, these candidates managed to write their essay logically by beginning with an introduction, ending with a conclusion. However, some of the candidates in this category failed to write appropriate introduction, they only defined the key terms in the question. These candidates had no skills on write good introductions. Extract 15.1 shows a sample of correct response from one of the candidates.

15   Essay Test items; These are the test items which are asked in such away that; for each of them; there is ~~only~~ more than one predetermined answers. These essay test items are also categorized into two types, that is; extended essay test items, in which the respondent (student) is free to answer as he or she can; and the last type of essay test item is restricted essay test items, in which under this type of essay test item, students given the limitations while they are answering; forexample; list two types of computer; but for extended, the question can be asked that; list types of computer; but there is no clear limitations. The following are the advantages of using essay test items in an examination;

firstly; It is easy to construct, because only few questions which are very short and very clear are needed Under this categories of test item; so a teacher can construct very faster. forexample; If the academic master announced to the subject teachers for classes that; on tomorrow; every subject teacher should submit the examination to the academic master; so due to shortage of time, a teacher can use this category of test item which is essay test Item to construct very g quickly to the academic office; examples of those essay questions It can be as follow; 1, What are the four principles of teaching Information and communication technology?

15	Secondly; It gives wide chance to
	the learner to respond on it' due to fact
	that; under this category of test items, there is
	no only one correct answer but there should
	have more than eight points onwards; So, a
	students get a wide chance and to respond
	on it. forexample; If the question in the test
	states that; "Mention two principles of teaching
	and learning Information and computer studies (ICS).
	but to the marking scheme it will be located
	a lot of points such as; motivation forexample to
	participate in different fields also Active approaches
	to learning in which students will spend a long time
	by doing and not by listening; So a student
	can come up with his or her answer which is correct
	but not located on that marking scheme; forexample
	for those that question above can answer that;
	the first principle is' "To encourage students effective
	learning process which promote inquiry mind".
	Third; It reduces the chance of cheating;
	doesn't matter that; students who sat near to
	each other will make cheating from each one;
	because, even though cheating let say say it
	had occured; but the one who looks to his or her
	fellow students and seen some points related to
	the questions giving he or she will fail to give
	explaination to those questions; hence the one
	decides to leave aside those points.
	Apart from the advantages of
	using essay test items; also the following
	are the disadvantages of using essay test
	items; as explained to the next page as follows;

Extract 15.1: A sample of a response from a candidate who managed to provide advantages and disadvantages of using essay test items in an examination.

The analysis further indicates that some of the candidates who scored average marks (6 to 10) were able to give advantages and disadvantages of essay test item by giving relevant introduction, but they provided insufficient explanations which made them to score average marks.

On the other hand, few candidates who scored low marks (0 to 5.5) were able to give some advantages and disadvantages of essay test items, but failed to

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give correct explanations. The responses that the candidates gave show that they lacked knowledge of the subject matter as well as proficiency in the English language which hindered them from composing clear sentences. For example, one candidate wrote: *It is used to strength and weakness; This one used for used to know the candidate to make mistake which to an understanding with environment to connection to made to consistence of the test which applied*. Extract 15.2 shows a sample of an incorrect response from one of the candidates.


Extract 15.2: A sample of a response from a candidate who was unable to explain the advantages and disadvantages of using essay test in an examination.

2.16 Question 16: Computer Basics and Networks

This was an essay type question which required the candidates to describe five type of equipments used for ICS data back-ups.

Only 72 (2.3%) candidates out of 3,074 attempted this question, out of which 39 (54.2%) scored from 0 to 5.5 marks, 4 (5.5%) scored from 6.0 to 10.0 marks and 29 (40.3%) scored from 10.5 to 15.0 out of 15 the marks allocated. The data shows that the general candidates' performance in this question was average, because 45.8 percent scored above 5.5 marks. Figure 16 shows the candidates' performance in this question.
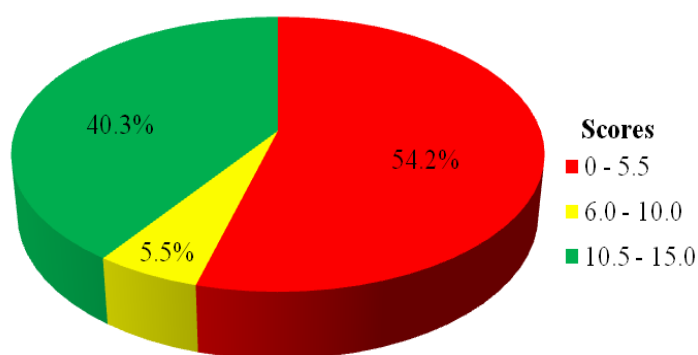
Figure 16: *The candidates' performance in question 16.*

The analysis shows that many candidates (54.2%) gave incorrect responses. Their responses show that they did not understand the question. For example, one candidate described: *observation, survey, interview* and *portfolio* which are assessment tools, instead of describing the equipment for data back-ups such as external drives, floppy discs, flash or memory cards. Extract 16.1 shows an example of an incorrect response from one of the candidates.

6   ICS Means the study of inform ation and Computer study which was designed to teaching and learning in the school by using the Science and technology was going in this subject they found ICT information and comm unication technology which allow in the process of teaching and learning process to use the comp uters, laptops and multimedia inorder to understa nd well. The following are the equipments used in ICS data back-ups.

      Syllabus. Is the book that summari zed the topic in which found in the text book that they contain the objective, Topics, strategies, teaching and learning activities and & teaching aids which the teacher can reffers or back up to know the different data which can be followed.

      Scheme of work, Is the plan which are designed by the teacher to plan all activities which should done in the class, this planned per term, year or month according to teacher term, so when they want to know the last ICS must back up with see the frame work which has planed to go and this scheme of work was directed those activities of teacher.

      Lesson Plan, Are plan which designed by the teacher to specific time or for the single periods or dubled and this they are important for the teacher because they used to back up what they planned to tought during the teaching and learning process also it contain the methods which was used and teaching aids which are best in sub-topic.

Lesson notes, Is the summarization of the content which was already planned in the lesson development or lesson plan and that lesson notes was going hand to hand with the Lesson plan where by the teacher when teaching ICS using lesson notes to deliver the lesson for the learners properly.

Text book, Is the book that contain all topics which explained and are found in the syllabus this book was contain the different information of the subject and was explained well also have Quiz, exrcise, Home work which can direct the learners and teachers because all they use but they contain teaching ards and & Methods of teaching and learning forexample ICT books.

In generally the study of ICS it have Important for the learners and teachers because they reduce the illiteracy people in country by showing Interactive learning, Simplify the teaching and learning process, also Motivate the student to learn.

Extract 16.1: A sample of a response from a candidate who described teaching preparation tools such as syllabus, scheme of work, lesson plan, lesson notes instead of describing equipment for data back-ups.

The analysis further shows that the candidates (5.5%) who scored average marks (6 to 10) were able to explain correctly only three types of equipment used for ICS data back-ups. For example, one candidate mentioned: *modem*, *floppy disc, flash disc, compact disc and memory and ROM/RAM*. However, modem and RAM/ROM are not used for data back-up. Also, few candidates scored average marks because they failed to write appropriate introductions or conclusions of their essays.

On the other hand, the candidates who scored high marks (10.5 to 15) were able to describe five equipment used for ICS data back-ups. Their responses demonstrated that the candidates had sufficient knowledge on data back-ups. However, few of the candidates failed to score full marks because they failed

to write good introductions and conclusions. Extract 16.2 shows a sample of a correct response from one of the candidates.

16. Equipments are tools that can be used and function in the Computer. ICS stands for Information and Communication studies. Back-up is the process of making restoring of either information or anything with the Computerized machine. The followings are the five equipment used for ICS data back-ups.

Floppy disk. This is the type of storage or is the storage device which provide the free or additional space to the computer. Forexample, when a card redder is inserted in the computer, a back-up can be done by re-store. Information to the disk for future use.

Flashes. Also flush disk also provides a space in which data is stored. So the back-up can be done through flush disk by copying and pashing data or information to flushes.

External memory. this is the form of memory (card) which offers a free space for back-up of information from computer for future use. So back-up can be achieved also by using this external memory card connected to the computer.

Compact disc. Also compact disc can be used to stor back-up the information by burning information to the (CD) compact disc. So here your can also make a back-up of your data.

Online back-up like google-drives. Also a network provides online back-up of information which is secured and safe. Forexample, 'google back-up', MEG A" Software back up which provides up to 500 GB free space for back-up.

Therefore, back-up is inevitable since no loss of information easily. Also when you lost your device, leads to due to back-up, you are able to restore again.

Extract 16.2: A sample of a response from a candidate who was able to mention and describe equipments used for ICS data back-ups correctly.

3.0 ANALYSIS OF CANDIDATES' PERFORMANCE IN EACH TOPIC

The Information and Communication Technology examination had 16 questions that were set from 9 topics. The short answer questions were composed from the following topics: *The Fundamentals of Information and Communication Technology*, *Computer Basics and Networks*, *Generic Application Software*, *Computer Programming Language*, *Website Design*, *Socio Economic and Cultural Aspects of ICT*, *Multimedia*. The essay questions were set from the following topics: *The Computer Laboratory management skills*, *Assessment Procedures for Information and Computers Studies*, *Computer Programming Languages*, *Socio Economic and Cultural Aspects of ICT* and *Computer Basics and Networks*.

The analysis of the candidates' responses shows that the performance was good in five topics: *Assessment Procedures for Information and Computers Studies* (99.8%), *Socio Economic and Cultural Aspects of ICT* (94.7%), *Computer Laboratory Management Skills* (91.2%), *Generic Application Software* (81.9%) and *Computer Basics and Networks* (70.1%). The good performance in the stated topics was attributed to adequate knowledge and correct interpretation of the requirements of the questions. The candidates had average performance in two topics which are: *Fundamentals of Information and Communication Technology* (67.1%) and *Computer Programming Language* (43.9%). However, the candidates performed poorly in two topics which are: *Multimedia* (37.9%) and *Website Design* (33.3%). Candidates' poor performance was attributed to insufficient knowledge of the concepts taught under the stated topics, wrong interpretation of the requirements of the questions, poor English Language and lack of practical skills. The analysis of performance per topic in this subject is shown in the *Appendix A* attached to this report.

The comparison of candidates' performance between 2018 and 2019 shows that in 2018 the performance was good in 3 topics, average in 4 topics and weak in 2 topics, while in 2019, the performance is good in 5 topics, average in 2 topics and weak in 2 topics. The candidates' performance has not changed in *Assessment Procedures for Information and Computers Studies* (good) and *Website Design* (weak). In addition, the topic of *Socio Economic and Cultural Aspects of ICT* which had poor performance in 2018, has a good performance in 2019. Furthermore, 3 topics namely *Computer Laboratory Management Skills*, *Generic Application Software* and *Computer Basics and*

Networks had average performance in 2018, but has good performance in 2019. Moreover, *Multimedia* which had an average performance in 2018 has weak performance in 2019. The comparison of candidates' performance between 2018 and 2019 is displayed in *Appendix B*

4.0 CONCLUSION

In general, the performance of the candidates in ICT subject in DSEE 2019 was 99.84 percent which is a good performance. This performance implies that majority of the candidates had sufficient knowledge on the examined concepts.

The analysis on individual items shows that most candidates experienced difficulties in answering questions number 4, 5, 7 and 16, which were set from the topics of *Computer Programming Languages, Website Design, Multimedia* and *Computer Basics and Networks.* The factors which seem to have contributed to candidates' failure include, insufficient knowledge of the concept taught under the stated topics, incorrect interpretation of the requirements of the questions, poor English language proficiency and lack of practical skills.

5.0 RECOMMENDATIONS

In order to improve the performance of future candidates, it is recommended that:

(a) Tutors should teach prospective candidates how to read and identify the requirements of the questions.

(b) Tutors should motivate and guide student teachers to master English language which will improve their ability to express their ideas clearly and logically.

(c) Tutors should assist Student teachers to form ICT clubs, which will help them improve their practical skills. In such clubs Student teachers will have opportunities to share different ideas and experiences as well as practicing what they learn in class.

(d) Tutors should organise seminars and meetings to exchange ideas and experience on ICT. This can be done by the teachers in the same school or with different schools to share their experiences.

(e) Tutors should provide enough exercises, tests and assessments to enhance student teachers' mastery of different concepts.

Analysis of the Candidates' Performance in each Topic

S/N	Topic	Number of Questions	Percentage of Candidates who Scored 40 % Marks or Above	Remarks
1.	Assessment Procedure for ICS	1	99.8	Good
2.	Socio Economic and Cultural Aspects of ICT	4	94.7	Good
3.	Computer Laboratory Management Skills	1	91.2	Good
4.	Generic Software Application	1	81.9	Good
5.	Computer Basics and Networks	4	70.1	Good
6.	The fundamentals of Information and Communication Technology	1	67.1	Average
7.	Computer programming Languages	2	43.9	Average
8.	Multimedia	1	37.9	Weak
9.	Website Design	1	33.3	Weak

The Comparison of Candidates' Performance in 2018 and 2019

S/N	Topic	2018			2019		
		Number of Questions	Percentage of Candidates who Scored 40 % or Above	Remarks	Number of Questions	Percentage of Candidates who Scored 40 % or Above	Remarks
1.	Assessment Procedure for ICS	1	95.5	Good	1	99.8	Good
2.	Socio Economic and Cultural Aspects of ICT	1	39.8	Weak	4	94.7	Good
3.	Computer Laboratory Management Skills	1	46.8	Average	1	91.2	Good
4.	Generic Software Application	3	64.7	Average	1	81.9	Good
5.	Computer Basics and Networks	4	46.8	Average	4	70.1	Good
6.	The fundamentals of Information and Communication Technology	3	87.1	Good	1	67.1	Average
7.	Computer programming Languages				2	43.9	Average
8.	Multimedia	1	44.4	Average	1	37.9	Weak
9.	Website Design	1	8.4	Average	1	33.3	Weak
10	Planning and Preparation for Testing ICS	1	94.7	Good			