THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



CANDIDATES' ITEM RESPONSE ANALYSIS REPORT FOR DIPLOMA IN SECONDARY EDUCATION EXAMINATION (DSEE) 2018

738 INFORMATION AND COMMUNICATION TECHNOLOGY

THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



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738 INFORMATION AND COMMUNICATION TECHNOLOGY

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FOREWORD

The Candidates' Items Response Analysis report for ICT paper of the Diploma in Secondary Education Examination (DSEE) 2018, was prepared in order to provide feedback to teachers, policy makers and other education stakeholders on how the candidates responded to the examination items.

The report revealed the candidates' strengths and weakness which indicates what the education system was able or unable to offer to the candidates in their two years of Diploma in secondary education.

A total of 912 candidates were registered for ICT Examination whereby 907 sat for this examination. The analysis shows that 905 (99.78%) among the candidates who sat for the examination passed. However, there were some candidates who were not able to answer the questions as it was expected, scoring low marks. The reasons which contributed to the candidates' inability to answer the questions include: failure to identify the requirements of the questions and inadequate knowledge and skills of the concept that were tested in the questions.

The National Examination Council of Tanzania believes that, this report will be used by education stakeholders in finding out the strategies for improving the performance in this subject.

Finally, the Council would like to thank the Examination Officers and all others who were involved in preparing and analyzing the data used in this report. The National Examinations Council of Tanzania (NECTA) will highly appreciate comments and suggestions from candidates and the public in general that can be used to improve future analysis Reports.

Dr. Charles E. Msonde

EXECUTIVE SECRETARY

1.0 INTRODUCTION

This report is based on the analysis of candidates' responses to the items that were examined in Information and Communication Technology (ICT) for the Diploma in Secondary Education Examination (DSEE) 2018. The paper was set according to the 2017 Examination format and the 2009 ICT and ICS syllabus for Diploma in Secondary Education. The report identifies areas in which the candidates faced challenges and those in which they did well.

The paper had sections A, B and C with a total of 16 questions. Section A had 10 questions in which questions 1, 3, 5, 7, 9 and 10 carried 3 marks each; questions 2 and 4 carried 4 marks each; and questions 6 and 8 carried 6 marks each. Section B had 3 optional questions, each carrying 15 marks. Section C had 3 optional questions, each carrying 15 marks. The 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 on all questions is presented in Section 2. Its subsequent sections analyzes the candidates' performance by indicating the task which was expected to be done by the candidates in each question and the strengths and weaknesses demonstrated by the candidates in attempting each question. In the analysis of the candidates' responses in each question or topic, the performance is regarded as good, average or poor basing on the percentage of candidates who scored 40 percent or more of the marks allotted to a particular question. The candidates' performance was good from 65 to 100, average from 40 to 69 percent and poor or weak from 0 to 39 percent. In addition, charts and tables with colours are used to illustrate the candidates' performance on each question whereby red represents poor, yellow represents average and green represents good candidates' performance. Furthermore, the reasons for the candidates' poor or good performance on each question have been explained and illustrated by using samples of extracts of some of the candidates' responses.

2.0 ANALYSIS OF THE CANDIDATES' PERFORMANCE PER QUESTION

2.1 SECTION A

This section consisted of 10 questions: seven carrying 3 marks each, one carrying 4 marks and two carrying 6 marks each. The candidates were required to answer all questions.

2.1.1 Question 1: Fundamentals of Information and Communication Technology

This question consisted of three parts, (a), (b) and (c). The candidates were required to explain briefly the meaning of (a) Data, (b) Knowledge and (c) Information.

This question was attempted by 907 (100%) candidates. The analysis of data shows that 1.3 percent scored from 0 to 1.0; 8.2 percent scored from 1.5 to 2 and 90.5 percent scored from 2.5 to 3 out of 3 marks. The candidates' performance on this question was good, since 98.7 percent of the candidates scored above 1 mark as shown in Figure 1.

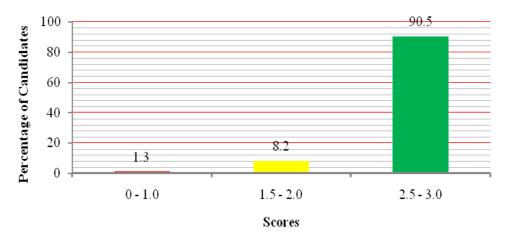


Figure 1: Candidates' Performance on Question 1

In this question, many candidates (98.7%) scored high marks (1.5-3.0). Their responses show that they managed to answer the question according to its requirement. For instance, in part (a), one of the candidate defined data as a fact or raw materials that are not processed, in part (b), the candidates defined Information as processed data to be used or shared.

Moreover, in part (c), the candidate defined Knowledge as understanding that happens through learning or experience. This shows that, these candidates had adequate knowledge about the concepts *Data, Information and Knowledge*. Extract 1.1 is a correct response from one of the candidates.

Extract 1.1

1. a. Data.
Roser to the raw fait before processed morder to
give the meaning. For example, 5, It is the number
which have no meaning because it does not given daborat
1300 -
1. b. neomation
Reper to words or fact which already processed to
give meaning or it consey the meaning! For example there
to the combor of dudente and mothing the meeting.
(5 - Number five an given elaboration morder to get meaning).
1 C. Chowledge.
Roser to any information or detail which increase the
rapacity of an individual to perform different activities.
For instance Knowledge of Information and Communication
Technology (ILT) help individual to penning manunes in
the industry.

In Extract 1.1, the candidate correctly explained the terms *Data*, *Information* and *Technology*.

Nevertheless, few candidates (1.3%) provided incorrect responses to this question. These candidates failed to explain the meaning of the given terms. For instance, in part (a), one of the candidates defined data as the source of information on the internet way, the second being the process and the last being information, while in part (b), the candidate defined Information as the last stage to produce computer programs. Moreover, in part (c), the candidate defined Knowledge as the body of science, which deals with the source of all information, all these responses are incorrect.

These responses show that, they had insufficient knowledge of the terms Data, Information and Knowledge in relation to Information and Communication Technology.

In this question, the candidates were supposed to explain the meaning of the three terms as used in Information and communication Technology as follows:

Data: It is defined as a fact to an activity in a given environment. Also data can be described as a raw fact or materials if they are not yet even or partially processed information i.e. they convey no particular meaning to a given activity within any given activity.

Information: It is defined as processed data directly useful in decision making. These are processed data which has meaning to the user. The information is achieved by applying some processing procedures on to the input raw data.

Knowledge: It is awareness or familiarity gained by experience of a fact or situation.

Extract 1.2 is an example of an incorrect response to this question.

1 as Date - Is the source of Intermetion in the internet
net way and start data the second
by knowledge - Is the body of sevence, which deal the source of call information.
cy Information- is the less stage to produce compute program.
() () () () () () () () () ()

Extract 1.2 shows that the candidate provided incorrect definitions of the terms *data*, *information* and *knowledge*.

2.1.2 Question 2: Generic Software Application

This question consisted of two parts: (a) and (b). In part (a), the candidates were required to give the meaning of computer application software. In part (b), they were required to explain briefly three types of application software used in teaching and learning process.

This question was attempted by 907 (100%) candidates. The analysis of data shows that 53.7 percent scored from 0 to 1.5; 20.3 percent scored from 2 to 2.5 and 26 percent scored from 3 to 4 out of 4 marks. The performance of the candidates on this question was average since 46.3 percent of the candidates scored above 1.5 marks as shown in Figure 2.

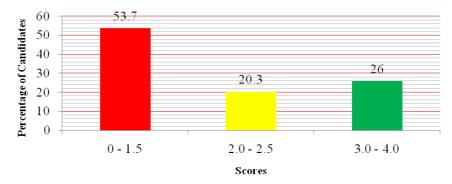


Figure 2: Candidates' Performance on Question 2

According to the analysis, 46.3 percent of the candidates performed well as they were able to answer two to three parts of the question correctly with 11 percent scoring full marks. Their responses show that they understood the concepts, and the requirement of the question. For instance, in part (a), one of the candidates defined computer application software as the software which is used to perform specific activities such as spread sheet. Moreover, in part (b), the candidate explained the three useful application software used in Tanzania schools in teaching and learning as follows:

- (i) Presentation application software: It is used for making lesson presentations.
- (ii) Spread sheet application software: It is used in solving problems like calculations and processing candidates' results. It contains many rows and columns.
- (iii) Data base Access: Is the application used for organizing and storing information for easy access.

These responses indicate that the candidates had adequate knowledge of Generic Software Application. Extract 2.1 is an illustration of correct responses from one of the candidates.

Extract 2.1

	- Lamberton to the character of the contract o
2	(a) Computer application Lefture
, 7	is the fifture that enables computer
TIME	user to perform a Certain task
	Example, Spread theet helps compre
_	to - user to nehm mattenship
	Carulation.
_	And the second of the second o
	its if & preadsheed, little between
	that enable a computer war to manipulate
-	mathematical calculation, preparing a
ne	Laport of the shale it
1.0	Export of the original of the
-	(in) Word processing. This also called
	To vora processing if his action
	und programs . Is the boffacto that
	enable a computer use to create a
	document, edily, format and making
	a file
-24	The second second second second second
	(m) presentation programs. This Iste
	program which is also called power sout
	Presentation, It contains Various graphics
	video and Animonation that used
	me teaching and learning.
4.7	the second secon

In Extract 2.1, the candidate clearly explained the term computer application software and correctly described the application software which can be used in classroom teaching and learning.

On the other hand, the analysis of data shows that 53.7 percent of the candidates scored low marks (0-1.5). Their responses reveal that they did not understand the requirement of the question, and they lacked knowledge of *Generic Software Application*. For example, in part (b), one of the candidates explained the advantages of using generic software in teaching and learning instead of explaining the three kind of application software used in teaching and learning. Furthermore, in part (a), another candidate explained computer application software as the process of applying the electronic devices to transform data and information from one place to

another, while in part (b), the candidate explained the useful application software used in Tanzania schools during teaching and learning process as follows:

- (i) Used to transforming information from one learner to another. In learning process the software allow the information to pass from one to another.
- (ii) Used to keep memory for long time, it means that when student learn, the software help him/her to keep information for a long time.
- (iii) Help learner to share their information for a long time, because the student support the information to be recorded.
- (iv) It saves time in process of writing and copying different materials.

Likewise, another candidate, in part (a), defined computer application software as the software that allows user to run a computer, for example Windows, whereas, in part (b), the candidate explained the three useful application software used in Tanzanian schools during teaching and learning as follows:

- (i) It enhances sharing of information.
- (ii) It enhances retrieval of information. For example, materials which are already recorded in a computer can allow learner to make a simple recall.
- (iii) It is used on research findings.

These responses show that the candidates had inadequate knowledge of *Generic Software Application*.

To answer this question, the candidates were supposed to explain the meaning of computer application software and to explain any three among the application software used in the teaching and learning process.

In part (a), the candidates could define computer application software as the software which is designed to perform specific tasks. This software includes office packages such as Microsoft word, Power point, Spreadsheets, Microsoft Access, Audio application software, Database Access and Desktop publisher.

In part (b), the candidates could choose and explain three among the application software such as Word processing, Presentation application software and Spreadsheets. The candidate could explain Word processing application software as the software used in creating and editing text materials. This software is used by teachers in preparing lesson notes, examinations etc.

Presentation application software: It is an application software used for preparing and making lesson presentation in the process of teaching and learning. It presents in form of slides, for example, Ms Power point, open office org impress etc.

Spread sheet application software: It is application software used for creating and manipulating data in schools or colleges. It is used for analyzing and processing candidates results, keep school or college data, preparing business transactions, preparing pay rolls etc. Extract 2.2 exemplifies such incorrect responses to the question.

Extract 2.2

2.0	r. Software are the programmes found on the
	a Software are the programmes found on the
	the and a cost out is the transmit it is a like
	b. i. Szotem software.
	îîî Website software.

In Extract 2.2, the candidate provided incorrect definitions of computer application software and incorrect examples of application software.

2.1.3 Question 3: Website Design

This question consisted of three parts: (a), (b) and (c). The candidates were required to explain the terms (a) Hypertext (b) Hyperlink and (c) Hypermedia as used in World Wide Web.

This question was attempted by 907 (100%) candidates. The analysis of data shows that 53.7 percent scored from 0 to 1; 20.3 percent scored from 1.5 to 2 and 26 percent scored from 2.5 to 3 out of 3 marks. The overall performance on this question was average, since, 46.3 percent of the

candidates scored above 1 mark. Figure 3 summarizes the candidates' performance on question 3.

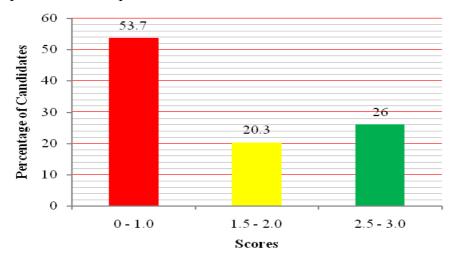


Figure 3: Candidates' Performance on Question 3

The analysis shows that 46.3 percent of the candidates performed well. They managed to answer two to three parts of the question correctly, with 3.1 percent scoring full marks. Their responses indicate that they possessed adequate knowledge of the concepts of *Website Design*. For instance, one of the candidates in part (a), explained hypertext as a link which enables one document to link to another document. In part (b), the candidate explained hypermedia as an electronic document which contains link to images, videos and graphics. Moreover, in part (c), the candidate explained hyperlinks as a clickable text that allows visiting pages on a web site. A sample showing the candidate's correct responses to the question is shown in Extract 3.1.

Extract 3.1

3	a) Hypertext; is the one which link one text to another, it inove involve text only.
	to another, it inove involve text only.
	(b) Hypermedia; it link text with other mediaform
	(b) Hypermedia; it link text with other mediaform such as graphics, vedeo, audio, and othe

Extract 3.1 shows that the candidate correctly explained the meaning of hypertext and hyper media.

On the other hand, the analysis of data shows that many candidates (53.7%) provided incorrect responses. In this group, the candidates failed to explain the meaning of the terms *Hypertext*, *Hypermedia* and *Hyperlinks*. For instance in part (a), one of the candidates wrote, "hypertext is instructions used to create a web site on HTML, that Hyper Make Up Language: it is a language used to create web pages". In part (b), the candidate explained hypermedia as a media used to define web page. It gives instruction on the contents on web pages. In addition, in part (c), the candidate explained Hyperlink as a link that connects web page to the internet.

Another candidate, in part (a), wrote, "Hypertext Refers to the text which can be written in the computer program". In part (b), the candidate wrote, "Hypermedia refers to the media which can be applied in the computer program". Moreover, in part (c), the candidate wrote, "Hyperlinks are those which can be occurred in the flow chart of the computer program".

Furthermore, another candidate in part (a), wrote, "Hypertext is used to write the text in website". In part (b), the candidate wrote, "Hypermedia is a media used to transmit information from a web site".

Moreover, in part (b), the candidate wrote, "Hyperlinks is the marl language used to link the text and media in the web site". This implies that they had inadequate knowledge of the concepts of *Website Design*.

In this question, the candidates were supposed to explain the meaning of the three terms as used in World Wide Web as follows: in part (a), the candidates were supposed to explain the meaning of Hypertext as a document which contains a hyperlink to another document. In part (b), The candidates were supposed to explain the meaning of Hypermedia as a document which contains link to text, graphics, sound or video files while in part (c), the candidate were supposed to explain the meaning of Hyperlinks as a text or an image that allows visiting a web site without typing new address each time.

Extract 3.2 is an illustration of a response from one of the candidates who provided an incorrect response to this question.

Extract 3.2

Properties refer to the uniter document
Tinic ablained after opening a ortain
The state of the s
(b) Hypermodia. Her to the authority of
(b) Hypermodin. Her to the authorized of which can be seen after spening or Ortain Link
(c) Hoporlinky Arette links who never
Children Shiff the client or use to another area for links which appear blue
another area log. I'm/2 which appear blue

In Extract 3.2, the candidate incorrectly defined Hypertext as written document, Hypermedia as multimedia and Hyperlinks as link in blue colour which is not correct.

2.1.4 Question 4: Computer Basics and Networks

In this question, the candidates were required to explain briefly the first three generations of computers.

This question was attempted by 907 (100%) candidates. The analysis of data shows that 85.7 percent scored from 0 to 2 marks; 7.1 percent scored from 2.5 to 4 and 7.2 percent scored from 4.5 to 6 out of 6 marks. The general performance on this question was poor since only 14.3 percent of the candidate scored above 2 marks. Figure 4 is a summary of the candidates' performance on question 4.

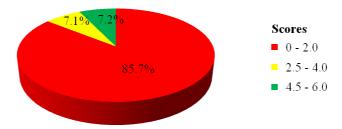


Figure 4: Candidates' Performance on Question 4

These responses indicate that the candidates had inadequate knowledge on *Computer Basics and Networks*. This may either be caused by the fact that the topic was not effectively taught or the student did not put much effort on studying the topic in question.

To answer this question, the candidates were supposed to explain the first three generations of computers as follows:

- (a) First generation (Vacuum tube): These were the earliest time computers which were in use from around the early 1950s and mid-1950s. They used vacuum tubes as their circuit. They were very big in size, consumed a lot of electric power, generates a lot of heat, they had limited internal memory, and their processor performed at low speed as compared to the speed of computers today.
- (b) Second generation (Transistors): These type of computers used transistors as their circuit which were relatively small to replace the vacuum tubes. They consumed relatively less power, they were small in size as compared to the first generation computers, their internal memory was higher as compared to that of the first generation and the processor performed at a high speed as compared to that of the first generation.
- (c) Third generation (integrated circuit): This type of computers used integrated circuit, they are small in size, they have higher main memory, high processing power, storage capacity, they have the capabilities of holding more than one set of instruction at once etc.

The analysis shows that many candidates (85.7%) provided incorrect responses to this question. They did not understand the requirement of the question. Instead of explaining the generation of computers, they explained the generation of computer programming languages. For instance, one of the candidates wrote the following:

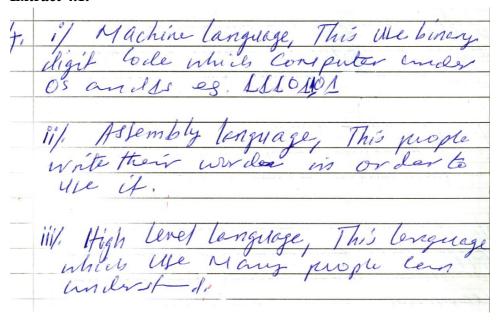
- (a) First generation language programming
- (b) Second generation language programming
- (c) Third generation language programming

Likewise, another candidate wrote the following:

- (a) Super computers: This is the big computer with high capacity of doing work also it is very expensive.
- (b) Microcomputer: This is the biggest with high capacity of doing work also it is very expensive.
- (c) Desk top computer: Which include laptop are not big, easy to operate and they are not expensive.

A sample of such incorrect responses is presented in Extract 4.1.

Extract 4.1.



Extract 4.1 shows that the candidate explained the generations of computer programming languages instead of computer generations.

On the other hand, the analysis shows that 14.3 percent of the candidates performed well, as they managed to answer two to three parts of the question correctly, with 4.3 percent of candidates scoring full marks. For instance, one of the candidates wrote,

- (a) First generation (Vacuum tube): It was the time when the computers were very big in size, and they could not be moved from one area to another since they were very heavy and big in size and occupied a big space when placed in a room. The first generation computers were very slow when commanded to search any information.
- (b) Second generation (Transistors): It was a bit modified and there was the use of transistors, they were reduced in size.
- (c) Third generation (integrated circuit): It is when computers used integrated circuit, they are small in size, quick and searching would be done just for very short time.

This is because they had adequate knowledge of the generations of computers. A sample response from a candidate who responded to the question correctly is illustrated by Extract 4.2.

Extract 4.2

4	First, generation of Computers Consists of
	Computers which uses a Vacuum tube to operate
	the computers in this generation were very Low in efficiency
	and having maximim heat.
	Second generation of Computers Consists of
	Compoters which uses transisters in their operation.
	they were characterized by Low efficiency in operation,
	and amount of heart produced were still high.
	Third generation of Computers Consist of Computers
	which uses Intergrated Circuitsiin their operation, they
	were characterized by minimum heat production, stil low
	Speed in processing of Information.
	<u> </u>

Extract 4.2 is a sample response by candidate who correctly explained the first, second and third computer generations.

2.1.5 Question 5: Multimedia

This question consisted of two parts: (a) and (b). In part (a), the candidates were required to give the meaning of *multimedia*. In part (b), the candidates were required to give two differences between linear multimedia and nonlinear multimedia.

This question was attempted by 907 (100%) candidates. The analysis of data shows that 55.6 percent scored from 0 to 1; 39 percent scored from 1.5 to 2 and 5.4 percent scored from 2.5 to 3 out of 3 marks. The analysis shows that, their overall performance on this question was average, since 44.4 percent of the candidates scored above 1 mark. Figure 5 illustrates the case.

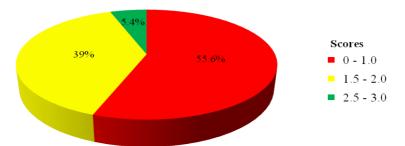


Figure 5: Candidates Performance on Question 5

The analysis shows that many candidates (55.6%) provided incorrect responses. The candidates' responses reveal that they had insufficient knowledge of *Multimedia*. For instance, in part (a), one of the candidates wrote, "Multimedia is the connection of more than one media for the purpose of effective communication". Furthermore, in part (b), she/he wrote, "Linear multimedia is the type of multimedia which uses the connection of more than one type of computers while Non-multimedia uses only one type of computer for communication".

Another candidate in part (a) wrote,

Multimedia refers to a source of information which composes more than one function to perform and transmit information. The examples of multimedia are: text, video, audio etc.

While in part (b), the candidate wrote, "Linear multimedia can be used without moving it while Non- linear multimedia the use free to use and moving it".

This may also be caused by the fact that the topic was either not effectively taught or the student had insufficient exercises on Multimedia.

In this question, in part (a), the candidates were supposed to define multimedia as follows:

Multimedia is defined as the use of more than one media in delivering or presenting information. It is a multiple form of media integrated together, involving the use of computer to present text, graphics, video, animation and sound in the integrated and combined way.

In part (b), they were required to give two among the differences between linear multimedia and nonlinear multimedia as follows:

Linear multimedia is a type of multimedia presentation in which content progress without any navigation control of the viewer, for example watching TV; WHILE Non-linear multimedia is a type of multimedia presentation in which content offers user interactivity to control the progress for example computer games, watching video etc.

In Linear multimedia the user has a limited control of access to information WHILE in Non-linear the user has great control of the information.

Non-linear is used in self-based computer training WHILE not in linear multimedia.

A sample of incorrect responses to question is presented in Extract 5.1.

Extract 5.1.

5. a) Multimedia - Is the annection of more
than one Medica for the pupones of -
effective ammunication.
by Lingar Mulhimedia - Is the hope of -
Multimedia which use the connection of -
more than one type of computers, while
Non- Mulhmodia, the only one type of -
Computer for Communication!

In Extract 5.1, the candidate incorrectly explained the meaning of multimedia as well as the difference of linear multimedia and non-linear multimedia.

On the other hand, the candidates who scored from 1.5 to 3 had adequate knowledge of *Multimedia*. These candidates were able to respond to two or three parts of the question; 4.1 percent of these candidates scored all marks. For instance, in part (a), one of the candidates wrote the following:

Multimedia is the integration of more than one media in presenting information; it involves the use of audio, video, image, text and animation together to present information. It can be linear (non-interactive multimedia) or non-linear multimedia (interactive multimedia).

Moreover, for part (b) the candidate wrote,

Linear multimedia involves active content progress without the audience interaction while Non-linear multimedia involves direct

participation of the audience with the source of information i.e. activated video program.

The Extract 5.2 illustrates the case.

Extract 5.2

5. (c) Multimedia refers to the Intergration of more than
one media in presenting Information, It husbes the
use of Ardio, Video, Image, tex and animation toga
- ther, to present information. It can be Linear (non-inte
ractive multimedia) or Non-linear (Interactive multimedia
(b) (i) Linear multimedia Involves active Content progres
without the audience Interaction, while
Non- hier multimedia Involves direct Participat
-n of the owderce with the source of Information ie:
activated video programme.
(1) Example of Linear moltimedia is Cinema
Presentation etc bot
Non hinear multimedia are Such as Video

In Extract 5.2, the candidate correctly explained the term *multimedia* and differentiated linear multimedia from non-linear multimedia.

2.1.6 Question 6: Computer Basics and Networks

In this question, the candidates were required to briefly explain three characteristics of a computer.

This question was attempted by 907 (100%) candidates. The analysis of data shows that 61 percent scored from 0 to 2; 22.9 percent scored from 2.5 to 4 and 16.1 percent scored from 4.5 to 6 out of 6 marks. These results imply that their overall performance on this question was poor, since only 39 percent of the candidates scored above 2 marks. Figure 6 summarizes these results.

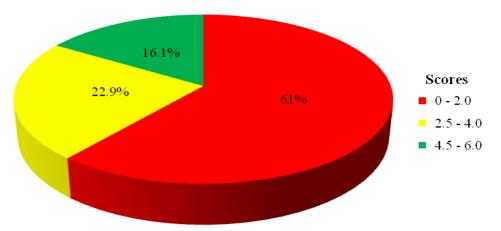


Figure 6: Candidates Performance on Question 6

Their results show that many candidates (61%) provided incorrect responses. They failed to explain the three characteristics of a computer. For instance, one candidate responded to the question as follows:

- (i) Computer can input data that the data can enter in the computer through different devices like mouse, keyboard etc,
- (ii) Can process data that all data inputed can be analyzed to form information.
- (iii) Can output the manipulated data which is information.

Another candidate wrote,

- (i) Computer to work must have CPU which commond all hardware.
- (ii) Computer must have operating system.
- (iii) Computer must have internet service provider (ISP).

Moreover, another candidate incorrectly wrote,

- (i) Computer is made up with hardware and software system.
- (ii) Is not a living organism, hence can work all the time when the command given.
- (iii) The only language a computer which understand is binary code (0, 1).

This indicates that the candidates had inadequate knowledge of the topic of *Computer Basics and Network*, particularly the characteristics of the computer. The candidates might not have understood the topic.

The candidates were supposed to explain three among the following characteristics of a computer: Processing speed, Accuracy, Storage/Memory, Reliability and Versatility. A sample of the candidates' incorrect responses to the question is in Extract 6.1.

Extract 6.1.

6. CHARACTERISTICS OF COMPUTER	
1. It is electronically in nature	
that is use electric power on its	functioning
It It is digital in nature	\
that is use the symbol which are d	igitally
iii. It need knowledge on using it and	skills

In Extract 6.1, the candidates incorrectly explained the three characteristics of the computer.

However, 39 percent of the candidates had good performance. These candidates managed to answer two to three parts of the question correctly. For instance, one candidate wrote,

- (i) Computer is accuracy: computer is accuracy, it performs very clear the Speed: computer has high speed in either writing or searching for information or sending information, also it has speed when making calculation through spread sheet program.
- (ii) Accuracy: computer is accuracy because it gives the correct answers when one seek for information and performing calculation, it gives accurate and correct data or results.
- (iii) High storage capacity: Computer has high storage .that it can store large amount of information in a single chip in computer.

The responses of these candidates show that they had adequate knowledge of Computer Basics. A sample of the candidates' correct responses is illustrated in Extract 6.2.

Extract 6.1

6. Charactenírtics of computer.
is apoed.
A animater boundiah aread in ethor
writing or rearching for information or condeng the information. Also its has upsed when making calculation through
andring the information. Also its how
speed when making calculation through
aproadchest program?
in Accuracy.
The computor is accuracy because it give
the correct arriver when one real for
the information of wall of in personning
calculation it give accurate and correct
data or regular
with High drage cares
niv High storage capacity.
Compager via large amount or insormation
Computer has high iterage that it can itere large amount of inspirmation in a single wirphter.
III or andie morner.

In Extract 6.2, the candidate correctly explained the characteristics of a computer as it was required.

2.1.7 Question 7: Social- Economic and Cultural Aspect of ICT

This question consisted of three parts: (a), (b) and (c). The candidates were required to give the meaning of (a) Job creation, (b) Job displacement and (c) Job replacement.

The question was attempted by 907 (100%) candidates. The analysis of data shows that 60.2 percent scored from 0 to 1; 32.6 percent scored 1.5 to 2 and 7.2 percent scored from 2.5 to 3 out of 3 marks. Their overall performance on this question was poor, since only 39.8 percent of the candidates scored above 1 mark as shown in Figure 7.

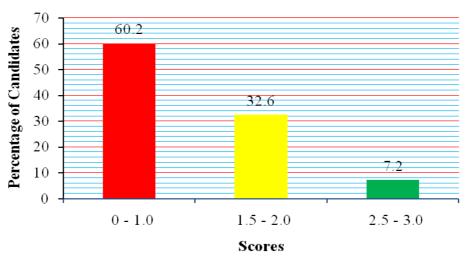


Figure 7: Candidates' Performance on Question 7

Many candidates (60.2%) provided incorrect responses to this question. Their responses show they failed to give the meaning of job creation, job displacement and job replacement. For instance, one of the candidates in part (a), defined job creation as a situation of creating jobs, while, in part (b), the candidate defined job replacement as a process of replacing people in their job. Moreover, in part (b), the candidate defined job displacement as a data which cannot be changed from one place to another.

Another candidate, in part (a), defined job creation as it involves inverting or discovering new activity to perform or do, while in part (b), the candidate wrote Job replacement as it involves having alternatives of activities to perform when loosing or changing one. Moreover, in part (c), the candidate wrote, "Job displacement involves to the loss of an activity due to many reasons or factors".

In addition, another candidate, in part (a), wrote, "job creation: Is the discovery or innovation of work to do", while in part (b), the candidate wrote, "job replacements is the situation where by a person is takes another person position in a working center". In addition, in part (c), the candidate wrote, "Job displacement: Is the gap that can occur in a certain job area that a position of someone is not taken".

Moreover, another candidate, in part (a), wrote, "Job creation: This is the process in which there is establishment of job in a specific area"; and in part (b), the candidate wrote, "Job replacement: Is the process which

involves to replace something in a certain job". In addition, in part (c), the candidate wrote, "Job displacement: Is involves process of making replacement in a certain job".

The responses of the candidates show that they had inadequate knowledge of and skills in the topic of *Social-Economic and Cultural Aspect of ICT*.

In this question, the candidates were supposed to explain the meaning of job creation, job replacement and job displacement as follows:

- a) Job creation: Is a state where an organization or individuals allows recruitment. ICT has introduced new employment opportunities that had never existed before. For instance, Computer operators, programmers, Network administrators, Designers, System analysts etc.
- b) Job replacement: Since the introduction of ICT in work place, computer illiterate people have been replaced by those who have computer skills. Furthermore, some of the jobs that requires a large number of employees to perform them, nowadays they are no longer performed by human being because of the invention of robots.
- c) Job displacement: Due to the introduction of ICT in work place, people with no computer skills are moved to another places or departments where computer skills are not required.

A sample of the candidates' incorrect response to the question is illustrated in Extract 7.1.

Extract 7.1

7	Meaning of following terms: a Jober creaction - This is the purpose in which there is establishment of job in a specific area.
	The same of the sa
	b) Job replacement - 1s the process which involves to replace something in a certain job.
	y Job diplacement - 15 involves process of making

In Extract 7.1, the candidate incorrectly explained the meaning of the terms job creation, job replacement and job displacement.

However, 39.8 percent of the candidates provided correct responses to this question. Their responses show that they clearly understood the terms which were asked in the question. For instance, in part (a), one candidate wrote,

Job creation: It is a process whereby a number of jobs opportunity are produced/ created in the society such as emerging of new technology ICT produces a lot of job/employment opportunities, such as system analysts, network designers, Computer programmers and website developers.

In addition, in part (b), the candidate wrote,

Job replacement: It is a process on which the number of employment/jobs has taken by another person due to change of technology of work. For example, the emergence of word processor in work areas replaces some people in work areas who were familiar with typewriters.

Moreover, in part (b), the candidate wrote the following:

Job Displacement: It is a process in which a number of employments are replaced by technology and those who do not have technology are shifted to other areas of work. For example, a computer in banks performs a large amount of works which would be done by people.

Their responses to these questions indicate that they had adequate knowledge of *Social-Economic and Cultural Aspect of ICT*. A sample of the candidates' correct responses is illustrated in Extract 7.2.

Extract 7.2

7	a) Job erection refer to the employment
	opportunities ma resulted from Information and
	Communication Technology (1CT). This information
	technology has employed som so many people
	in the resold. In example tolle communication
	network such Vodacom and Tigo has employ
	ed a lot of people
	(b) Job replacement is the job which is
	done by computer while it was previously done
	by a human being. Now days computers
	do different activities in hospital, banks

and educational justitution. For example
money transaction done Automatic Teller
Machine ATM
(c) For Job displacement is the
process of removing jobs from human being.
Some jobs replaced by the computers and
The Leepnological equipment. It is the
process of minimizing different activities which
Should be down done by human being

In Extract 7.2, the candidate correctly explained the meaning of job creation, job replacement and job displacement.

2.1.8 Question 8: Computer Basics and Networks

In this question, the candidates were required to describe three types of computers basing on their capacity, price and performance.

The question was attempted by 907 (100%) candidates. The analysis of data shows that 34.7 percent scored from 0 to 2, 34.4; percent scored from 2.5 to 4 and 30.9 percent scored from 4.5 to 6 out of 6 marks. The overall performance on this question was average, since 65.3 percent of the candidates scored above 2 marks. Figure 8 summarizes the candidates' performance on this question.

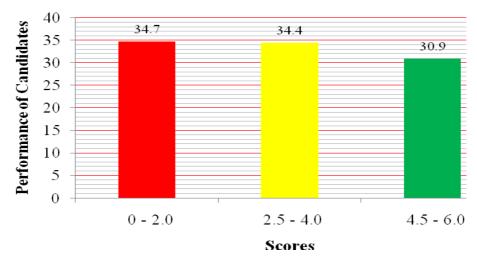


Figure 8: Candidates' Performance on Question 8

The responses show that 65.3 percent of the candidates scored from 2.5 to 6 marks. The candidate had adequate knowledge of the types of computers based on their capacity, price and performance. For instance, one of the candidates wrote,

- (a) Super computers: These are basic computers that have big storage capacity compared to all other computers, they are commonly used in scientific activities and also they are used in big industries and they are more expensive and with high ability of performing different activities.
- (b) Mainframe computers: These also are computers with big size and storage capacity but its performance is low compared to super computers.
- (c) Min computers: These are computers that have big capacity more than a laptop and other small computers. These are used in different organizations like schools and hospitals to provide local area network as servers.

Their performance indicates that they had adequate knowledge of the different types of computers. A sample of the candidates' correct responses to this question is illustrated in Extract 8.1.

Extract 8.1

8:	to describe three type of a computer sound oil.
	X/ Capacity
	1) Mainframe Computer
	and the first of the second
	1/ Supper Computer: These are large
	Computer with high processing speed and Capable
	Computer with high processing speed and Capable of Conduncting thousand functions at a time -
	these are a "highest price his are used in whether
	Bre Cashing Station,
	y and the state of
	2/ Mainframe Computer: These are-
	Snell i size when compared with Super Compilers
	those aux Compulers which Can allow up to -
	DID users at a time and are generally used
	in Mathematical and Statistic Calculation.

3/ Menicomputers or personal computers
these glaw single user only and are computer
used to perform various small tasks like
writing letter arranging results as well as
Storing Winimum amount of the information in
it orande larloo and lowers

In Extract 8.1, the candidates correctly described the three types of computers depending on their capacity, price and performance.

However, the analysis shows that 34 percent of the candidates scored low marks (0 - 2). Some of them did not effectively address the requirement of the question. Instead of the types of computers, they simply mentioned them. For example, one candidate mentioned the three types of computers as Main frame Computers, Min Computers and Personal computers (PCs). Another candidate described the types of computers as overhead projector, Projector and Solaris. Yet another candidate wrote, "(a) Apple Computers: They are of high price, High performance and have high capacity and (b) HP: Not expensive".

Moreover, another candidate wrote,

- (a) Computer networking: This is a type of computer which used to run the computer basing on the issue of network, internet and all things which computer has to perform, it takes large, and it can be wide area or local area.
- (b) Computer program: all programs which computer can do, it can be to operate, applying various activities and also is the one which can control the computer on what to perform.
- (c) Computer virus: This are those things which used to attach the computer by the virus after entering to the computer to run very slow, sometimes can occur by transferring of the files, unknown emails.

These responses indicate that, they had inadequate knowledge of the different types of computers.

In this question, the candidates were supposed to describe only three types of computers depending on their capacity, price and performance among the following types:

Main frame computers: They are most expensive computers and they are very big in size and offer the maximum computing power. Large number of peripherals can be attached to them. They use large network of computers with the main frame being the node point of network. A typical application is air-line reservation system. They can accept all types of high level languages.

Min computers: They are medium in size, they are physically bigger than microcomputers but smaller than main frame computers due to advanced circuit technology. Some min computers are almost the same as microcomputers. These computers support several users at a time. Mincomputers are used mainly in medium scale business e.g. insurance companies, banks etc. In business they are being used for invoicing, payroll etc.

Super computers: These are very large computers which are also extremely faster and very costly. They are usually used by persons carrying out very specialized scientific research and design or by large organization that require very fast processing speed.

Micro-computers: They are also known as personal computers. They were introduced in early 1980s. Personal computers were built using open system architecture. Because of this they are much cheaper than min computers. A sample of the candidates' incorrect responses is illustrated in Extract 8.2.

Extract 8.2

S.	The types of computer base on gleor
	capacity, price and performance are;
	1) Analogy Computer
	(i) Digotal computer
	iiis Local computer

In Extract 8.2, the candidate incorrectly described the three types of computers depending on their capacity, price and performance.

2.1.9 Question 9: Fundamentals of Information and Communication Technology

This question had three parts, (a), (b) and (c). The candidates were required to elaborate the terms (a) Information and Communication Technology, (b) Information Technology and (c) Local Area Network as used in ICT.

The question was attempted by 907 (100%) candidates. The analysis of data shows that 33.4 percent scored from 0 to 1; 47.4 percent scored from 1.5 to 2 and 19.2 percent scored from 2.5 to 3 out of 3 marks. The analysis shows that their overall performance on this question was average, since 66.6 percent of the candidates scored above 1 mark as illustrated in Figure 9.

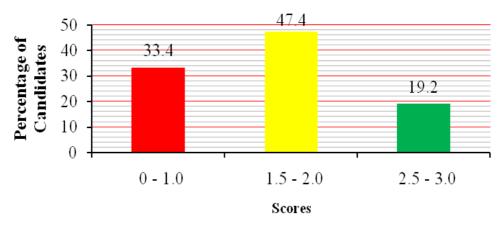


Figure 9: Candidates Performance on Question 9

Results show that 66.6 percent of the candidates provided correct responses. They managed to explain the terms clearly, with 9 percent scoring full marks. For instance, in part (a), one candidate wrote, "Information and Communication Technology is a term used to express the coverage of information broadcasting and communication" and in part (b), the candidate wrote, "Information Technology refers to the general term that produces, process, store and disseminate information". In addition, in part (c), the candidate wrote, "Local Area Network is a type of computer network which covers a small geographical area e.g. hospital, school etc."

Such responses show that they had adequate knowledge of *Fundamentals* of *Information and Communication Technology*. A sample of the candidates' correct responses is illustrated in Extract 9.1.

Extract 9.1

9 (9) In jos mation and Communication Technology - These are
terms that describe equipments Hardware and software
Though which injormation com be captured, process, posse
Processed manipulated Sought and distributed.
b) Information Technology is a long of the wood (IT) which
Com be defined as the USF of technology in Processing and
lanaging injormation.
(C) Local Area Network' Lithe network connection which
takes small oneg like home or an institution like a
school And is the Long of the word (LAN) as the type.
1) network Connection,

In Extract 9.1, the candidate correctly defined the terms Information and communication Technology, Information Technology and Local Area Network.

On the other hand, 33.4% of the candidates provided incorrect responses. These responses show that they failed to explain the terms Information and Communication Technology, Information Technology and Local Area Network correctly. For instance, in part (a), one candidate wrote, "Information and Communication Technology is the electronic device that can input and output storage and processing information and it share and transmit information from so," while in part (b), the candidate wrote, "Information Technology is the application of science in processing data to give out information". Furthermore, in part (c), the candidate wrote, "Local Area Network these are the type network in which the resources and ideas are shared in a local area".

Another candidate, in part (a), wrote, "Information and Communication Technology is the application of science which used to provide data and process it". While in part (b), the candidate wrote, "Information Technology is the process of apply information into science". Moreover, in part (c), the candidate wrote, "Local Area Network: These are the channel of passing different information to different channel".

Furthermore, in part (a), another candidate wrote, "Information and Communication Technology means ICT". In part (b), the candidate wrote, "Information Technology means IT". Moreover, in part (c), the candidate wrote, "Local Area Network means LAN".

These responses show that the candidates had inadequate knowledge of Fundamentals of Information and Communication Technology.

In this question, the candidates were supposed to elaborate the terms Information and Communication Technology, Information Technology and Local Area Network as follows:

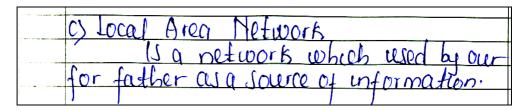
Information and Communication Technology: It is a generic term used to express the coverage of information technology, broadcasting and communication, for example internet.

Information Technology (IT): It is the use of computers, telecommunications and office system technology for the collection, processing, storing, packaging and dissemination of information.

Local Area Network: It refers to a computer network that span relatively in small area. In most cases LANs are confined to a single building or group of buildings. A sample of the candidates' incorrect responses to the question is illustrated in Extract 9.2.

Extract 9.2

9. a) Information and communication technology
9. a) Information and communication technology which used an electric city to learth and store data for the purpose of teaching and learning process
b) Information Technology refers to the ability of facilitating document to the computer program:
document to the computer program?



In Extract 9.2, the candidate incorrectly defined the terms Information and Communication Technology, Information Technology and Local Area Network.

2.1.10 Question 10: Generic Application Software

This question has three parts: (a), (b) and (c). The candidates were required to explain briefly the terms (a) Spread sheet, (b) Database and (c) the Internet.

The question was attempted by 907 (100%) of candidates. The analysis of data shows that 40.1 percent scored from 0 to 1; 41 percent scored from 1.5 to 2 and 18.9 percent scored from 2.5 to 3 out of 3 marks. The overall performance on this question was average, since 59.9 percent of the candidates scored above 1 mark. Figure 10 shows the candidates' performance on this question.

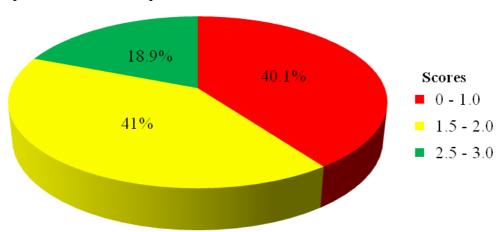


Figure 10: Candidates Performance on Question 10

Results show that 59.9 percent of the candidates scored from 1.5 to 3 marks. The candidates were able to explain the concept of *Spread sheet*, *database* and *the internet*. For instance, in part (a), one candidate responded, "Spread sheet is an application program designed for mathematical or numerical data manipulations", while in part (b), the

candidate responded, "database is computer application software used for storing and retrieving information". Moreover, in part (c), the candidate responded, "internet is the network of networks which covers the world". This shows that, they had adequate knowledge of *Generic application software*. A sample of the candidates' correct responses is illustrated in Extract 10.1.

Extract 10.1

10	(a) Spreed Theet.
- 17	Les a application jest worre which perform mathematic calculation in a computer program. The calculation is clone in worksheet. Worksheet
	perform mathematic calculation in
4	a computer program. The calculation
1	a clone in worksheet. Worksheet
	includes (ELL where by rows and
- 6	Column Intersect.
1 19-1	
	(b) Data base:
	A data base is the collectron of
	A clata base is the collectron of information which is under a particular management.
	particular management.
	(c) Internet.
-	Internet mean international Conne
	chope as networks that enable
	. people to thous information about
to the same of the	variou Illus.

In Extract 10.1, the candidate correctly defined the term Spread sheet, Data base and the Internet.

However, 40.1 percent of the candidates scored low marks (0 to 1) in the question. They failed to explain the meaning of Spread sheet, Database and the Internet. For instance, in part (a), one candidate wrote, "Spread sheet is the sheet used write document in the field". In addition, in part (b), the candidate wrote, "database is the collection of pages". Furthermore, in part (c), the candidate wrote, "Internet is the collection of network".

Another candidate in part (a), wrote, "Spread sheet means a page in a computer program which allows the user to write their documents so as to be printed". In part (b), the candidate wrote, "Database is a software system in a computer which used to provide the information". In addition, in part (c), the candidate wrote "Internet refers to the huge number of computers".

Moreover, in part (a), another candidate wrote, "Spread sheet is a sheet which have column used to inter the result or score of the student in a computer," while, in part (b), the candidate wrote, "Database is a system of a computer which used for communication". Furthermore, in part (c), the candidate wrote, "Internet is the searching engine used to search different things".

Their responses show that they had inadequate knowledge of *Generic Application Software*.

In this question, the candidates were supposed to explain briefly the meaning of Spread sheet, Database and the Internet as follows:

- (a) Spread sheet: It is an application software generally used for manipulation of numerical data into information it consists of rows and column which intersects to form cells. It comprises of work books, worksheets graphs and charts.
- (b) Database: Refers to an organized collection of data. It is considered to be organized because the data is accessible in a logical manner. Data can be anything which deemed to be of significant to the organization that the system is saving. The basic components of a database system will comprise fields, records and files.
- (c) The Internet: It is the network of computers connecting millions of people worldwide. It consists of the hardware that is involved in sending the information from one place to another and the software which glues all these together.

A sample of the candidates' incorrect responses is illustrated in Extract 10.2.

Extract 10.2

10	i. Spread sheet is the Computer programme
	that allow a user to perform numerical
	that allow a user to perform numerical calculations. Example all mathematical calcula
	tion.
	ii- Data base
	ii. Database, 1, a collection of data under a
	Certain management.
	1014kpg2
	iii. Internet Is the system of Computers
	Connected together through out the world.

Extract 10.2 shows that the candidate failed to define the term Spread sheet, Data base and the Internet.

2.2 SECTION B

This section consisted of three questions, each carrying 15 marks. The candidates were required to answer two questions.

2.2.1 Question 11: Computer Basics and Networks

This was an essay type question. It required the candidates to explain five advantages of having a computer network in Tanzanian teachers' colleges.

The question was attempted by 95.7 percent of the candidates. The analysis of data shows that 1.6 percent scored from 0 to 5.5; 60.6 percent scored from 6 to 10 and 37.8 percent scored from 10.5 to 15 out of 15 marks. The overall performance on this question was good, since 95.7 percent of the candidates scored above 5.5 marks. Figure 11 summarizes the candidates' performance on this question.

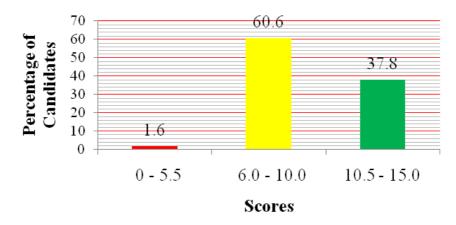


Figure 11: Candidates Performance on Question 11

The analysis shows that 98.4 percent of those who attempted this question provided correct responses. They managed to explain three to five points, relevant to the question. For instance, one candidate wrote,

The advantage of having computer networks in Teacher College in Tanzania are: Sharing of resources: Network allows sharing of recourses like printers, modems, computer programs and files in teacher colleges easily.

Speed of sharing data/information: Through computer network, data and information are shared faster through the use of e-mail, CD, DVD, flash and memory cards.

Data security: In a computer network data can be stored in one computer (server) which can be protected by the use of password, data backups etc.

Cost effective: Computer Network in colleges in Tanzania reduces the cost of communication because files can be shared through network from one computer to another in a network and from one place to another at low cost.

This shows that the candidates had adequate knowledge of and skills in the advantages of computer networks. They also understood the requirements of the question. A sample of the candidates' correct responses is illustrated in Extract 11.1.

Extract 11.1

11	Computer network; Is the interconnection of more than
	one computer for the purpose of charing information.
_	there are some types of computer relatory such as
	one computer for the purpose of sharing information. There are some types of computer religionship such as Local area network, Metropolular area network and
	ulido greci network.
	The tollowing are the addrentages of having a
	computer retruor in Tamania teautioni colleges
	Resources such as printer mouse can be shared so
	the individual compater or workstation does not need
	the individual resources; through computer network can
	allow thanny and solve the carcity of revources.
	Effective and efficiency communication; the network
	around the college allow effective and efficience
	Communication because all the time the machines
	can be opercited without disturbance.
	The reliable and up-to-date.
	Through computer network the information can
	Keeping information reliable and up-to-date. Through computer network the information can be keept and become weble for a tature we expecially when teacher store the notes of a computer
	aspectally when leacher stole the notes to a computer
	they stay for a long time and be used for the coming students.
	Security: the data or information of the user can be stored in a central place or server so the year can
	access their work through any workstation in the
	computer notwork so the computer network more adva-
	stage to secure the work of the user.
	Speed: Computer network make easy sharing of
	injormation and operate very taster especially when
	searching the information in the computer through
	cearch engine such as accorde, valor and operamin,
	Centralized communication; The computer network
	it contralize the communication because all people
	around the computer network get information at
_	once so their is why the computer notwork very important
-	in college such as local area network because it
	saves the cost because it allow server and werling.
1	tion computer server have so many resource and the
	portistation share with server
	According the to the advantage of computer network
-	in Tanzania teachers edlege there are some of requirement
140 11	The state of the s

used morder	to get comp	outer netwo	ork such as	ctient.
workstation,	cabling, the	interiace o	ard and	the
network synt	em, J			

In Extract 11.1, the candidate correctly explained the advantage of having a network in Tanzanian teachers' colleges. Such advantages are sharing of resources, speed of sharing, data/information, data security, cost effective and centralization of software management.

However, few candidates (1.6%) provided incorrect responses to some or all parts of the question. Some of them explained the advantage of having an internet connection instead of the advantage of computer networks. Their responses reveal that they had insufficient knowledge of computer networks. Furthermore, they did not understand the requirement of the question. For instance, one of the candidates wrote,

Computer networks helps in searching teaching and learning recourses with the aid of search engines as well computer network helps in distance learning where teachers or students can learn on line courses.

Another candidate wrote,

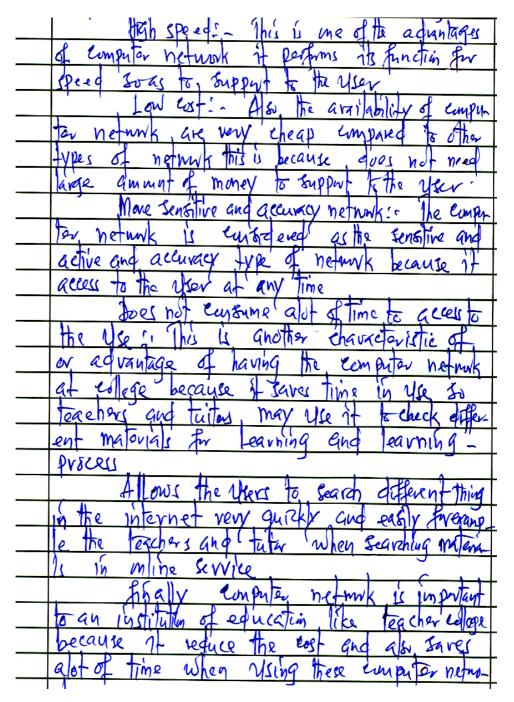
Computer network helps in learning practicals, helps to know different computer applications, and helps the student to acquire knowledge.

These responses indicate that they had insufficient knowledge of *Computer Basics and Networks*. In this question, the candidates were supposed to discuss five points, among the following: Sharing of resources, speed of sharing data/information, data security, cost effective, centralization of software management as well as flexibility of data access

A sample of the candidates' incorrect responses to the question is illustrated in Extract 11.2.

Extract 11.2

14	Com	puter norm	K= - This 1:	offic type of	netowk
	when mre	hay me ex	mfula are	cunested	to share
	Information (Be	w, are	he advant	ages of h	aving a-
	computar n	etunk in	TANZANIA	teachers (dege.



In Extract 11.2, the candidate incorrectly explained the advantage of having an internet connection in Tanzania teachers' college is to allow the users to search different things on the internet very quickly and easy.

2.2.2 Question 12: Fundamentals of Information and Communication Technology

This was an essay type question. It required the candidates to analyse two sources of information used by our forefathers and three sources of information used by modern generation.

The question was attempted by 76.6 percent of the candidates. The results show that 4 percent scored from 0 to 5.5; 41.5 percent scored from 6 to 10 and 54.5 percent scored from 10.5 to 15 out of 15 marks. The overall performance on this question was good, since 96 percent of the candidates scored above 5.5 marks. Figure 12 shows the candidates' performance on this question.

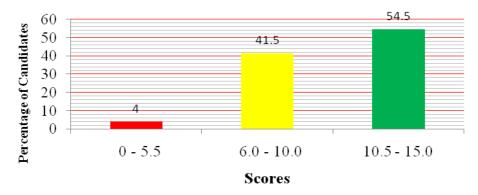


Figure 12: Candidates' Performance on Question 12

The candidates who responded well to this question had sufficient knowledge about the sources of information used by our forefathers and sources of information used in modern generation. Most of them explained the sources of information used by our forefathers as folk media (storytelling), drawings, drams, horn, shouting (especially when there is a crime). In addition, they explained the sources of information in modern generation as printed media, electronic media, telephone/mobile phones and internet. For instance, one candidate mentioned folk media and drawings as the sources of information used by our forefathers and Printed media, electronic data and telecommunication using telephones/mobile phones as sources used in modern generation.

This indicates that the candidates had sufficient knowledge of *Fundamentals of Information and Communication Technology* especially on the sources of information. A sample of candidates' correct responses is illustrated in Extract 12.1.

Extract 12.1

12	
	to give meaning information is very important in such away that It is used
	rtant in such away that It is used
-	In public opionson also Information con
	be used to make decision and Information also can be used as entertainment
	But the can be used as entertainment
	But there are several sources of data used to transimilt information. The polls
	nation and the source of latering tion when
	by our fore father such as
	by our fore father such as source of data used by our fore pather to transimmit information. Happen when an older tell the story to a certain
	of data used by our fore pather to
	Hansimmit information. Happen when
-	an older Tell the slow to a cortain
	group of people. Mean people are suffic
	elon which into contract them There Time the
	circ amound be the source of dolla 1100
	group of people. Mean people are softion of down and the older telling them slow which into resting them. There fore this is amoung of the source of data use of by our force parther to transimit in also amoung of the source of data used by our force pather to transimmit information, occurrently there to transimmit information, occurrently of the source of data used by our force pather to transimmit information, occurrently of the source of data used by our force pather to transimmit information, occurrently of the source of the
	Insumation.
	Dance This is also amoung of
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In Extract 12.1, the candidate correctly analyzed the sources of information used by our forefathers as storytelling and dance and the sources of information used in modern generation as telephones, television and computers connected to the Internet.

However, few candidates (4%) of those who attempted this question provided incorrect responses. Their responses show that they lacked adequate knowledge of the sources of information, especially the difference between the traditional and modern sources. For instance, one of the candidates wrote, "The fore father used letters and radios as one of their sources of information". Moreover, another candidate wrote, "Books and magazine were the sources if information used by the fore father as their means of communication".

This indicates that the candidates had insufficient knowledge of *Fundamentals of Information and Communication Technology* especially of the sources of information.

In this question, the candidates were supposed to analyze two sources of information used by our forefathers and three sources of information used by modern generation, by considering the following points: Sources of information used by our forefathers include storytelling, drawings, smoke signals, bell ringing, drums, dance and shouting. In addition, the sources of information used by modern generations include newspapers, television, telephones and the Internet.

A sample of the candidates' incorrect responses to this question is illustrated in Extract 12.2.

Extract 12.2

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In Extract 12.2, the candidate identified the sources of information used by our fore fathers as books and magazines instead of storytelling and dances, drawings, drums, horns and shouting.

2.2.3 Question 13: Generic Software Application

This was an essay type question. It required the candidates to discuss five advantages of using electronic database over the traditional way of keeping data.

The question was attempted by 27.6 percent of the candidates. Results indicate that 12 percent scored from 0 to 5.5; 36 percent scored from 6 to 10 and 52 percent scored from 10.5 to 15 out of 15 marks. The analysis shows that the overall performance on this question was good, since 88 percent of the candidates scored above 5.5 marks. Figure 13 shows the candidates' performance on this question.

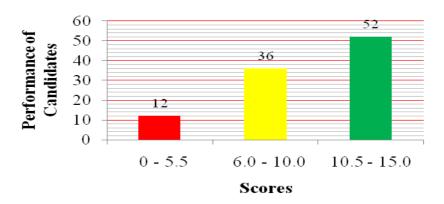


Figure 13: Candidates' Performance on Question 13

Results show that 88 percent of the candidates attempted this question performed well. They managed to explain three to five points as required by the question. For instance, one candidate discussed three of five points as,

Database prohibits the repetition of data in the tables while in the tradition way of keeping data, data can be repeated; Data in a database are very secure, they cannot lost or destroyed easily while in tradition way data can be easily lost or destroyed; in database data can be accesses quickly than in tradition ways; database can store larger amount of data in a computer while in tradition way larger amount of data needs a large space in cupboards.

This indicates that the candidates had sufficient knowledge of *Generic Application Software* especially of Database Application. A sample of the candidates' correct responses to the question is illustrated in Extract 13.

Extract 13.1

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In Extract 13.1, the candidate correctly discussed the advantages of using electronic database over the traditional way of keeping data.

However, 12 percent of the candidates provided some of incorrect points in their responses. For instance, one candidate wrote, "Database are used to store quick information while tradition stores slow information". The candidate went on by explaining that, "data base can be used as wild card etc".

Moreover, some of the candidates did not understand the requirements of the question; they simply discussed the advantages of using database instead of discussing five advantages of using electronic database over the traditional way of keeping data. For instance, one candidate wrote,

The advantages of using database over tradition way of keeping data are: using a database, it is easy to add, remove and edit information; data can be accessed and share easily; data can be secured easily using data backups and password; database can store large amount of data.

This indicates that the candidates had insufficient knowledge of Database.

In this question, the candidates were supposed to discuss five advantages of using electronic database over the traditional way of keeping data with respect to simplicity of editing, adding and deleting, restriction of duplication of data, security of data, accessibility of data and capacity of data storage. A sample of the candidates' incorrect responses is illustrated in Extract 13.2.

Extract 13.2

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In Extract 13.2, the candidate incorrectly discussed the advantages of using electronic database over the traditional way of keeping data by explaining that databases is used to motivate learners, create creativity among learners and simplify teaching.

2.3 SECTION C

This section consisted of three questions, each carrying 15 marks. The candidates were required to answer any two questions.

2.3.1 Question 14: Planning and Preparation for Teaching ICS

This was an essay type question. It required the candidates to elaborate five factors that teachers must consider in selecting a teaching strategy.

The question was attempted by 73.2 percent of the candidates. Their results indicate that 5.3 percent scored from 0 to 5.5; 53 percent scored from 6 to 10 and 41.7 percent scored from 10.5 to 15 out of 15 marks. Generally, the performance on this question was good, since 94.7 percent of the candidates scored above 5.5 marks. Figure 14 summarizes the candidates' performance on this question.

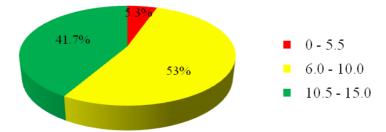


Figure 14: Candidates Performance on Question 14

The candidates' performance on this question show that 94.7 percent performed well. They managed to elaborate four or five factors that teachers must consider when selecting a teaching strategy. Most of them clearly elaborated such factors For instance, one candidate wrote,

The actors that teachers must consider when selecting a teaching strategy are:

Age and cognitive ability of a learner as an important factor to be considered since different age of learners need different teaching strategy, for example lecture strategy is not suitable for learners at the age of pre and primary schools.

Time allocated for a lesson determines the teaching and learning strategy.

Class size/number of students: the selection of teaching strategy must consider the number of learners in the class, for example group discussion method is not suitable for a huge class;

Nature of the content determines the teaching strategy, for example a teacher cannot use lecture when teaching generic application software in its practical part.

This indicates that the candidates had sufficient knowledge of *Planning and Preparation for Teaching ICS*. A sample of the candidates' correct responses to the question is illustrated in Extract 14.1.

Extract 14.1

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In Extract 14.1, the candidate correctly elaborated five factors that teachers must consider when selecting a teaching strategy such factors are age of the learners, size of the class, nature of the subject content and availability of resources.

However, few candidates (5.3%) scored low marks (0 - 5.5); they provided incorrect responses. Their responses show that they failed to elaborate the factors that teachers must consider in selecting a teaching strategy.

For instance, one of the candidates wrote,

Teaching strategy must be valid; availability of materials e.g. books; availability of teaching and learning aids; availability of lesson plans; availability of syllabuses scheme of work and availability of lesson notes.

This indicates that the candidates had insufficient knowledge of *Planning and Preparation for Teaching ICS*.

In this question, the candidates were supposed to elaborate any five factors that teachers must consider in selecting a teaching strategy. Such factors were age and ability of the learners, content of the subject matter, time for teaching, physical infrastructure, size of the classroom, availability of teaching and learning resources and ability of a teacher in teaching the content. A sample of the candidates' incorrect responses is illustrated in Extract 14.2.

Extract 14.2

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14	Elaborate five factors that teachers must consider when selecting a teaching strategy
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In Extract 14.2, the candidate incorrectly elaborated five factors that teachers must consider in selecting a teaching strategy as authentic read context, formative or ongoing assessment, active approach, treat individual student to ability, assessment and report.

2.3.2 Question 15: Computer Laboratory Management Skills

This question required the candidates to analyze five factors to consider when setting a new computer laboratory in a school.

The question was attempted by 58.8 percent of the candidates. The analysis of data shows that 53.2 percent scored from 0 to 5.5; 43.6 percent scored from 6 to 10 and 3.2 percent scored from 10.5 to 15 out of 15 marks. This implies that the overall performance on this question was average, since 46.8 percent of the candidates scored above 5.5 marks. Figure 15 shows the candidates performance on this question.

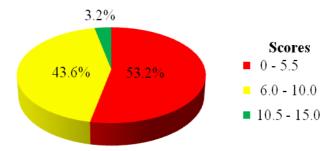


Figure 15: Candidates' Performance on Question 15

Results show that 46.8 percent of the candidates who attempted this question performed well. They managed to analyze three to four factors to consider when setting a new computer laboratory in a school. For instance, one of the candidates wrote,

Enough space: the space is an important factor because it allows students to move freely in the laboratory.

Reliable power supply: It is an important factor because when there is no power no effective computer laboratory can be established.

Storage device: There must be flash and memory cards in the computer lab for storing software.

Security: The computer lab must have strong doors and window as well as computer viruses software to make secure of all physical facilities of a computer laboratory and the software available in the computer laboratory.

Drawing on the response above, the candidates had adequate knowledge of *Computer Laboratory Management Skills*. A sample of the candidates' correct responses to this question is illustrated in Extract 15.1.

Extract 15.1

15.	Five Juton to consider when setting new computer
	r laborator, in aschool-
	Prower
	Computer laboratory: Is a special room where by different computer practical activities are been conducted by both teachers and students
	where by different computer practical activities are
	been conducted by both teachers and students
	latter acion lhuculab lhuon example excel -
	rations, power point presentation preparation, performing publishing activities. The following are the factors to consider when setting new computer laborators in a school.
	vation, performing publishing activities.
	The following are the factors to consider when
	setting new computer laboratory in a school.
	There must be the enough upau in-
	a room that your selecting to be computer labor
	There must be the enough space in - or room that your selecting to be computer laboratory so that you can not cause different - autitant in the laboratory, so enough space is
1	allitaint in the laborator, so enough space is
	needed.
	There must be enough tables which -
	will suit for mobiles which meet the exelevely of the learners, some because some of the table are so big and sometimes small that may not fit for the learners to use the computers effectively
	to learners / some because some of the label are
	10 big and sometimes small har may not fill
	and animonth
	Those must be enough storage despen
	and efficiently. There must be enough uteringe device, so that you can keep informations about the learner and the laboratory according than -
	Learner and the laboration of example than -
	dick. CDe, NVN, Memor cards and even -
	disk, CDe, DVDe, Nemon cards and even - different floppy disk and hard disks tostore- information internally and externally. There must be enough computers and There must be the printing stationar so
	information internally and externally.
	There must be enough computers and
	There must be the printing stationar so
	that learners may print their work and -
	see their ruccess or progress in their practi-
	that learnen may print their work and - ser their ruccus or enogress in their practi- cal activities, also enoting stationary may

In Extract 15.1, the candidate correctly analyzed five factors to consider when setting a new computer laboratory in a school. He/she considered the availability of space, furniture, storage devices and printing facilities.

However, 53.2 percent of the candidates who attempted this question scored low marks (0 - 5.5). They provided incorrect responses. Such responses indicate that they did not know the basic requirements for establishing a new computer laboratory. For instance, one wrote,

Availability of network system; presence of qualified teachers for computer programming system; avoid viruses which affects computers; availability of good transport and communication and presence of good air conditions.

Another candidate wrote.

Allocation of the building where computers should be kept; make the availability of internet network; many computers should be prepared and presence of rules and regulations.

This indicates that the candidates had insufficient knowledge of Computer Laboratory Management Skill.

In this question, the candidates were supposed to analyze factors such as sufficiency of space, availability of lab technicians, availability and stability of electric power supply; availability of storage devices, availability of printing facilities, security, as well as laboratory furniture.

A sample of the candidates' incorrect responses to this question is illustrated in Extract 15.2.

Extract 15.2

15	Computer laboratory, refers to the - special room which are used for the showing of computer only, and in the man there were- good enrangement of theirs and table with a - Computer. The bollowing one the backer to consider
	special room which are used for the shoying
	and energy ment at their and table with a
	Computer:
	Computer. The bollowing one the bacfor to consider cohen setting new new Computer laboratory in a-school.
	school.
	Internet Connection, this is one omong the
	because there were no learning computer to begaling-
	Factor to consider when setting computer lebocatory- because there were no learning computer it there is poor Connection of the internet, through that

there must be internet connections.

Also there must be network available because the network can help the wer to down load and we making seasy also network com improve work performance of the computer such as searthing at information.

Number of the students in the school, because the wer are students so it is important to know their number bette girls and beys so as make computer seperatory quited and can't student should expect the lesson.

Computer performance and capacity, this is a factor that can be considered when sething computer be considered when sething computer leberatory because it the computer is perform your or nove virus normally many affect tracking and learning and at the end of the learning made it can help students to may also when making report it is easy to horizont a long when making report it is easy to horizont a long when making report it is easy to horizont a long when making report it is easy to horizont a learning to computer and the seasy must be near to the computer, and the read must be near to the computer, and the read must be near to the superior performance.

The superior also electricity because computer need electricity to their gertarmence.

There was computer, also electricity because important need electricity to their gertarmence only it very important because through it can improve the way innovation to the she denth, such as track of new programs also increase knowledge on a stability on the use of lamputer.

In Extract 15.2, the candidate incorrectly analyzed the availability of internet connection, number of student in a school, computer performance and capacity, availability of roads and electricity.

2.3.3 Question 16: Assessment Procedure for ICS

This was an essay type question. It required the candidates to describe five assessment tools used to assess students' achievement in secondary schools in Tanzania.

The question was attempted by 85.9 percent of the candidates. Response analysis shows that 0.5 percent scored from 0 to 5.5; 8.8 percent scored from 6 to 10 and 90.7 percent scored from 10.5 to 15 out of 15 marks. This implies that their performance on this question was good, since 91.5

percent of the candidates scored above 5.5 marks. Figure 16 summarizes the candidates' performance on this question.

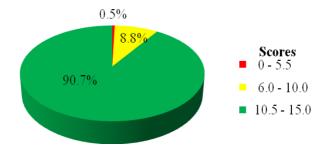


Figure 16: Candidates' Performance on Question 16.

Furthermore, the candidates who scored from 6 to 15 marks managed to analyze four to five assessment tools used to assess students' achievement in secondary schools in Tanzania. For instance, one of the candidates wrote,

The five assessment tools used to assess student achievement in secondary schools in Tanzania are:

Test and examinations: It is a tool used to assess student performance during the process of teaching and learning or at the end of the term of a year.

Questionnaire: Is a tool used to assess students success or difficult in learning. Portfolio: It is a collection of students work such as files, past papers, lesson notes etc.

Interview guide: This is a face to face oral communication between teachers and the students aiming at assessing students' achievement in a certain topic.

Observations: It is a tool, where by a teacher assesses students by observing what a student is doing e.g. BTP.

These responses indicate they had sufficient knowledge and skills in *Assessment Procedure for ICS*. A sample of the candidates' correct responses is illustrated in Extract 16.1.

Extract 16.1

	Testslexaminations, Tests or exami
	ution is a series of questions which made by the
te	acherrin order to measure a particula, perbehavi
	roundividual behaviour. Tests or examinations
	the most common assessment took, Tests is very
منــــــ	rportant to student because helps to know the
	arning difficulties to student, also it used for
	Lection of student from one Level to another
l-	evel or for further studies, Not only that but
a	lso tests is used to brings feedback to for both
te	acher and student.
	Portfolio, Is the systematic
co	ilection of some body works, that can be takes
tu	measure achievement, Portfulio is very impo
370	unt as a assessment tools for secondary school beca
	estudents can collects differents materials conce
rn	ing of a particular to subjects and preserve in a
Fi.	10, Portfulio is used in assessing achievement
Q ₁	d making evaluation for students
	oncervation. Thuis the one
+ı	is teacher or a person who correct data can
06	serve different things which student are doing
Ь	it by using his or her organs such as eyes, ears.
	Interview, Also this is one of assessment
to	ors which is used to know achievements of the
120	arners, Here we use vial communication
tu	ere must be two sides that is interviewer and
lin	tervieuce, or student and teacher, Teacher
	ay asks different questions to student and
	enstudent needed to answer or respond those
	vestions, so finally after student respond throu
	those answers, teacher may use to assess him
	or her:
	Questionnaire, is the way of collecting
~ ·	ata by using writen form, when by the teacher
	ay have the lists of questions to the paper and
	ident needed to answer those questions through
	siting, Ofter finishing to answer the questions
1.0	acher may use those answers to assess the achi
	ement of the learner,
	Generally assessing students achievement
io	teaching and learning is very important, beca
14.0	e it can use to select students from one stage to
	notherstage, to know diag brings feed a back
-	et only that but also for schoolarship
110	a visit y visit y visit y visit y

In Extract 16.1, the candidate correctly described test and examination, portfolio, interview, questionnaire and observations as the five assessment tools used to assess student achievement in secondary schools in Tanzania.

However, 0.5 percent of the candidates scored low marks (0 - 5.5). They provided incorrect responses. Their responses show that they had inadequate knowledge of the assessment tools that can be used in assessing secondary school students. For instance, one of the candidates wrote "scheme of work, lesson plan, lesson notes, lesson development and subject logbook". This shows that the candidates had insufficient knowledge of *Assessment Procedure for ICS*.

In this question, the candidates were supposed to explain five assessment tools used to assess students' achievement in secondary schools in Tanzania. Such tools include test and examinations, portfolios, questionnaires, interview guides, observations, anecdotal records, check lists and projects. A sample of the candidates' incorrect responses is illustrated in Extract 16.2.

Extract 16.2

Scheme of work, This is the
teachers document which used them to
direct the number of pariods number of
topics, Sub-topics and Other things
But Schame of work shows ability
of the tracker in Using their Knowle
dge to teach Thisent, this also shows
offe and a 16/6/ct of the factor to
The responsibility of the beacher to
Shair work.
Lesson Plan, This Shows
Specific objects, General Objectives,
and other but this document also indi
Cates the how teacher uses different
traching techniques and Strategies in
his toaching process, Therefore the
teaching at an art every teacher have
Larson Notes, This is the docume
nts of teacher which Comprises the
notes which sha or ha prepared for the
Durpose of tracking it. It is wary impor
retarts things because it shows or what
as Initable for the Students to leave and
Which & not according to the Syllabus of
the Concerned Subjects.
W William Japiera

Lesson developments This
documents shows the down ward and
sepward development of the students
It Shows of the Students aladerstand the
Subjects or not.
Lesson Subject loglogbook
This Shows If the teacher alleges to the
periods or not this also leads to the
Situation of praking the beacher to be
Panctual to their work and to work
hards because there are many documents
Which leads them or naeds them to teach.
So a the Use of documents as not a real measures for to know who is the effects
to a the Use of documents of not a real
Measures to know who is the effecti
va teacher and is not, thus it better to
Moasure the Performance of the Students
flyan to measure the Soument of the
teacher.

In Extract 16.2, the candidate explained lesson plan, scheme of work, lesson notes, lesson development and subject log book as assessment tools used to assess students' achievement in secondary schools in Tanzania. All these are incorrect.

3.0 ANALYSIS OF PERFORMANCE IN EACH TOPIC

In this examination, the questions were composed from 9 topics. Questions 1, 9 and 12 were set form the topic of *Fundamentals of Information and Communication Technology* and questions 4, 6 and 11 were set form the topic of *Computer Basics and Networks*. In addition, questions 2, 8, 10 and 13 were set from the topic of *Generic Application software*, question 3 was set from the topic *Website Design*, question 5 was set from the topic of *Multimedia* and question 7 was set from the topic of Social-economic and Cultural Aspect of ICT. Moreover, question 14 was set from the topic of *Planning and Preparation for Teaching ICS*. Question 15 was set from the topic of *Computer Laboratory Management Skills* and question 16 was set from the topic of *Assessment Procedures for ICS*.

The analysis of the candidate responses shows that the performance was good on the topics of Assessment Procedure for ICS (99.5%), Planning and Preparation for Teaching ICS (94.7%), Fundamentals of Information and

Communication Technology (80.3%). The candidate had average performance in the topics of Generic Software Application (67.1%), Computer Basics and Networks (50.6%), Computer Laboratory Management Skills (46.8%) and Multimedia (44.4%). However, the candidates performed poorly on the topics of Social-economic and Cultural Aspect of ICT (39.8%) and Website Design (8.4%). The analysis of performance per topic in this subject is shown in the **Appendix** attached to this report.

The poor performance of candidates on these topics was caused by insufficient knowledge and skills in some of concepts like job creation, job replacement and job displacement in *Social-economic and Cultural Aspect of ICT*. Moreover, the candidates misconceived the concept of advantage of computer networks to advantages of internet connection. Furthermore, the candidates misconceived the concept of generations of computers to the concept of generation of computer programming languages in the topic of *Computer Basics and Networks*. In addition, the candidates lacked knowledge on the concept of hypertext, Hypermedia and hyperlinks in the topic of *Website design*. Insufficient knowledge and skills in those topics resulted into poor performance of the candidates.

4.0 CONCLUSION

In general the analysis of candidates' performance on each question as well as the topic examined shows that the candidates' performance on questions 1, 9, 10, 12, 14 and 16 was good; on questions 2, 4, 5, 6, 11,13 and 15 was average while the performance was poor on questions 3, 7 and 8. The overall analysis on the 9 topics that were examined shows that 3 topics had good performance, 4 topics had average performance and the remaining 3 topics had poor performance. Therefore, the overall performance of the candidates in this subject was good as 99.78 passed the examination.

The reasons for the good performance in some of the topics include sufficient knowledge and skill in the examined concepts, ability to recall, explain and make analysis in answering these questions.

Conversely, the poor performance was attributed by the candidates' insufficient knowledge and skill in the examined concepts. The candidates

used incorrect concepts, and they interpreted wrongly some of the given information.

5.0 **RECOMMENDATIONS**

In order to improve the candidates' performance in the future in Information and Communication Technology examinations, it is recommended that;

- (a) Tutors should make sure that all topics in the syllabus are taught effectively during the given time of teaching and learning.
- (b) Since ICT is growing and changing every day, ICT teachers should be given regular in service training to meet the demand of technology.
- (c) Tutors should encourage the students to study hard all the topics in the syllabus and make sure that they understand all the concepts in each topic.

APPENDIX

Analysis of the candidates' Performance per Topic

S/N	Торіс	Question Number	Percentage of candidates who scored 40 percent or more.	Average Performance	Remarks
1	Assessment Procedure for ICS	16	99.5	99.5	Good
2	Planning and Preparation for Teaching ICS	14	94.7	94.7	Good
3	Fundamentals of Information and	1	98.7		
	Communication Technology	12	96	87.1	Good
		9	66.6		
4	Generic Software Application	13	88		
		10	59.9	64.7	Average
		2	46.2		
5	Computer Basics and Networks	11	98.4		
		6	39	46.8	Average
		8	35.3	40.8	Average
		4	14.3		
6	Computer Laboratory Management Skills	15	46.8	46.8	Average
7	Multimedia	5	44.4	44.4	Average
8	Social- Economic and Cultural Aspect of ICT	7	39.8	39.8	Weak
9	Website Design	3	8.4	8.4	Weak