



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

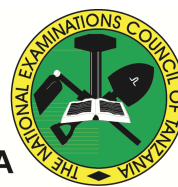


**CANDIDATES' ITEM RESPONSE ANALYSIS
REPORT ON THE DIPLOMA IN SECONDARY
EDUCATION EXAMINATION (DSEE) 2021**

**INFORMATION AND COMMUNICATION
TECHNOLOGY**



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**738 INFORMATION AND COMMUNICATION
TECHNOLOGY**

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FOREWORD

The National Examinations Council of Tanzania is pleased to issue the report on Candidates' Item Response Analysis (CIRA) for Diploma in Secondary Education Examination (DSEE) in information and Communication technology subject for the year 2021. This report has been prepared for the purpose of providing feedback to educational administrators, college principals, tutors, student teachers and other educational stakeholders on the performance of the candidates who sat for Information and Communication Technology (ICT) examination. Particularly, the report intends to show the weaknesses and strengths of the candidates who sat for this examination.

The Diploma in Secondary Education Examination measures the effectiveness and efficiency of the educational system in general and educational delivery in particular. Basically, the candidates' responses to the examination questions show how the teaching and learning objectives were achieved in the classroom. It also shows the extent to which Information and Communication Technology learning competencies were attained in their Diploma in Secondary Education course.

The report highlights some of the factors behind the good performance of the candidates on most of the topics. The factors include; ability to interpret the demands of the questions, good mastery of competencies stipulated in the syllabus and sufficient practical skills. Likewise, the report highlights the reasons behind the weak performance on the few topics. The factors include; inability to interpret the demands of the questions, lack of competencies in the subject contents and inadequate practical skills.

The feedback provided in this report is expected to enable the educational stakeholders to take appropriate measures to improve teaching and learning in this subject. This will eventually improve the candidates' performance in the future examinations.

Finally, the National Examinations Council of Tanzania is grateful to all examination officers and all other stakeholders who provided valuable assistance in the preparation of this report in their various capacities.



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 2021. The paper was set according to 2009 Information and Communication Technology syllabus for Diploma in Secondary Education and 2017 examination format. The paper comprised sections A, B and C with a total of 16 questions. Section A had of 10 compulsory short answer questions weighing 4 marks each. Sections B and C each had three (03) questions weighing 15 marks each. Candidates were required to answer any two (02) questions from each of the sections.

The number of candidates who sat for this examination in 2021 was 2,088, out of which 94.6 per cent passed the examination. This performance has decreased by 4.8 per cent if compared to the performance of 2020 where 99.4 per cent of candidates passed.

The analysis of candidates' performance was done where samples of Extracts for correct and incorrect responses are included. The candidates' performance in each question is graded in the following groups; 70 to 100 per cent indicating good performance, 40 to 69 average performances and 0 to 39 weak performances. Also, three colours were used which were red, yellow and green to represent weak, average and good performance respectively.

The analysis of the candidate's performance in each topic was also done. It includes a list of factors attributed to good and weak performance. Finally, the report presents a conclusion and recommendations.

2.0 ANALYSIS OF THE CANDIDATES' PERFORMANCE IN EACH QUESTION

2.1 Question 1: Socio-Economic and Cultural Aspect of ICT

This question required a candidate to describe briefly two advantages of using Information and Communication Technology in each of the following areas: (a) Business (b) Government.

A total of 2087 (99.9%) candidates attempted this question. The general performance in this question was good since 98 per cent scored from 2.0 to 4.0 marks. Figure 1 shows the candidates' performance in this question.

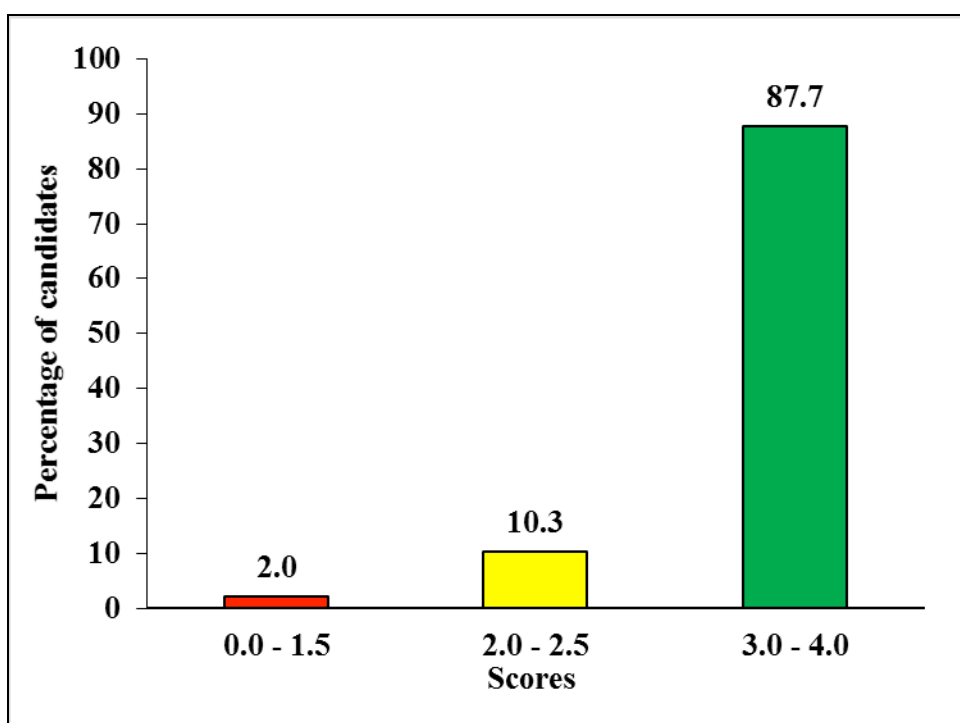


Figure 1: *The candidates' performance on question 1*

The data also reveals further that 43 (2.0%) candidates scored from 0 to 1.5 marks, 214 (10.3%) scored from 2.0 to 2.5 marks and 1830 (87.7%) candidates scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The data analysis shows that candidates (87.7%) who scored high marks described correctly the advantages of using ICT in business and government. Many candidates explained the advantages of using ICT in business by considering aspects of e-commerce and online billing. Also,

many candidates explained the advantages of ICT in government by focusing on means of communication and revenue collections. Extract 1.1 shows a sample of a correct response from a candidate.

1. (a)	Advantages of Information and Communication Technology in Business.	
(i)	ICT assist much in finding market for the certain business through advertising through internet or social networks.	
(ii)	ICT in keeping records in business, all record concerning with a certain business will be easy kept by using computer.	
(b)	Two advantages of ICT in Government.	
(i)	ICT used by government in keeping the government record so as to be used when needed.	
(ii)	ICT used by government collecting tax revenues. for example TRA use much computer system to collect all revenues in a country.	

Extract 1.1: A sample of correct responses to question 1

In Extract 1.1, the candidate correctly explained importance of ICT in marketing, record keeping and taxation.

On the other hand, 2.0% of the candidates scored low marks. These candidates mentioned points which do not relate to either government or business. For example, one of the candidates wrote; *ICT facilitates distance learning*. This point reflects importance of ICT in education. Also, a number of candidates presented same points using different words. For instance, there was a candidate who wrote *ICT helps to share information* and *ICT helps to disseminate information* as two different points. Moreover, there were candidates who presented points which do not directly clarify the advantage of ICT to a particular area. Extract 1.2 shows a sample of a candidate who gave an incorrect response.

01.(a) Business	
- It help to improve the use of science and technology in bussiness.	
(b) Government	
- It enable the government to applying laws on the different sectors.	

Extract 1.2: A sample of incorrect responses to question 1

In Extract 1.2, the candidate gave points which do not have a direct connection to business or government.

2.2 Question 2: Multimedia

The question required a candidate to describe briefly the importance of some elements of multimedia i.e. text, video, graphics and sound in the teaching and learning process”.

A total of 2085 (99.8%) candidates attempted this question. The data shows that the general candidates’ performance in this question was good because 88.8 per cent scored marks ranging from 2.0 to 4.0. Figure 2 shows the candidates’ performance on this question.

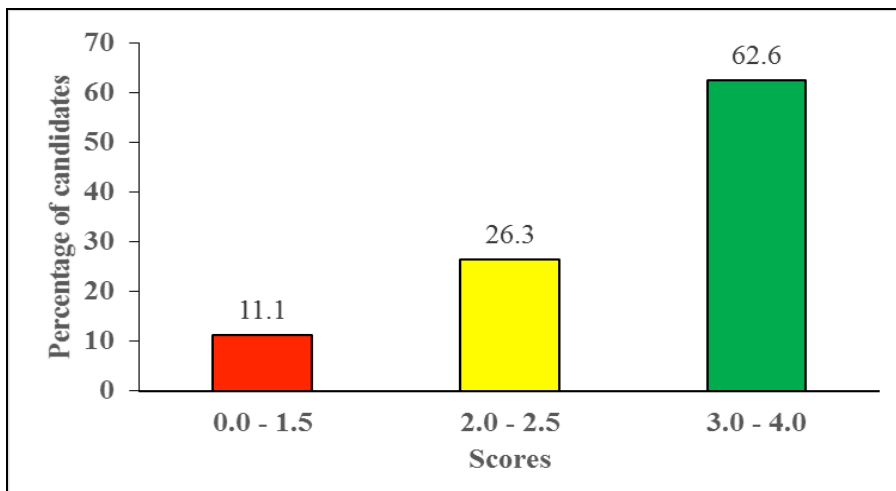


Figure 2: The candidates’ performance on question 2

Also, the data depicts that 232 (11.1%) candidates scored marks ranging from 0 to 1.5 while 549 (26.3%) scored from 2.0 to 2.5 marks and 1304 (62.6%) candidates scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The analysis shows that candidates (62.6%) who scored high marks managed to describe each element by giving meaning, examples and its contribution in teaching and learning. Some candidates explained that text allows many learners to learn in the same room silently and assist other elements. Also, there are candidates who explained that sound used to emphasise teaching and learning process where user can listen while video facilitates demonstration. Extract 2.1 shows a sample of a correct response on this question.

2	i/ Text- This include books, newspaper, magazine and journals which used in teaching and learning process whereby the information can be obtained through using those textual materials, that influence and increase knowledge in teaching and learning process.	
	ii/ Video- This include all audio visual instrument like Television and cinema, that it draws attention and interest to learners to learn as they learn by listening while watching.	
	iii/ Graphics- It includes the drawing pictures that are in coloured drawn, that also it is important in developing attentiveness of the learners and easily understanding in teaching and learning process.	
	iv/ Sound- It means the audio recorded sound, that it is important to encourage learners to take note when listening to the audio recorded sound.	

Extract 2.1: A sample of correct responses to question 2

In extract 2.1, a candidate described correctly the importance of elements of multimedia in the teaching and learning process.

However, the candidates (11.1%) who scored low marks did not explain the core distinctive function which makes an element different from others. For example, a candidate wrote *texts simplify the process of teaching and learning and Graphics motivate learners in the process of teaching and learning*. Some candidates wrote; *video helps in online learning*. This signifies the importance of ICT in education. Extract 2.2 shows a sample of an incorrect response from one of the candidates in question 2.

2.	- Video - Motivate learners	
	- Graphics - Creates curiosity to learners	
	- Animation - Can entertain learners	
	- Sound - Give long term memory to learners	
	- Videos - Promotes attention in teaching and learning process	

Extract 2.2: A sample of incorrect responses to question 2

In extract 2.2, a candidate wrote the importance of elements of multimedia in teaching and learning process with little explanation on the importance of each element in teaching and learning process.

2.3 Question 3: Computer Basics and Networks

In this question, a candidate was required to differentiate the terms as used in Information and Communication Technology; (a) Hypertext Transfer Protocol and File Transfer Protocol and (b) Network News Transfer Protocol and Transmission Control Protocol.

A total of 1728 (82.8%) candidates attempted this question. Data show that candidates' general performance in this question was weak because 16.4 per cent scored from 2.0 to 4.0. Figure 3 is a summary of candidate's performance in question 3.

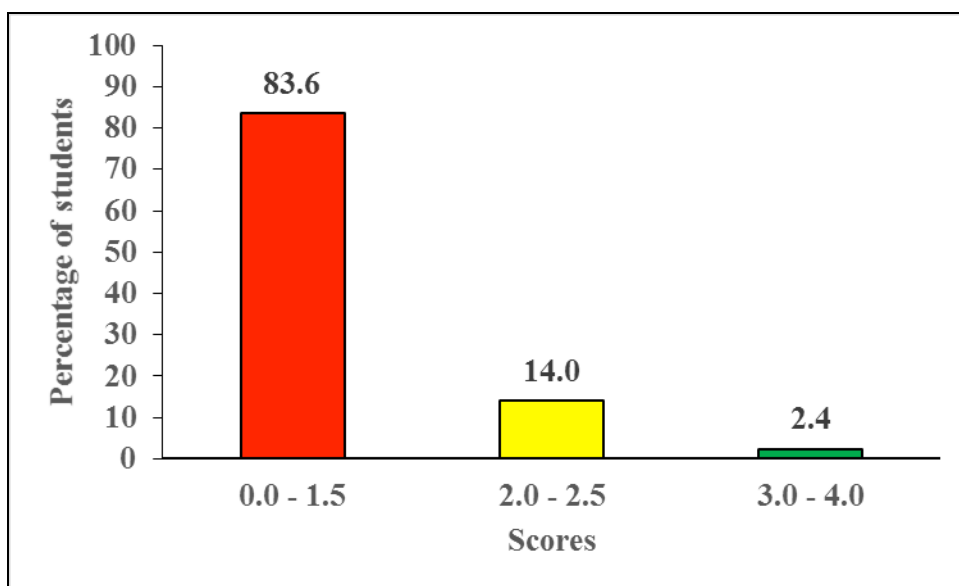


Figure 3: The candidates' performance on question 3

The data reveals that 1444 (83.6%) candidates scored from 0 to 1.5 marks, 242 (14.0%) candidates scored from 2.0 to 2.5 and 42 (2.4%) candidates scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The data analysis shows that 83.6 per cent of the candidates scored low marks. Many of them were not familiar with the terms. Therefore, they used words which distort meaning of the given terms. For example, one of the candidates wrote; *Hypertext Transfer Protocol (HTTP) and File Transfer Protocol (FTP) as a document, information or processes while Network News Transfer Protocol (NNTP) and Transmission Control Protocol (TCP) were referred to as tools or types of network*. Another candidate wrote; *HTTP is the tool used to transfer the text which is not in the folder while FTP is a tool or a device to transfer the files from one place to another*. Others wrote; *NNTP is a kind of network which is new network in the computer while TCP is a tool used to spread the information from one place to another*. Extract 3.1 shows a sample of an incorrect response from one of the candidates.

3	(a) Hypertext Transfer Protocol → This is the type of Information stored in a primary memory WHILE File transfer Protocol → keep is the keeping of the Information using file.	
	(b) Network News Transfer Protocol → Are the network that is accessible to new information WHILE	
	Transmission Control Protocol → This is the transfer of Information in the Control Unit.	

Extract 3.1: A sample of incorrect responses to question 3

In Extract 3.1, the candidate included other concepts of computer memory, generic software application and computer system.

On the other hand, the candidates (2.4%) who scored high marks, managed to differentiate the terms by focusing on the environment they are used in part (a). They wrote; *HTTP is used to transfer data in the internet while FTP is used to transfer data from one computer to another*. However, the terms can also be differentiated by focusing various factors including; HTTP establishes data connection only, while FTP establishes both data connection and control; HTTP uses TCP's port number 80 while TCP uses TCP's port number 20 and 21. FTP requires authentication while HTTP do not, HTTP is efficient in transferring smaller files like webpages while FTP is efficient in transferring large files. In part (b), the candidates managed to differentiate Network News Transfer Protocol (NNTP) and Transmission Control Protocol (TCP) according to the functions they perform over the networks. NNTP uses TCP/IP for retrieving, posting and distribute messages across the network while TCP connects network devices to the internet. NNTP transfers bulk articles from one different server to others while TCP runs in a web, email and peer to peer file sharing. Extract 3.2 shows a sample of a correct response from one of the candidates.

3.	(a) Hypertext Transfer protocol: Refers to the set of rules which guide the transfer of a document in internet while File Transfer protocol: Refers to the set of rules which guide the transfer of files between computers or in the network.	
	(b) Network News Transfer Protocol: Refers to the set of rules which guide the transfer of new informations in the network while Transmission Control protocol: Refers to the rules which guide the transmission of informations in the internet. Hence this is a broad term which includes the network & News Transfer Protocol.	

Extract 3.2: A sample of correct responses to question 3

In Extract 3.2, the candidate managed to distinguish between Hypertext Transfer Protocol and File Transfer Protocol terms as used in Information and Communication Technology.

2.4 Question 4: Generic Application Software

In this question, a candidate was asked to show how good slides can be prepared in the PowerPoint presentation by giving four points.

A total of 1779 (85.2%) candidates attempted this question. The general candidates' performance in this question was weak because 74.6 per cent scored below 2 marks. Figure 4 shows the candidates' performance in this question.

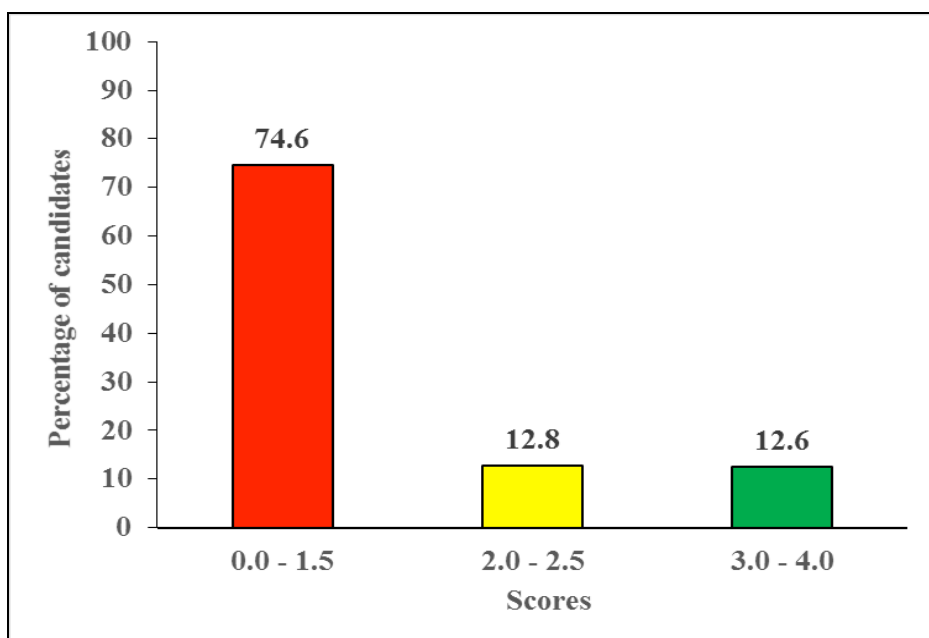


Figure 4: *The candidates' performance on question 4*

The data shows that 1327 (74.6%) candidates scored from 0 to 1.5 marks while 228 (12.8%) scored from 2.0 to 2.5 marks and 224 (12.6%) candidates scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The analysis showed that the majority of the candidates (74.6%) who scored low marks failed to understand the requirements of the question. Some of the candidates did not score any marks because they mentioned wrong application software for creating PowerPoint presentation. For example, one candidate wrote; *Using spreadsheet, using Microsoft Word, using Microsoft Excel*. Other candidates listed names of fonts, for example, *Times New Roman, Arial and Tahoma*. Extract 4.1 shows a sample of an incorrect response for this question.

4.	Good slides can be prepared in a power point presentation through the following	
	1. Through the use of good dances # like projectors	
	2. Good slides can be prepared by the illelectured person who have knowledge about the computer.	
	3. Good slides can be prepared through the use of electricity.	

Extract 4.1: A sample of incorrect responses to question 4

In extract 4.1, the candidate mentioned requirements for PowerPoint presentation instead of showing how to prepare good slides in a PowerPoint presentation.

On the other hand, the candidates who scored high marks (12.6%) managed to mention 3 or 4 points that are required to prepare good slides in a PowerPoint presentation. For example, one of the candidates wrote; *the slides should not contain too much information or a lot of information and selection of the good background of the slides during the preparation of the slides that arise the interest of the learner.* Extract 4.2 shows a sample of a correct response for this question.

04	Preparation of good slide in Power Point:	
	- The use of interesting graphics: Example: Photographs and Animation.	
	- Clear font : such as Times New Roman and Calibri with enough size to be seen.	
	- Color ; background and font. Avoid to use same colors between background and font.	
	- Slide should have few details: Summary of subject notes.	

Extract 4.2: A sample of correct responses to question 4

In Extract 4.2, the candidate managed to describe qualities of a good slide.

2.5 Question 5: Generic Application Software

In this question, a candidate was required to write the functions of the following shortcut keys as used in computer application software such as Microsoft Word: (a) CTRL+P (b) CTRL+A (c) CTRL+C (d) CTRL+V. The question aimed at assessing the candidate's knowledge on the function of shortcut keys.

A total of 1679 (74.4%) candidates attempted this question. The general candidates' performance in this question was weak because 74.4 per cent scored below 2 marks. Figure 5 is a summary of candidates' performance in this question.

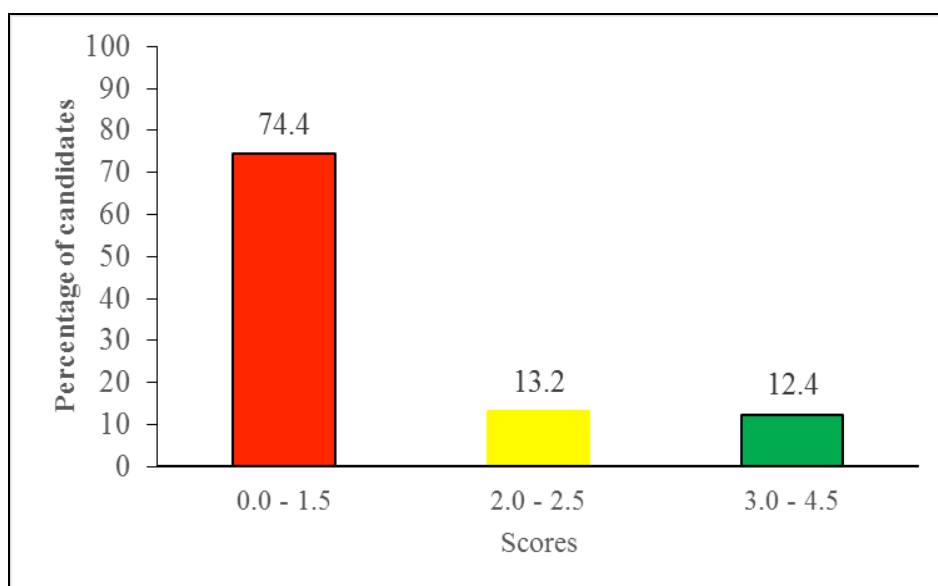


Figure 5: The candidates' performance on question 5.

Figure 5 shows that 1249 (74.4%) candidates scored from 0 to 1.5 marks, 221 (13.2%) candidates scored from 2.0 to 2.5 and 209 (12.4%) candidates scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The data analysis reveals that the candidates (74.4%) who scored low marks failed to recall the correct functions of the asked shortcut commands. As a result, they wrote incorrectly functions to some or all of the shortcuts. For example, one of the candidates wrote; *CTRL+P is used for pasting, CTRL+A to enter data to the computer, CTRL+C is used to cut*

data, CTRL+V is used to process data. The correct functions are CTRL + P is for printing a document, CTRL + A for highlighting the whole document, CTRL + C for copying the selected file/document and CTRL + V is for pasting a document or content. Extract 5.1 shows an example of an incorrect response for this question.

5. (a) CTRL + P	
- It used to make highlight of notes or information.	
(b) CTRL + A.	
- It used to make a smallest letter to the words or information.	
(c) CTRL + C	
- It used to make a capital letter of the words.	
(d) CTRL + V	
- It used to make a underling of the words.	

Extract 5.1: A sample of incorrect responses to question 5

In extract 5.1, the candidate failed to write the correct functions of the shortcut commands.

Furthermore, the analysis shows that the candidates (12.4%) who scored high marks, managed to wrote 3 or 4 correct functions of shortcut key commands. Extract 5.2 shows an example of a correct response for this question.

Q5a) CTRL + P = This commands the computer to Print out the written document.	
b CTRL + A = This commands the computer to highlight all written text and	
c CTRL + C = This commands the computer to copy the highlighted text work.	
d CTRL + V = This Commands the Computer to Past the copied text or image	

Extract 5.2: A sample of correct responses to question 5

In extract 5.2, the candidate wrote correctly the functions of shortcut key commands as used in computer application software such as Microsoft word.

2.6 Question 6: Computer Basics and Networks

This question had parts (a) and (b). The question asked; how are the following network devices differ in transportation of data from the source to the destination computers? (a) Hub and Switch, (b) Bridge and Router.

A total of 1781 (85.2%) candidates attempted this question. The overall candidates' performance in this question was weak because 16.8 per cent scored from 2.0 to 4.0 marks. Figure 6 shows the candidates' performance in this question.

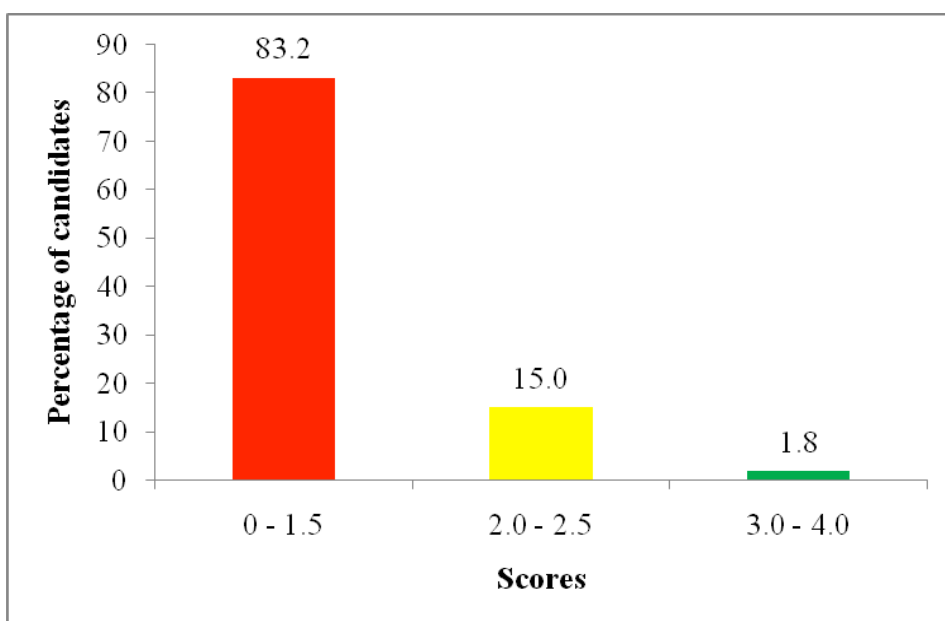


Figure 6: *The Candidates' performance on question 6*

Figure 6 shows that 1481 (83.2%) candidates scored from 0 to 1.5 marks, 268 (15%) scored from 2.0 to 2.5 and 32 (1.8%) scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The analysed data show that majority of the candidates (83.2%) scored 1.5 or less. Various misconceptions were observed. For instance, one of the candidates wrote; *Hub is the electronic device which is used to connect together the cables while switch is the device which is used to cut off the flow of current.* Furthermore, other candidates wrote *Router is the obstacle*

while Bridge is the process of overcoming the obstacle. Extract 6.1 shows a sample of an incorrect response for this question.

06,	a) Hub: Is the network device which used to	
	test the availability of network to the	
	devices WHILE Switch is the network	
	device which is used to turn ON or OFF	
	the device.	
	b) Bridge: Is a network device which used	
	to connect the connected devices WHILE	
	Router: Is a network device which	
	used to check the connection/presence of	
	internet between the devices.	

Extract 6.1: A sample of incorrect responses to question 6

In Extract 6.1, the candidate related network devices with other household electrical devices.

On the other hand, only few candidates (1.8%) who scored from 3.0 to 4.0 marks managed to describe the way the devices transfer data. They managed to show how hub and switch receive and send data to different ports and the way the bridge and router send data to different work stations in the networks. Extract 6.2 shows a sample of a correct response for this question.

6	@ Hub is a computer networking device containing multiple ports for transferring data packets but randomly it is not intelligent since it sends data even to unintended destinations.	
	WHILE	
	Switch is a computer networking device that looks similar to the hub but the switch is intelligent since it only send data packets to the intended destination.	
	(b) Bridge is the point at which data packets from one computer network system can not be transported to the other computer networking system. It acts a barrier on tranfering of the data packets.	
	WHILE	
	Router acts as a get way of of transpining of data from one computer network to the other. eg from one LAN to other LAN.	

Extract 6.2: A sample of correct responses to question 6

In extract 6.2, the candidate managed to differentiate the way different network devices differ in transportation of data from the source to the destination computers.

2.7 Question 7: Fundamentals of Information and Communication Technology

In this question, a candidate was required to explain why people prefer using modern media for information dissemination rather than the traditional media by giving two points.

A total of 2082 (99.7%) candidates attempted this question. The overall candidates' performance in this question was good since 96.3 per cent scored from 2.0 to 4.0 marks. Figure 7 shows the candidates' performance in this question.

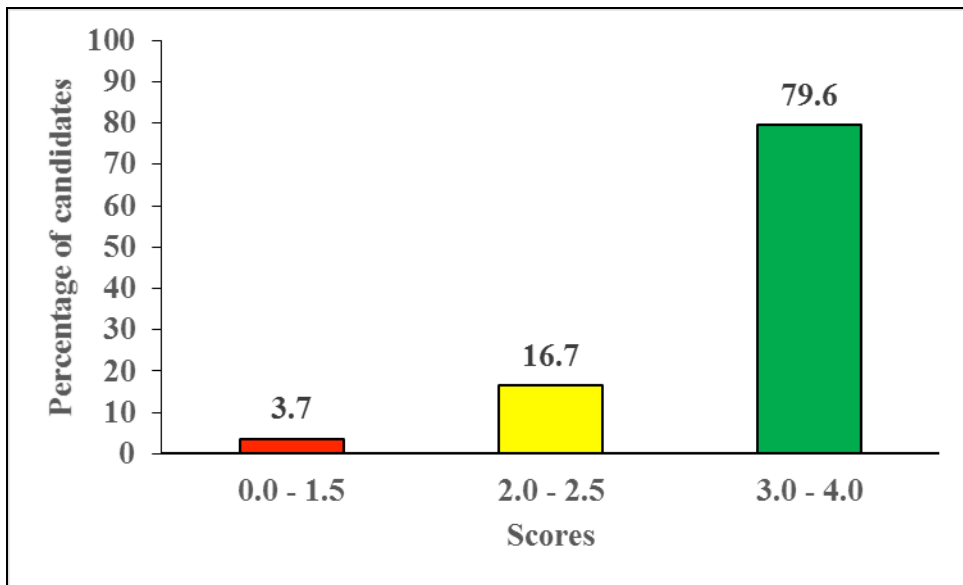


Figure 7: *The Candidates' performance on question 7*

Figure 7 shows that 77 (3.7%) scored from 0 to 1.5 marks, 347 (16.7%) scored from 2.0 to 2.5 and 1658 (79.6%) scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The data reveals that the candidates (79.6%) who scored high marks managed to give advantages of using modern media over traditional ones for information dissemination. Most of the candidates based on accuracy, durability, integrity and scope. For instance, one of the candidates wrote; *in modern media information can take short time to reach at destiny therefore it saves time*. Another candidate wrote; *Information disseminated in modern media covers a large area at once*. Extract 7.1 shows a sample of a correct response for this question.

7. - Modern media it cover the Large area than traditional media. example the use of Radio and television the Large area can acquire the information rather than traditional media like horns, Drums.	
- Modern Media is too fast in dissemination of the information rather than traditional media. example people may announce the events by using social networks and few ten minutes or short time. Many people may acquire the information.	

Extract 7.1: A sample of correct responses to question 7

In extract 7.1, the candidate explained correctly why people prefer using modern media for information dissemination rather than the traditional media. This implies that the candidate had adequate knowledge on the topic.

However, 3.7% of the candidates scored low marks. These candidates mentioned examples of modern and traditional media without giving the reasons why people prefer using the modern media over the traditional one. This response indicates that a candidate had inadequate knowledge on the topic. For example, one of the candidates wrote; *Modern media includes computer, television, radio, and projector while traditional media includes drama, folk media and songs.* Extract 7.2 shows a sample of an incorrect response for this question.

7.	(i) Printed media.	
	- It help to get new information example,	
	magazine, newspapers and so on.	
	- Helps in teaching and learning process example	
	textbook, dictionary and Encyclopedia.	
	(ii) Electrical media	
	- Use of internet to sharing information,	
	- Helps to sending and receiving information	
	through use of e-mails.	

Extract 7.2: A sample of incorrect responses to question 7

In extract 7.2, the candidate lacked enough knowledge on why people prefer using modern media for information dissemination rather than traditional media. A candidate mentioned some devices which are associated with modern media and categorised them as printed and electrical media but failed to explain the reasons behind people's preference for modern media over traditional one.

2.8 Question 8: Planning and Preparation for Teaching ICS

This question examined candidate's competence in planning and preparation for teaching Information and Computer Studies (ICS). The question required a candidate to elaborate the differences between teacher's manual and teacher's guide.

A total of 2073 (99.3%) candidates attempted this question. The general performance of candidates in this question was good because 93.4 per cent of the candidates scored from 2.0 to 4.0 marks. Figure 8.1 shows the candidates' performance in this question.

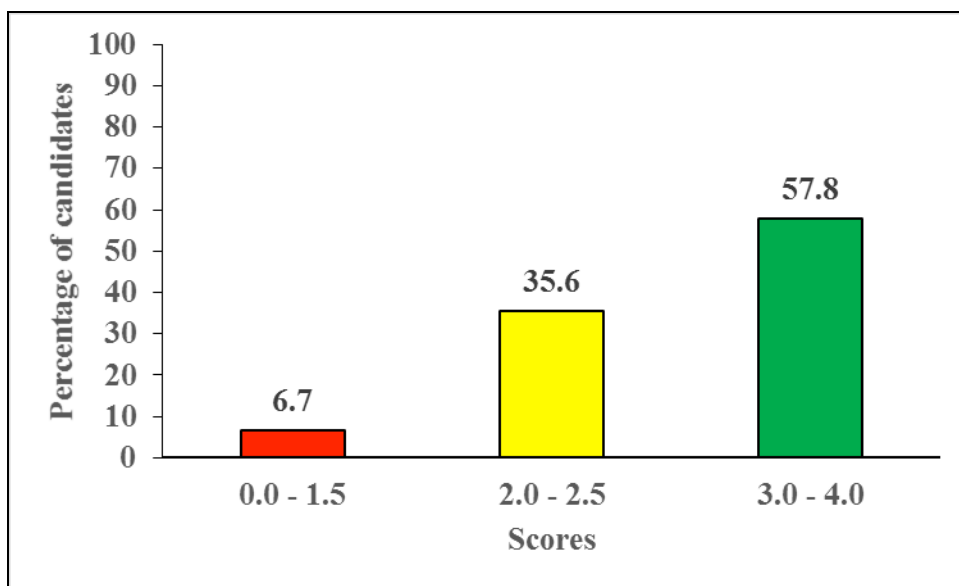


Figure 8: *The candidates' performance on question 8*

The data show that 138 (6.7%) candidates scored from 0 to 1.5 marks, 737 (35.6%) scored from 2.0 to 2.5 marks and 1198 (57.8%) scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The data reveals that the candidates (57.8%) who scored high marks managed to describe what is found in each document, which document is used by both teachers and students, roles and teaching strategies. For instance, one of the candidates wrote; *teacher's manual can be used by both students and teacher while teacher's guide can only be used by teachers*, while others wrote *teacher's manual does not have the assessment and evaluation tools while teacher's guide contains the assessment and evaluation tools*. Extract 8.1 shows a sample of a candidate who responded correctly.

08	Teacher's Manual	Teacher's guide
(i)	These are supplementary material such as Magazine, newspapers, pupil books, and text book used by both teachers and students.	Teacher's guide are used by teacher only.
(ii)	Teacher's Manual	(ii) Teacher's guides
	Contain question and instruction that help learners during teaching and learning	Contains answers of the question found in the text book.
08	Teacher's Manual	Teacher's guide
(iii)	It is not used by teacher to help a teacher to select teaching and learning method.	select teaching and learning method
(iv)	help to provide instruction and guide line for what to read and what learners to learn.	Can be used for preparation of making scheme

Extract 8.1: A sample of correct responses to question 8

In Extract 8.1, the candidate managed to differentiate correctly between teacher's manual and teacher's guide by giving descriptions, examples and roles of each document.

Moreover, 773 (35.6%) candidates scored from 2.0 to 2.5 marks. These candidates wrote only one part of the question thus failed to score all the four marks.

However, the candidates (6.7%) who scored low marks failed to provide clear explanations to differentiate between teacher's manual and teacher's guide. For example, one of the candidates wrote; *the*

contents of lesson plan, scheme of work and action plan. Extract 8.2 shows a sample of an incorrect response from one of the candidates for this question.

08	(1) Teachers Guide: Refers to the book or document guiding and showing teacher what to teach at what time to which kind of level of learners.	
	WHILE .	
	Teacher's manual is the personal arrangements of the individual teacher on achieving his/her daily routine.	

Extract 8.2: A sample of incorrect responses to question 8

In extract 8.2, the candidate lacked adequate knowledge and failed to give clear differences between teacher's manual and teacher's guide. The candidate tried to write the contents of a lesson plan, scheme of work and action plan instead of writing the difference between teacher's manual and teacher's guide.

2.9 Question 9: Computer Basics and Networks

In this question, a candidate was asked to analyse four disadvantages of using mobile phones rather than desktop computer in accessing the internet.

A total of 2078 (99.5%) candidates attempted this question. The overall performance of the candidates in this question was weak because 67.2 per cent scored below 2.0 marks. Figure 9 shows the candidates' performance.

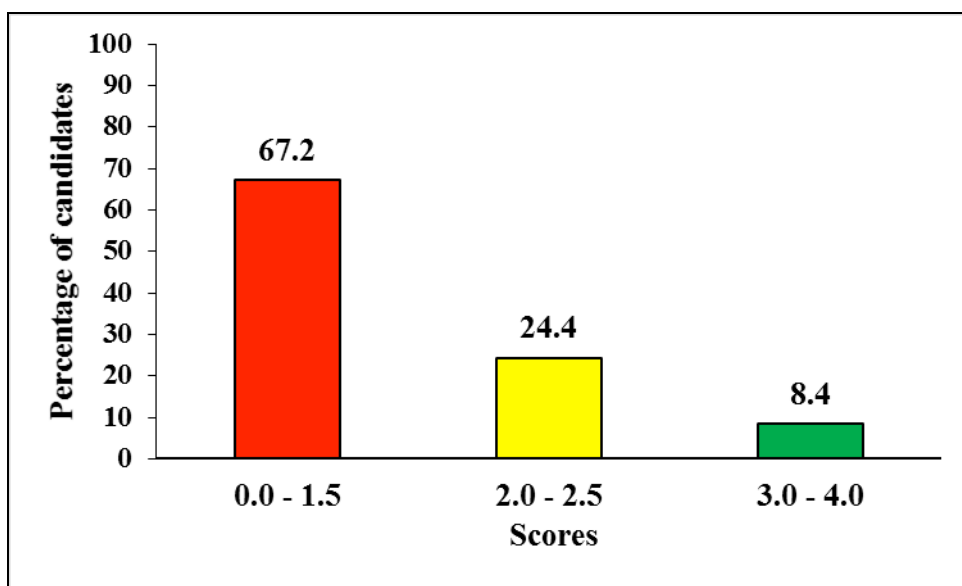


Figure 9: The candidates' performance on question 9

The data analysis shows that 1397 (67.2%) candidates scored from 0 to 1.5 marks, 507 (24.4%) scored from 2.0 to 2.5 marks and 174 (8.4%) candidates scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The analysis of data shows that 67.2% of the candidates scored low marks because they had wrong interpretation of the question. Some of them wrote the disadvantages of using mobile phones in general while others wrote the impact of ICT in the society. Some points presented by candidates include; *it emits a lot of poisonous radiations compared to desktop computer, it is very delicate compared to the desktop computer since can break easily.* Extract 9.1 shows a sample of an incorrect response from a candidate.

09.	i/ Increase their moral decay through seeing pornography.	
	ii/ Increase disease such as visual impairment.	
	iii/ led to laziness of people.	
	iv/ Virus attack or virus threats.	

Extract 9.1: A sample of incorrect responses to question 9

In Extract 9.1, the candidate wrote the negative impacts of ICT to the society instead of the disadvantages of using mobile phones rather than desktop computer in accessing the internet.

On the other hand, 8.4% of the candidates scored high marks because they managed to give the differences by considering size of the screen, storage capacity and compatibility to various programs. For example, one of the candidates wrote; *mobile phone has small storage of information, mobile phone has small screen to display information and interference of calls while connected or accessing the internet.* Extract 9.2 shows a sample of a correct response for this question.

	i. Mobile phone have low storage capacity than desktop computer.	
	ii. Mobile have small screen for display hence it does not show a good illustration	
	iv. It can be limited to some installation when compared to desktop computer.	

Extract 9.2: A sample of correct responses to question 9

In Extract 9:2, a candidate was able to analyse the advantages of using mobile phones in accessing the internet.

2.10 Question 10: Generic Software Applications

This question required a candidate to describe four basic requirements for printing a text document which is already prepared in a computer.

A total of 2018 (96.6 %) candidates attempted this question. The general candidates' performance in this question was weak because 71.0 per cent scored below 2 marks.

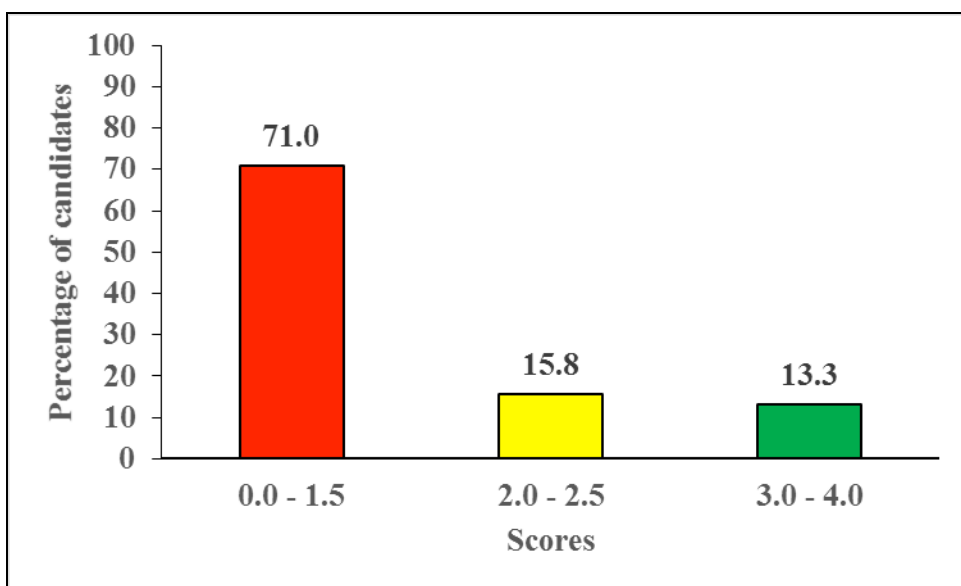


Figure 10: *The candidates' performance on question 10*

The data shows that 1432 (71%) candidates scored from 0 to 1.5 marks, 318 (15.8%) candidates scored from 2.0 to 2.5 and 268 (13.2%) candidates scored from 3.0 to 4.0 marks out of the 4 marks allocated.

The data reveals further that 71% of the candidates scored 1.5 marks or less. Some of them wrote the advantages of hard copy over softcopy. For example, one candidate wrote; *used to store memories and to use it at any time without bundles*. Other candidates wrote the disadvantages of sharing USB drive, that is *to afraid a computer can lose data or affected with virus*. Extract 10.1 shows a sample of an incorrect response for this question.

10.	i/ Go to file	
	ii/ Click print	
	iii/ Write the name	
	iv/ Then print.	

Extract 10.1: A sample of incorrect responses to question 10

In Extract 10.1, the candidate outlined steps of printing instead of requirements for printing a text.

On the other hand, the candidates (13.3%) who scored high marks had adequate knowledge and managed to describe at least 2 to 3 out of the 4 needed requirements for printing a text document which is already prepared in a computer. For example, one of the candidates wrote; *there should be a printer device. Also during printing process, the printer should be available for printing document* also added that *there should be power source. For example, the availability of electricity and a person who print these documents from computer*. Extract 10.2 shows a sample of a correct response provided by one of the candidates.

10	i) Printer devices for converting softcopy to hardcopy.	
	ii) Ream papers which aid on receiving software document into hardcopy.	
	iii) Source of electricity which will supply power so as to retrieval softcopy document into hardcopy document.	
	iv) Computer user means a person who suppose to control computer	

Extract 10.2: A sample of correct responses to question 10

In Extract 10.2, the candidate gave a correct description of the requirements for printing a text document.

2.11 Question 11: Computer Basics and Networks

The question required the candidate to analyse five functions of the operating system in a desktop computer.

A total of 1530 (73.3%) candidates attempted this question. The general candidates' performance in this question was average because 58 per cent scored from 6.0 to 15.0 marks. Figure 11 shows the candidates' performance in this question.

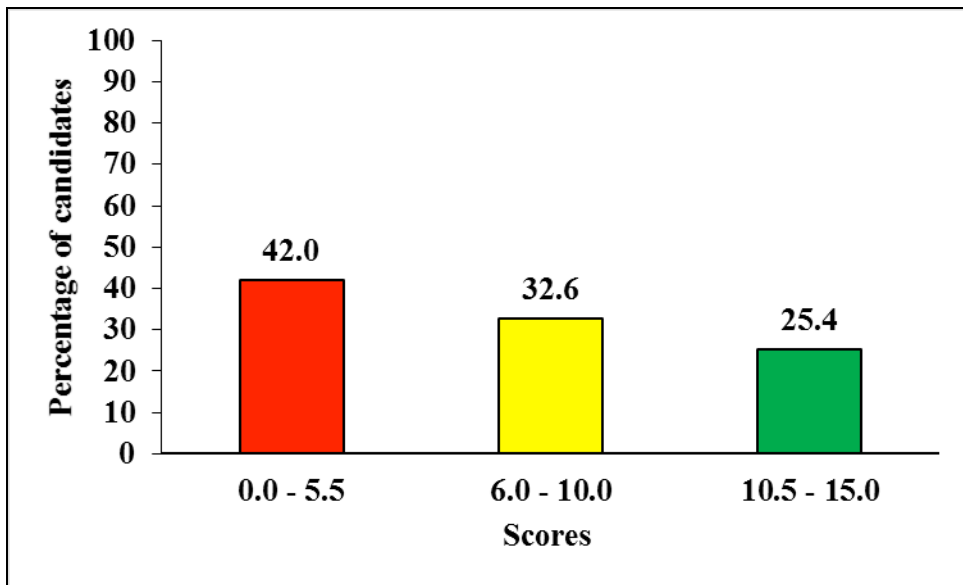


Figure 11: *The candidates' performance on question 11*

The data depict that 643 (42%) candidates scored from 0 to 5.5 marks, 499 (32.6 %) scored from to 6.0 to 10.0 marks and 450 (25.4%) candidates scored from 10.5 to 15.0 marks out of the 15 marks allocated.

The data shows further that the candidates (25.4%) who scored high marks managed to explain the core functions of operating system basing on memory, device management, handling input and output requests and error handling. Extract 11.1 shows some other functions which were presented by many candidates.

11.		
	Operating system are the software which are found in the computer help to maintain & manage different things in the computer.	
	The following are the functions of operating system.	
	Memory Management: Operating system as a software, it helps to manage the memory of the computer, which will be used to store different materials inside. So if there is no operating system then there will be no safe for the memory.	
	CPU Processor Management: Also the operating system as a software helps to manage the processor in the computer, since it is used to process the information that is fed into the computer then it needs to be managed and operating system will be responsible to manage it.	
	Device Management: Since in the computer there are different devices which are used to input data and display information. In order to do all of this the devices need to be managed and the one which will be responsible is the operating system.	
	Storage Management: In the computer there are many storage examples like hard disk, DVD, flash disk and internal storage. All of this are managed by the operating system that will take the responsibility about it.	

11	Security Management: Operating system	
	as a software help to ensure security in	
	The computer, Means That no virus in	
	The computer and make sure that the com	
	puter work very well . . .	
	All in all: Through operating system	
	in software, ensure that the computer are	
	secured, And it advised that in order	
	to secure the computer just close it	
	scan completing the whole process and	
	the operating system are there to ensure security.	

Extract 11.1: A sample of correct responses to question 11

In Extract 11.1, the candidate had adequate knowledge on the functions of operating system in a desktop computer.

On the other hand, the candidates (42.0%) who scored low marks failed to analyse the functions of operating system in a desktop computer. Some candidates wrote uses of computer in general, for example; *used for entertainment, used in the process of teaching and learning and used in keeping the records*. Other candidates wrote that one of the functions of the operating system is *to store information in either primary or secondary memory*. This is incorrect because the operating system does not store information by itself, however it manages storage devices. Moreover, many candidates explained core functions of other parts of a computer. Extract 11.2 shows a sample of an incorrect response from a candidate.

11.	<p>Operating System These are the system which operate the computer and a desktop computer this is a computer which put on the desk.</p> <p>The following are the functions of operating system in a desktop computer.</p> <p>It used to record the data for example when a teacher want to record the data in the desktop computer the operating system should work in order to record the data in the desktop computer.</p> <p>Operating system it is used to operate the whole information from the desktop computer in order to be good arranged that's why operating system is an important software system to a computer.</p> <p>Operating system it is used to operate the all calculations in the desktop computer which is conducted in by the user.</p> <p>Operating system used to operate the all written result in the computer which kept by the people for the future use. That's why operating system is an important software system to a computer.</p> <p>Operating system used to keep the time table when you prepared through the operating system.</p>	
11.	<p>led to the influence of the function of the operating system in the desktop computer.</p> <p>All in all operating system is an important software system to a computer so we must know how to use it when we are using the desktop computer.</p>	

Extract 11.2: A sample of incorrect responses to question 11

In Extract 11.2, the candidate explained the functions of Arithmetic Logic Unit (ALU) instead of the functions of the operating system.

2.12 Question 12: Multimedia

In this question, a candidate was required to justify the view that multimedia is a useful tool in different sectors of the societies by explaining the application of multimedia in any five sectors.

A total of 1930 (92.4%) candidates attempted this question. The general candidates' performance in this question was good because 96 per cent scored from 6.0 to 15.0. Figure 12 shows the candidates' performance in this question.

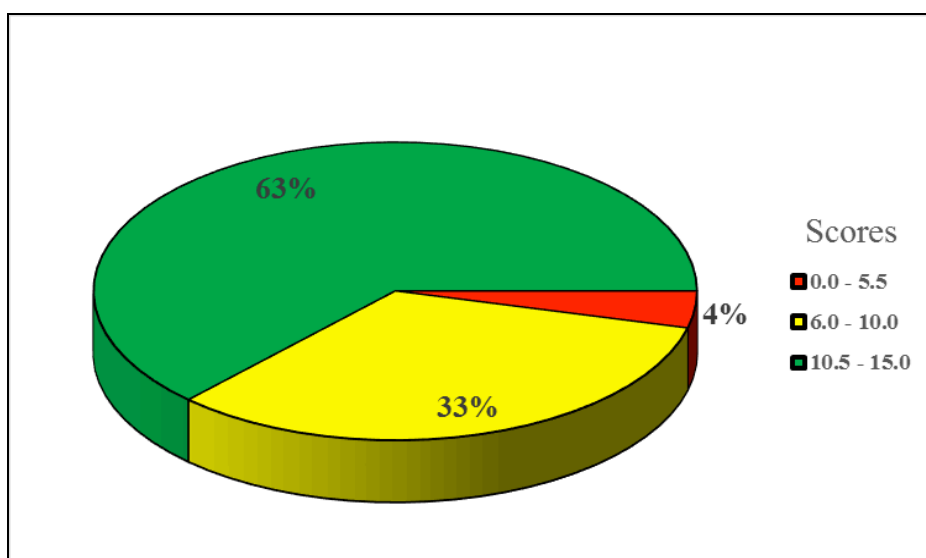


Figure 12: *The candidates' performance on question 12*

The data shows that 78 (4.0%) candidates scored from 0 to 5.5 marks, 636 (33.0%) candidates scored from 6.0 to 10.0 marks and 1216 (63.0%) scored from 10.5 to 15.0 marks out of the 15 marks allocated.

The candidates who answered this question correctly managed to explain the application of multimedia in various sectors including security, scientific research and so on. For instance, some candidates explained that in Mathematics and scientific research, multimedia is used mainly for modelling and simulations. Furthermore, other candidates wrote, *multimedia is used in security by recording and saving the events taking place at a particular time and area*. Extract 12.1 is a sample of a correct response in this question.

12.	<p>Multimedia is the combination of an text, sound, graphic, video and animation in the presentation of the information. Multimedia is effective when presenting information because it involves all senses of the audience. Multimedia is facilitated by the use of Information and Communication Technology.</p> <p>The following are the applications of multimedia in the society:</p> <p>In education, multimedia is used in preparation of instructions and presentation of instructions. Teachers use multimedia to prepare a lesson which is attractive to learners since it involves senses like seeing, hearing and doing. Teachers can includes graphics like pictures, text in form of alphabets and numbers, video that is still pictures in motion, sound and animation.</p> <p>In business, people can use multimedia to create attractive websites that are used to advertise their business. Website can include explanations in text, drawings, audio and video. So people become interested to explore those websites since they may allow feedback to the client.</p> <p>In entertainment, artists and musicians use multimedia to provide entertainment. A musician or film artist can combine audio and text to get an attractive video to be listened or watched by other people. Also nowadays animation is used for entertainment whereby children and adults enjoys watching cartoons and playing video games.</p> <p>In finance, bankc can use multimedia to provide their services. Nowadays there are services like Automatic Teller Machines that do not require a person to provide a service. So banks and other financial</p>	
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12.	institutions can use combination of sound, text, video, graphic and animation to give explanation on how to get a service without an assistant.	
	In health, multimedia is used in diagnosis of sicknesses and diseases. The use of ultrasound and x-rays is the knowledge of multimedia. So sound and text can be combined together to get a diagnosis of a certain disease. A doctor is required to have a knowledge of multimedia for effective and efficient provision of service.	
	Therefore, multimedia is a useful tool in several sectors. Without multimedia the provision of services in different sectors becomes less effective. So these sectors should apply the use of Information and Communication Technology to benefit with multimedia and other techniques.	

Extract 12.1: A sample of correct responses to question 12

In Extract 12.1, the candidate correctly explained the application of multimedia in health, entertainment, education and business.

Further analysis indicates that some candidates (33.0 %) scored average marks since they failed to explain all the required five sectors. The candidates wrote two to three points. Some candidates had poor work organisation or poor introduction and conclusion.

However, few candidates (4.0%) who scored low marks failed to understand requirements of the question. Some of these candidates wrote the impact of ICT to individuals and society at large. For instance, there were candidates who wrote; *it promotes theft and people can learn terrorism*. Other candidates mentioned the sectors but did not elaborate the points. For example, *multimedia is used in education sector*. Extract 12.2 shows a sample of an incorrect response from a candidate.

12. Multimedia is a useful tool in different sectors of the societies in the world. Explain the application of multimedia in any sectors in the society.

Multimedia is the combination of computer more than one in order to get the information. Their two categories of multimedia such as linear and non-linear multimedia. The following are the application of multimedia in any sectors in the society such as:

Developed Science and technology Skills; This is the application of multimedia in the society sector for example by using boats and Engineering and the science and technology should be developed.

Developed of Knowledge and Skills; This is the application of multimedia of the sectors in the society the knowledge and skills developed due to using the different sectors such as religion sectors and internet sector the application of the multimedia.

Developed of Language Skills; This is the application of multimedia in any sectors of the society when used different multimedia the language

12	Should be developed for example by using banks sectors the language should be developed.	
	Developed of the creativity skills in education sector which are help to increase the creativity of the learner this is the application of multimedia in the society.	
	Developed of friendship in the application of multimedia which developed friendship by using the different network this is the application of the multimedia in the society.	
	Developed of teaching and learning process in education sector which are help learner to get easily materials.	
	Generally the application of multimedia it help to increase the confidence of the learner because it developed knowledge and skills.	

Extract 12.2: A sample of incorrect responses to question 12

In Extract 12.2, the candidate explained how an individual person can improve personal skills through multimedia instead of the usefulness of multimedia in any five factors in the society.

2.13 Question 13: Computer Programming Language

In this question, a candidate was required to describe five factors to consider when selecting a programming language to.

A total of 695 (33.3%) candidates attempted this question. The general candidates' performance in this question was average because 58.3 per cent of the candidates scored from 6.0 to 15.0 marks. Figure 13 shows the candidates' performance in this question.

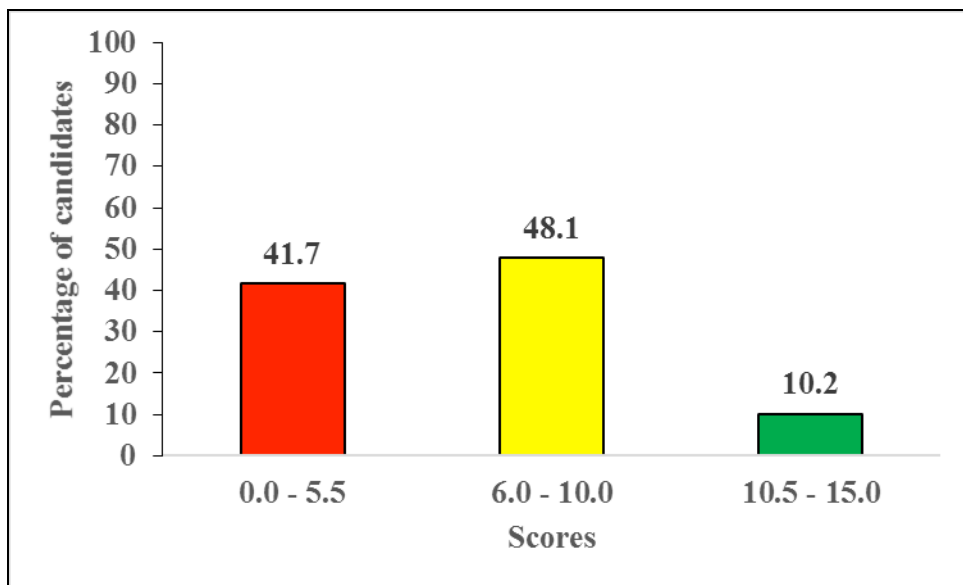


Figure 13: *The candidates' performance in question 13*

The data shows that 290 (41.7.0%) candidates scored from 0 to 5.5 marks, 334 (48.1%) candidates scored from 6.0 to 10.0 and 71 (10.2%) candidates scored from 10.5 to 15.0 marks out of the 15 marks allocated.

The analysis depicts further that the candidates (10.2%) who scored high marks managed to describe factors to consider when selecting a programming language. Description of many candidates based on execution time, skilled resources, maintenance and user friendly. For the case of maintenance, the candidates explained that *the programming language must accommodate changes*. Also, other candidates described that *the programming language should have a platform to enable programmers to trace source of errors*. Extract 13.1 shows a sample of a correct response from one of the candidates.

13.	<p>Programming language: is the programme or set of instructions used to where designed used to perform the particular task or used to convert data into the Machine language. These language programme consists are High level language and low level language and there are translator, Interpreter and also Compiler, and Comp Assembler.</p> <p>The following are five (5) factors you will consider when selecting a programming language to use.</p> <p>Availability of programmer skills:</p> <p>The availability of the programmers skills is the factor which consider when the selecting programming language to use the people should be able to know that language of the computer and hence to select the programming language.</p> <p>Availability of translator: The availability of the translator, The availability of language translator example Assembler, Interpreter, Assembler, It helps to selecting a programming language to use.</p> <p>Easy to learning: The easy to learning or to use, when the programming language is the very difficult to learn this make that to be difficult to choose that programming language and when are easy to learning or use it simplifies the use to be more easy to use that language.</p> <p>Execution time: The programming language should take a high speed when translator, It should be use the few minutes to translate the object code.</p>
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13. and the user can understand within the	
few minutes. That is should be consider that	
criterial of the for choosing the programming language.	
Documentation: The programming	
language should have the documentation about	
an instruction can how to use that programme	
The goal of programming language should be	
have the documentation about that program	
through provide the instruction can how to use.	
Generally: There are many factors	
for which consider when selecting a programming	
language to use and the consider also	
the cost, documentation of the programming	
language.	

Extract 13.1: A sample of correct responses to question 13

In Extract 13.1, the candidate answered the question basing on skilled personnel, execution time, ease to use and documentation.

Furthermore, analysis shows that 48.1% of the candidates managed to score average marks ranging from 6.0 to 10.0 by giving three to four points. Some points lacked logical flow and had grammatical errors while others repeated the same points using different words.

On the other hand, the candidates (41.7%) who scored low marks had misconceived the scenario written in the question. Some candidates thought about language selection during teaching and learning. Other candidates wrote; *nature of the students* and *number of students*, which are used when selecting teaching and learning methodologies. In addition, some candidates wrote; *the use of machine language which has more than one language, for example, Swahili or English*. Extract 13.2 shows a sample of a candidate who gave an incorrect response.

13	<p>Headmaster; Are the person which have professional of given authority to control, developing and managing all activities in the schools. The headmaster can promote and encourage performance of the school and to solve different conflict occurred to the employment teacher. The following are the factor to consider when selecting a programming language to use such are:-</p> <p>Absent language programme; This are the factors which can help to consider when to track of the students attendance of the school that can show the number of student Absents.</p> <p>present programming language; This are the language which should be considered of when for selecting programming language</p>	
13	<p>That can help to determine the student which is present to the schools.</p> <p>Sickness Student's; This are the language which should be considered when selecting programming language to use when determining the sickness student can help to develop a program.</p> <p>Student which have permission; This are the factor which should be consider when selecting a programming language to use to show the student which have permission to the attendance that can help to develop.</p> <p>Total number of student which are present and not present. Under this step you should calculate the total number of student which are present man or girl or boy that can develop a program that will keep track of the student attendance at school.</p> <p>Generally; The good attendance of the school help the student and teacher to achieve the performance of student and characteristics of the learner and also can help teacher of that subject to maintain performance record.</p>	use only

Extract 13.2: A sample of incorrect responses to question 13

In extract 13.2, the candidate suggested strategies to deal with truancy instead of factors to consider when selecting a programming language.

2.14 Question 14: Planning and preparation for teaching ICS

In this question, a candidate was required to elaborate five criteria to consider when choosing the best textbooks.

A total of 1479 (70.8%) candidate attempted this question. The general candidates' performance in this question was good because 93.8 per cent of the candidates scored from 6.0 to 15.0 marks. Figure 14 shows the candidates' performance in this question.

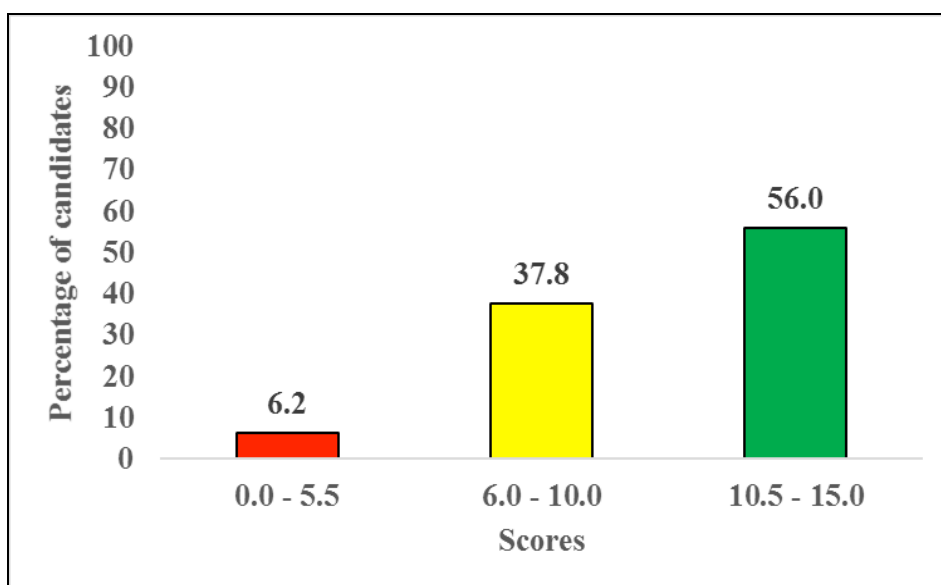


Figure 14. *The candidates' performance on question 14*

The data reveals that 92 (6.2%) candidates scored from 0 to 5.5 marks, 559 (37.8%) scored from 6.0 to 10.0 marks and 828 (56%) candidates scored from 10.5 to 15.0 marks out of the 15 marks allocated.

The analysis shows that candidates who scored high marks had sufficient knowledge on criteria for choosing the best textbooks. These candidates correctly explained qualities of a good textbook. For example, one of the candidates explained; *enough illustrations to enhance practical and images that show practical procedures on doing something in the computer.* Extract 14.1 is a sample of a correct response for this question.

14.	<p>Textbook refers to the printed books which has the content by considering the syllabus suggested to be in the book or be taught in a particular level of education. The criteria that my team will consider when choosing the best text books are as follows:</p> <p>Must be relevant to syllabus; the best text book should/must consider the content from the syllabus which are suggested to be taught in certain level of education by considering the age of the learners. For example that syllabus should suggest on what topic must be taught in the the Form Three class. must be found in the text book as suggested.</p> <p>Must use simple language and understandable; the best text book should use the simple language is understandable to the learners because learner sometimes make preparation him/her self without any assistance; so if the language is simple</p>	
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	<p>the learner can acquire knowledge easily.</p> <p>The content must arranged in sequential and series as the syllabus suggested; the good textbook must arrange the topic and subtopic from simple to complex and from unknown known to unknown which can make the interest of learning to the learners.</p> <p>It must contain examples, drawings for illustration; the examples and drawing which may found to the text book are used for more clarification of the the topic or subtopic and the learner can understand well hence good text books are.</p> <p>It must contain tasks which are directed to the learner; the text book should contain the many tasks which may cause the learner to be busy and by doing exercise found in the book on making the assessment and evaluation whether the lesson was understandable during teaching and learning process taking place.</p>	
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	Therefore; the text books are books used	
	in the formal education system thus the text books	
	must consider the critical writing and rational	
	thing of writing the text book by consider the	
	syllabus what suggested to be taught in order to	
	teach and learning proper materials hence competent	
	student to their subjects.	

Extract 14.1: A sample of correct responses to question 14

In extract 14.1, the candidate managed to give a thorough elaboration on criteria to consider when choosing the best textbook by giving five points with clear examples.

However, the candidates (6.2%) who scored low marks did not understand the requirements of the question. Some of them wrote procedures of solving a problem while others explained the size and price of the book. Extract 14.2 shows a sample of a candidate who responded incorrectly to question 14.

14.	Text book, refer to the printed book materials which can be used by a teacher or student in the process of teaching and learning. example of text book are perfects and juma which have been used in schools for the purpose of giving education to all people through teaching and learning process. The following are the criteria that your team will consider when choosing the best text book.	
	Define the problem, in order to get a good text book the group members must be able to look the problem and to define them so that they can be able to get good or to obtain the best text books for his or her team in order to be so more perfect	

	<p>plan' the solution, the other criterion is that due to find the problem in a team also must plan a very good solution for that problem which have been found in a text book so due to that a team may be able to get the good performance and to get a good text books.</p> <p>program design, Also the other criterion that a team can use to choose the best text book is that due to design the program a team will get more good performance through selecting a good and a best text book so they will be able to design the program that has been used in text book.</p>	
14	<p>program testing, Also the other criterion that you can use in selecting or choosing the best text book is that (due to design) the program also a team can test the program so that they can be able to get a very good and to choose the best text book in learning process.</p> <p>program documentation through choosing a very good and best text book a team must consider by using program documentation so that they can be able to get very good textbook and they can be able to choose a very best text book for their team.</p> <p>Text book due to having these criterion but also the following are the importance of using text book to increase understanding to people through teaching and learning, also text book it help a teacher and a student to increase knowledge and skills when they are learning and teaching process.</p>	

Extract 14.2: A sample of incorrect responses to question 14

In Extract 14.2, the candidate did not understand the question at all, instead of elaborating criteria to consider when choosing the best textbooks, the candidate wrote stages of developing a program.

2.15 Question 15: Computer Laboratory Management

In this question, a candidate was required to explain five factors to consider in the computer laboratory set up in order to make the laboratory user friendly to students and teachers.

A total of 1470 (70.4%) candidates attempted this question. The general candidates' performance in this question was average because 58.1 per cent of the candidates scored from 6.0 to 10.0 marks. Figure 15 shows the candidates' performance in this question.

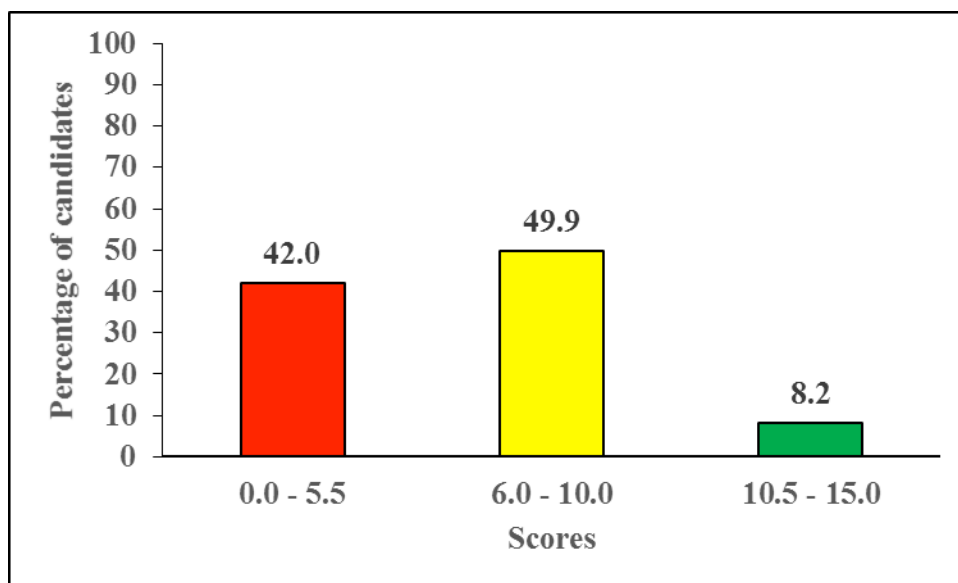


Figure 15: *The candidates' performance in question 15*

The data reveals that 617 (42.0%) candidates scored from 0 to 5.5 marks, 733 (49.8%) scored from 6.0 to 10.0 marks and 120 (8.2%) scored from 10.5 to 15.0 marks out of the 15 marks allocated.

The analysis of data shows that the candidates (42.0%) who scored low marks explained tools which are available in a computer laboratory such as first aid kit and fire extinguishers. Other candidates wrote computer laboratory rules and regulations, for example; *do not open the inner parts of the computer*. Extract 15.1 is a sample of an incorrect response for this question.

15. Factors to Consider in the Computer Laboratory Set up.

Computer Laboratory : Refers to the special room where the Computers are found. This is the very Important room where need more Care in order to keep the Computer in a good way and clear. The following is the factors to Consider in the Computer laboratory set up these are ÷

Don't keep the Computer directly from the Sunlight. Sun light to the Computer is a among of the dangerous substance to the Computer which may lead to the Computer to fail to do their work properly. Example when you keep the Computer at the open building it undergoes malfunctions.

Don't put the heavy objects on a Computer. This is the process where the large object on the Computer which may lead to the Computer to fail to their work as usually also may destroy the Computer shapes. Example: when you put the 100 kg object on a desktop computer.

Don't put the magnetic objects nearest the Computer. The magnetic object have the ability to attract with metal object too so also the Computer composed with that kind of materials which may lead to the attraction which if this behaviours is conducted in several time may lead to the loss of the natural ability to work of -

15	the Computer to work : Example when putting the Magnetiz Materials on a Computer may lead to the Computer to fail to work as usually.	
	Don't Allow the dust in the Computer laboratory : The Computer have the different Component of the devices there are some which is Composed by the Magnetiz which can easy to attract the dust around the Computer. For example : The Computer brain (Central processing unit) CPU is the delicate area where no any any on disturbance can be allowed to occur due to their effect on the whole Computer.	
	Make the Computer laboratory clean all the time : This May lead to the friendly environment for the learning and teaching a process to take place because learners behaviours is to learning conducive an environment which involve the cleanness. Examples when the Computer is clean also the arrangement of Computer will be good to motivate the learning process.	
	Therefore the above is the factors to consider in a Computer laboratory Inorder to make the friendly environment for learning between teacher and Students to take place.	

Extract 15.1: A sample of incorrect responses to question 15

In extract 15.1, a candidate wrote user safety regulations instead of factors to consider in the computer laboratory set up.

However, the candidates (8.2%) who scored high marks explained the factors correctly. For instance, one of the candidates wrote; *size of the room - when you need to set up the computer laboratory should look on the size of the room so that can help to determine the arrangement of the computer.* Other candidates wrote; *you should make sure there is source of power because computers use electricity.* Extract 15.2 shows a sample of a correct response from one of the candidates.

15	<p>Computer Laboratory Set up : This refer to the proper arrangement of Computer in the laboratory of computer . There are many set up of Computer in the laboratory some of those are glass sided set up , face to face set up and U-shaped inverted set up . The following are factors to consider when set up Computer</p> <p>Nature of Glass in term of size : A setter of a particular Computer should consider nature of a glass if glass is wide can use all types of Computer example U or V shaped Computer set up if glass is small setter can use U or V shaped Computer set up</p> <p>Availability and accessibility of electricity in a particular Computer room a Computer setter should ensure that when wants to set up the Computer in the laboratory there must be corridor must have electricity, so that can run accessibility of Computer to work properly</p> <p>Availability of security in the laboratory : In any laboratory set up there should have enough security in order to reduce data stolen and Computer to be stolen by thiver so in a particular Computer laboratory security of Computer should be available</p> <p>Number of students who use a particular Computer in the laboratory . A student in a particular class</p>	
15 +6	<p>should be equal to the number of a Computer so that every one can be use a particular Computer , If there is large number of student create difficult to make correction and clarification about study</p> <p>Cost and time to use a particular Computer laboratory ; Good laboratory it use a low cost and time to use a particular set up one which use cost and time at enough time as V or U shaped set-up because it is easily to solve problems faced learner to a short time</p> <p>There for Computer set up is very important to make user friends between teacher and learner of a particular use because can help sharing information between one user of Computer with another users of Computer</p>	

Extract 15.2: A sample of correct responses to question 15

In extract 15.2, the candidate managed to write correct factors to consider during the computer laboratory set up.

2.16 Question 16: Assessment procedures for ICS

This question required candidates to analyse three advantages and two limitations of using objective test for assessing Information and Communication Studies.

A total of 1220 (58.4%) candidates attempted this question. The general candidates' performance in this question was good because 94 per cent candidates scored above 5.5 marks. Figure 16 shows the candidates' performance in this question.

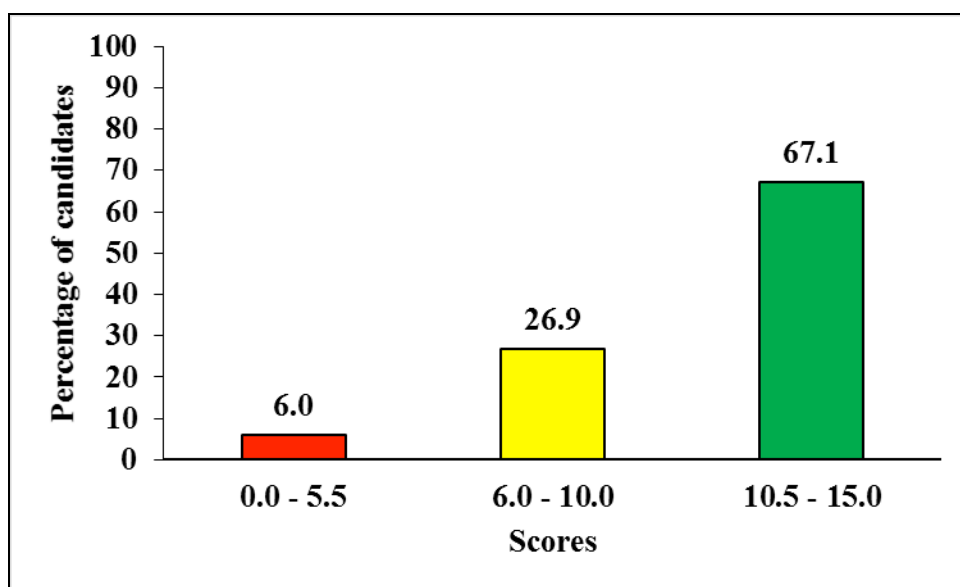


Figure 16. *The candidates' performance on question 16*

The data reveals further that 73 (6%) candidates scored from 0 to 5.5 marks, 328 (26.9%) scored from 6.0 to 10.0 and 819 (67.1%) scored from 10.5 to 15.0 marks out of the 15 marks allocated.

The analysis of data shows that the candidates (67.1%) who scored high marks were able to analyse three advantages and two limitations of using objective test for assessing information and communication studies. One of the candidates suggested the advantages such as *to save time during scoring and simple to construct* and highlighted limitations such as *easy as to cheat and may lead to guessing*. Also, the candidates managed to mention other advantages such as *wide content coverage, quick score of answers and easy marking by teachers*. Moreover, other limitations presented by candidates include; *difficult in preparation, easy to guess* and

failure to promote creativity. Extract 16.1 is a sample of a correct response for this question.

16.	<p>Objective tests, are tests which confined the learners in terms of answering. Example multiple choice test, matching item tests, True or False item tests. These tests not only measures the learners achievement during teaching and learning process. The following are the advantages of using objective tests for assessing information and communication studies.</p> <p>It serve time in terms of answering and scoring, This means that, scoring of these kind of test need less time as well as in answering these items test. Example scoring multiple choice needs the one to go direct the single letter for all students hence reducing time.</p> <p>It ensure subjectivity of scores, Since the answer is only one if it is for all candidate, it cause the scores to be more subjective.</p> <p>It ensure objectivity of scores, This means that, if the test will be marked by different teachers yield the same scores or similar scores simply because there is only single answer which will be marked to all candidates. Example if the answer is Jungs, it means that all candidates must answer Jungs.</p> <p>It cover a large content area, This means that the objective tests cover large areas of the content thus helps in elaborating the broad concepts. Example it may cover a whole topic for only two or one questions, hence easier in coverage of the contents.</p>	
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16	The following are the limitations of using objective test for assessing Information and Communication studies.	use only
	It encourage guessing, This means that objective tests facilitate people or learners to guess on the correct answer if the contents are unknown. Example the true or false tests, student may guess if it's true or if it is false statement.	
	It measure superficial concepts, This means that objective tests measure superficial concepts rather than understanding because if candidate or learner will guess no justification for the scoring evidence that guessed or not. Example if the student guess a correct answer there is no justification that the student knew the concept hence superficial.	
	Generally, the objective test tends to bring about interest for the learners because it is less energy needed in answering them but there is need of improving the administering of the tests so as to avoid guessing of answers hence measure understanding.	

Extract 16.1: A sample of correct responses to question 16

In extract 16.1 the candidate managed to write all five points by highlighting correctly three advantages and two limitations of objective test. This implies that, the candidate had adequate knowledge on Information and communication studies assessment tools.

On the other hand, the candidates (6.0%) who scored low marks failed to write the advantages of ICS in teaching and learning. For example, one of the candidates wrote; *easy to get material which means that, through interconnection of different networks people tend to facilitate exchange of information from one person to another*. The candidate explained the advantages of e-learning instead of objective questions in assessing students. Extract 16.2 shows a sample of an incorrect response for this question.

16	<p>Objective Test, refers to the form of test which are in form of selection questions. The following are the advantages of using objective test for assessing information and communication studies:-</p> <p>Helps a teacher to keep record, Through the objective test helps a teacher to keep record of the learners according to the performance of the test given. This record will help a teacher to prepare a result from the highest scores to the lowest scores.</p> <p>Helps to measure the speed of the learners, Through objective test it helps the teacher to assess the speed of learners on their examination thus will enable a teacher to make guidance on their learners so as to add the speed during their examination.</p> <p>Helps on preparing the parent report, Through objective Test helps a teacher to prepare and assess the parent report especially when the students go to holiday. The objective test makes teacher to keep the performance of learners that could help them to prepare a parent's report.</p> <p>Apart from advantages of</p>	
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26	The limitations of using objective test for assessing information and communication studies:-	
	It consume time, The objective question it consume time on assessing information and communication studies because the learners are board by having the question where answers are relating hence learners are confused and time is consumed.	
	It uses ambiguity language, The objective question most are constructed by using ambiguity word that results learners to fail on attempting the right answers and also the learners fail to answer the right answer hence results to assessment problem.	
	Therefore, the objective test should be encouraged because it helps the teachers to predict future performance to the learners as well as will be easily for the teacher to make clarification before the learners attaining their final examination.	

Extract 16.2: A sample of incorrect responses to question 16

In extract 16.2, the candidate failed to analyse three advantages and two limitations of using objective test for assessing information and communication studies. A candidate wrote noises and language barrier as limitation of objective test, which is wrong.

3.0 ANALYSIS OF CANDIDATES' PERFORMANCE IN EACH TOPIC

Information and Communication Technology examination had sections A, B and C with a total of 16 questions which were set from 9 topics. Section A consisted of short answer questions whereas section B and C consisted of essay questions. The paper was set according to the 2009 syllabus and 2017 examination format.

The analysis of the candidates' responses shows that the performance was good in five topics: *Socio Economic and Cultural Aspects of ICT* (98%), *The Fundamentals of Information and Communication Technology* (96.3%), *Assessment Procedures for ICS* (94%), *Planning and Preparation for Teaching and Learning ICS* (93.6%) and *Multimedia* (92.5%). The good performance in the stated topics was due to adequate knowledge, ability to interpret correctly the questions and logical flow of subject contents. The average performance was in two topics: *Computer Programming Language* (58.3%) and *Computer Laboratory Management* (58.0%). However, the candidates had poor performance in two topics: *Computer Basics and Networks* and *Generic Software Application* had poor performance of (30.4%) and (26.7%) respectively. Candidates' poor performance was caused by the lack of knowledge on the concepts tested, failure to understand the requirements of the questions, poor essay writing skills, poor English language proficiency and inadequate practical skills. The analysis of performance per each topic in this subject is shown in Appendix A.

The comparison of candidates' performance between 2020 and 2021 shows that four topics which had good performance in 2020 still have good performance in 2021. However, a close look of the data shows that there is a decrease of percentages of candidates who scored 40% or above. This implies that there is a decrease of the candidates' performance. On the other hand, the candidates' performance has worsened in two topics: *Generic Application Software* and *Computer Basics and Networks*. The two topics had average performance in 2020 but have weak performance in 2021. The comparison of candidates' performance between 2020 and 2021 is shown in Appendix B.

4.0 CONCLUSION

In general, the performance of the candidates in ICT subject in DSEE 2021 was 94.6 percent which is a good performance. This performance implies that majority of the candidates had sufficient knowledge on the examined concepts. However, candidates had poor performance in question number 3 (14%), 4 (25.5%), 5 (25.6%), 6(16.8%), 9 (32.8%), 10 (29%) and 11 (58%). On the other hand, question 1 was the best performed compared to other questions. The good performance in this question was due to candidates' ability to understand the requirements of the question and good knowledge on the application of ICT in business and government.

5.0 RECOMMENDATIONS

In order to improve the candidates' performance in the Information and Communication Technology subject on the topics Generic Application Software and Computer Basics and Networks, the following are recommended:

- (a) Tutors should guide the students through question and answer in order to enable them to identify the application of keyboard shortcut command.
- (b) Tutors should encourage the students to practice the procedures required to print text document.
- (c) Tutors should assist students in groups to discuss the terms and devices used in data transmission.
- (d) Since the data analysis showed that there was lack of knowledge on some topics, tutors should provide students with more exercises and tests to enhance their mastery of both theoretical concepts and practical skills.

Appendix A

Analysis of the Candidates' Performance in each Topic

S/N	Topic	Question number	Percentage of Candidates who Scored 40 % Marks or Above per question	Average performance per topic (%)	Remarks
1	Socio Economic and Cultural Aspects of ICT	01	98	98	Good
2	The fundamentals of Information and Communication Technology	07	96.3	96.3	Good
3	Assessment procedures for ICS	16	94	94	Good
4	Planning and preparation for teaching and learning ICS	14	93.8	93.6	Good
		08	93.4		
5	Multimedia	02	89	92.5	Good
		12	96		
6	Computer programming language	13	58.3	58.3	Average
7	Computer laboratory Management	15	58	58	Average
8	Computer Basics and Networks	03	14	30.4	Weak
		06	16.8		
		09	32.8		
		11	58		
9	Generic software application	04	25.5	26.7	Weak
		05	25.6		
		10	29		

Appendix B

The Comparison of Candidates' Performance in 2020 and 2021

S / N	Topic	2020			2021		
		Num ber of Ques tions	Perce ntage of Candi dates who Score d 40 % or Above	Remark s	Num ber of Ques tions	Perce ntage of Candi dates who Score d 40 % or Above	Remark s
1.	Socio Economic and Cultural Aspects of ICT	3	76	Good	1	98	Good
2.	The fundamentals of Information and Communication Technology				1	96.3	Good
3.	Assessment procedures for ICS	1	98.0	Good	1	94	Good
4.	Planning and preparation for teaching and learning ICS	16	87.7	Good	2	93.6	Good
5.	Multimedia	1	97.5	Good	21	92.5	Good
6.	Computer programming language				1	58.3	Average
7.	Computer laboratory management	1	47.5	Average	1	58	Average
8.	Computer Basics and Networks	4	49.0	Average	4	30.4	Weak
9.	Generic application software	4	55.5	Average	3	27	Weak

