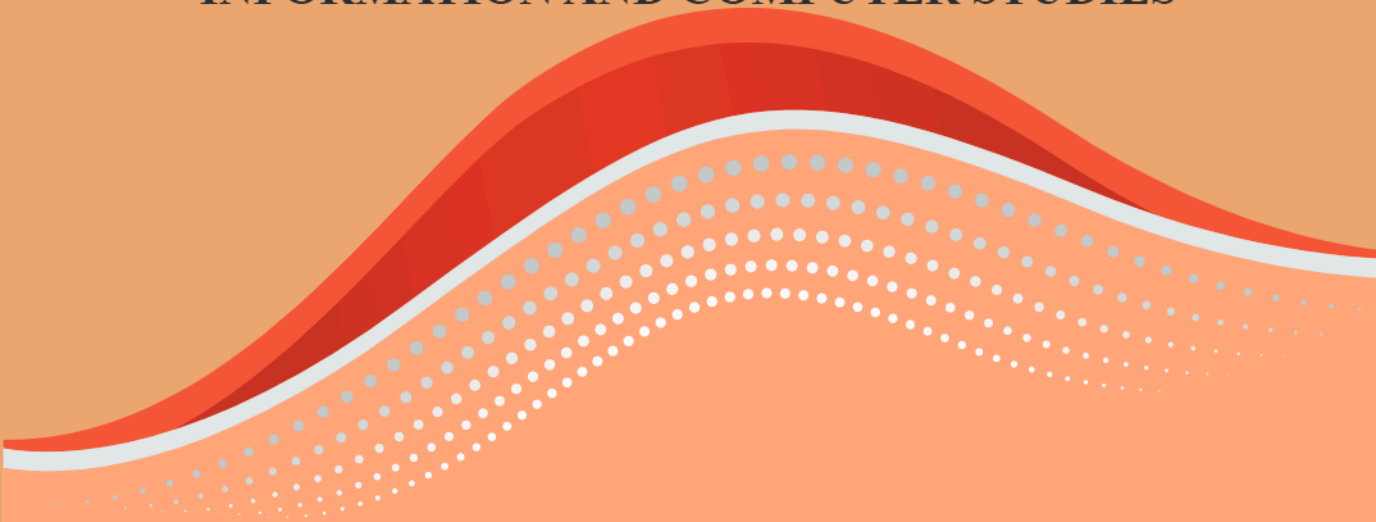**THE UNITED REPUBLIC OF TANZANIA**

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

STUDENTS' ITEM RESPONSE ANALYSIS REPORT ON THE FORM TWO NATIONAL ASSESSMENT 2023

INFORMATION AND COMPUTER STUDIES

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036 INFORMATION AND COMPUTER STUDIES

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

CD   –   Compact Disk
CLI   –   Command Line User Interface
CPU   –   Central Processing Unit
DVD   –   Digital Versatile Disk
FTNA   –   Form Two National Assessment
GUI   –   Graphical User Interface
ICS   –   Information and Computer Studies
Ms.   –   Microsoft
NECTA –   National Examination Council of Tanzania
OS   –   Operating System
RAM   –   Random Access Memory
ROM   –   Read Only Memory
SIRA   –   Students Item Responses Analysis
UPS   –   Uninterruptible Power Supply

FOREWORD

The Form Two National Assessment (FTNA) is a formative evaluation that is implemented by the National Examinations Council of Tanzania (NECTA) with the purpose of monitoring students' learning progress. It serves as a means of providing feedback to students, educators, and other involved stakeholders who have contributed to the students' performance. Thus, NECTA has prepared this Students' Item Responses Analysis (SIRA) report on Information and Computer Studies subject on students who sat for FTNA 2023 in order to serve the purpose.

The report provides a detailed justification for students' performance and their competency in mastery of the subject content in Information and Computer Studies. The analysis of the results indicates that the students' general performance was good. The students' good performance was attributed to adequate knowledge about the assessed concepts including modern communication media and the use of internet in various areas and correct interpretation of the requirements of the questions. However, the students who scored low marks had insufficient knowledge about computer handling and lacked practical skills on Ms. - Word software.

This report will help students to identify strengths and weaknesses, hence work on them to improve their learning process before sitting for the Certificate of Secondary Education Examination (CSEE). The report will also help teachers to identify the challenging areas through the questions asked in the assessment and take appropriate measures during teaching and learning.

NECTA expects that this report will be a resourceful tool to all individuals who have a vested interest in education to implement suitable measures for enhancing the teaching and learning of the Information and Computer Studies subject. As a result, students will gain a comprehensive understanding and acquire proficiency as outlined in the syllabus which will ultimately lead to improved performance in the future assessments and examinations.

The Council appreciates the contribution of all those who prepared this report.

Dr. Said Ally Mohamed
EXECUTIVE SECRETARY

1.0   INTRODUCTION

The Information and Computer Studies paper was set according to the 2022 assessment format which is based on the 2005 Syllabus for Ordinary Secondary Education. The assessment paper had three sections; A, B, and C. Section A consisted of two objective questions. Question 1 consisted of ten multiple-choice items, and question 2 consisted of five homogeneous matching items. This section carried 15 marks. Section B consisted of seven short answer questions that carried 70 marks, and section C consisted of an essay question that weighed 15 marks. All questions in all sections were compulsory.

The students' performance in each question/topic was categorized using the ranges of 0% to 29% for weak performance, 30% to 64% for average performance and 65% to 100% for good performance. The students' performance is presented using different colors in which the red color represents weak performance, the yellow color stands for average performance and the green color stands for good performance.

About 14,765 students, sat for this paper in November 2023 where 9,961 (67.62%) passed and 4,804 (32.38%) failed. A total of 12,863 students sat for this paper in November, 2022, of which 7,682 (59.7%) passed and 5,181 (40.3%) failed. In 2023, the performance increased by 7.92 per cent compared to 2022. Figure 1, shows the comparison between students' performance in 2022 and 2023.
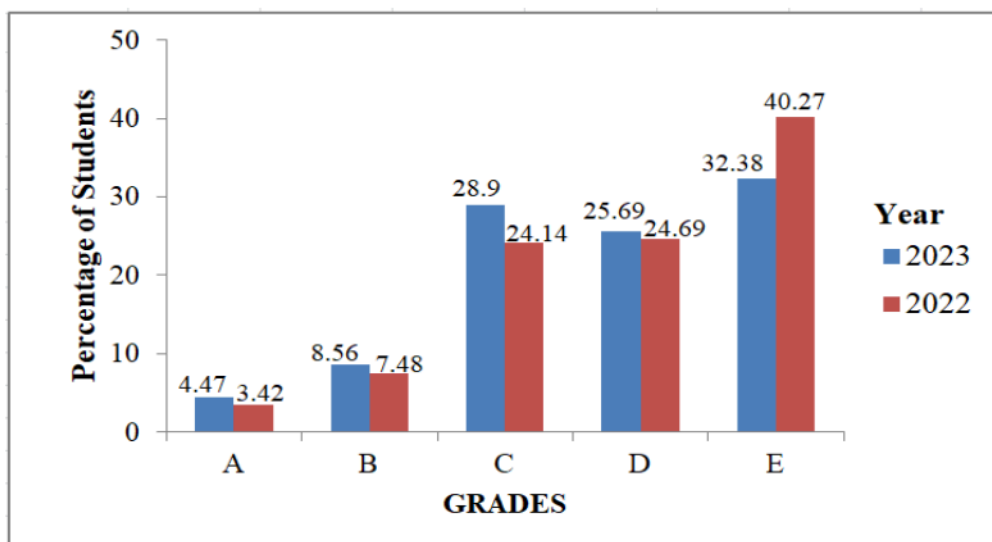

Figure 1: *Comparison between students' grades in 2022 and 2023*

2.0 ANALYSIS OF STUDENTS' PERFORMANCE IN EACH QUESTION

2.1 SECTION A: OBJECTIVE QUESTIONS

This section is composed of questions 1 and 2. Question 1 consisted of 10 multiple choice items carrying a total of 10 marks and question 2 consisted of 5 matching items which carried a total of 05 marks. The analysis of the students' responses is as follows:

2.1.1 Question 1: Multiple Choice Items

The question consisted of ten (10) multiple choice items composed from eight (8) topics. The topics were *Information*, *Computer Handling*, *The Computer*, *Word* Processing, *Spreadsheet*, *Computer Networks and Communication*, *The Internet* and *Computer Evolution*. In this question the students were required to choose the correct answer out of the four alternatives (A - D) given.

The analysis shows that all 14,765 (100%) students attempted this question, whereas 1,051 (7.1%) scored from 0 to 2 marks, 7502 (50.8%) scored from 3 to 6 marks, and 6,212 (42.1%) scored from 7 to 10 marks out of 10 marks. Generally, this question had good performance because 92.9 per cent of the students scored above 2 marks. Figure 2, summarizes students' performance in this question.
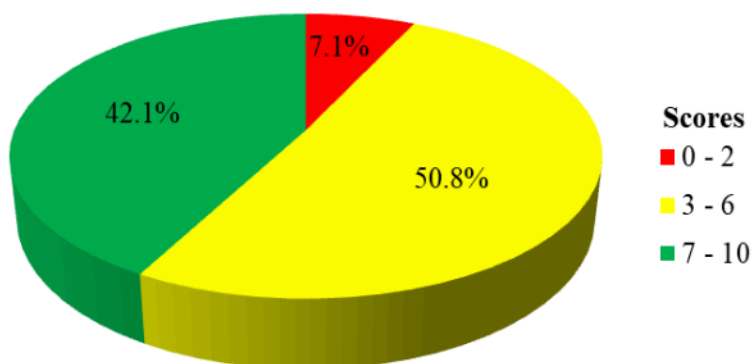

Figure 2: *Students' Performances in Question 1*

The analysis of students' responses to each of the items in this question is as follows:

Item (i): Which one is the process of arranging data elements in ascending or descending order?

A   *Editing*   B   *Sorting*
C   *Formatting*   D   *Filtering*

This item tested the student's knowledge about information processing whereas the correct answer was B, *Sorting.* The students who scored zero chose the wrong alternatives. Option A, *Editing* which involves reviewing and revising written content to improve clarity, coherence, accuracy, and overall quality while option C, *Formatting* refers to the layout and presentation of written content, including elements such as font style and size, spacing, margins, headings, and alignment. The students who chose alternative D, *Filtering* could not differentiate arrangement of items (sorting) from extracting specific data from a larger set based on certain criteria (filtering).

Item (ii): Which technique would you suggest to be used by teachers to maintain safety in a computer laboratory for both computers and users?

A   *Using insulated cables*   B   *Fitting grills on doors*
C   *Having regular break*   D   *Using antiglare screen*

The item tested students' knowledge based on safety measures in the computer laboratory, whereas the correct answer was A, *Using insulated cables.* The students who chose alternative B, *Fitting grills on doors* was incorrect as it protects only computers while alternatives C, *Having regular break* and D, *Using antiglare screen* protects only computer users.

Item (iii) *What is the function of* ≡ *(Justify) feature in Microsoft word?*

A   *To align text both left and center margins*

B   *To align text both right and equal margins*

C   *To align text both center and right margins*

D   *To align text both left and right margins*

This item tested the students' knowledge about formatting in a word processor document. The correct answer was D, *To align text both left and right margins*. The analysis indicates that students who opted for alternatives A, *To align text both left and center margins*, B, *To align* text

3

both right and equal *margins* and C, *To align text both center and right margins* lacked practical skills on the text alignment which led them to guess the answer.

Item (iv): *Mercy wants to learn the application of formula in the Microsoft excel and she typed = (A2+1) in a cell. How can you interpret the typed formula?*

A *Sum of values in cell A2 and 1*   B *Sum of value 2 and 1*
C *Sum of values in cells A1 to A2*   D *Sum of values in cell A3*

This item tested the student's knowledge of interpreting spreadsheet formula. The correct answer was A, *Sum of values in cell A2 and 1.* The analyzed result show that students who chose alternatives B, *Sum of the value 2 and 1,* C, *Sum of values in cells A1 to A2* and D, *Sum of values in cell A3* failed to understand that "1" is the value and not a referenced cell.

Item (v): *Suppose your school wants to establish a computer network that can simplify resource sharing in the staffroom office. What type of network would you suggest to be established?*

A *Interconnected network*   B *Metropolitan Area Network*
C *Local Area Network*   D *Wide Area Network*

This item tested students' knowledge about the types of computer network based on the specified area. The correct answer was C, *Local Area Network.* The students who chose alternative A, *Interconnected network* were wrong because this network accommodates resource sharing and communication between two or more networks operated by different organizations. Those students who chose alternatives B, *Metropolitan Area Network* and D, *Wide Area Network* were also wrong since their areas of coverage are in cities and continents respectively. This indicates that these students had insufficient knowledge of the types of networks and its coverage.

Item (vi): *The Headmistress at Mwandege Secondary School intended to establish free email address for easy communication with parents. Which one is the correct email address?*

A *mwandege@gmail.go.tz*   B *headmistress@gmail.ac.tz*
C *mwandege@yahoo.ac.tz*   D *mwandege@gmail.com*

This item tested students' knowledge of identifying public domain while creating email address. The correct answer was D, *mwandege@gmail.com* because it contains the commercial domain name ".com" which provides free email address. The analysis reveals that those students who chose alternatives A, *mwandege@gmail.go.tz* were wrong because the domain ".go.tz" is used by government institutions while B, *headmistress@gmail.ac.tz* and C, *mwandege@yahoo.ac.tz* contain the domain ".ac" which is used for academic institutions. The government and academic institutions are not free email address rather the institutions pay for the services.

Item (vii): *Why modern ways of information dissemination are more preferred than traditional ways?*
A   *They spread information very quickly*
B   *They are very expensive*
C   *They spread information for few people*
D   *They spread information slowly*

The item tested the student's knowledge about the advantage of using modern methods in information dissemination. The correct answer was A, *They spread information very quickly.* It is preferred over traditional methods because they offer rapid dissemination, and the ability to reach a vast audience, contrary to the limitations posed by traditional approaches. Other students who chose alternative B, *They are very expensive,* C, *They spread information for few people* and D, *They spread information slowly,* were wrong because these are the disadvantages of using traditional ways of information dissemination. This implies that students failed to understand the requirement of the question.

Item (viii): *Which combination of keys is used to cut the text in a document?*
A   *Ctrl+P*   B   *Ctrl+A*
C   *Ctrl+C*   D   *Ctrl+X*

This item accessed the students' maintain in all competence in using shortcut keys in a document. The correct answer was D, *(Ctrl+X).* This is the keyboard shortcut commonly used to cut selected text or objects in documents. The students who opted A, B and C were wrong because, A,

(Ctrl+P) is used to open the print dialog box in many documents. Alternative B, *(Ctrl+A)* is used to select all the text or objects within a document or window while option C, *(Ctrl+C)* is used to copy selected text or objects to the clipboard.

Item (ix): *International Petroleum Dealers (IPD) Company Ltd has planned to conduct the petroleum research in East Africa. One of an essential* tool *in this research is a computer. Which type of computer would you suggest to be used in that project?*

A   *Microcomputer*   B *Minicomputer*
C   *Supercomputer*   D *Mainframe computer*

This item measures student's competence on identifying appropriate computer based on their application and the correct answer was C, *Supercomputer* because it is better suited for handling the intensive data analysis, simulations, and modeling tasks associated with petroleum research. However, some students who selected option A, *Microcomputer* were wrong because these types of computers are small in size and use microprocessor thus, they are used at home of offices while option B, *Minicomputer* are used as server at banks. Other students opted for alternative D, *Mainframe computer* were also wrong because it is used mostly in whether forecasting.

Item (x) *Why Laptop and Desktop computers are categorized as microcomputers?*
A   *They can process huge data*
B   *They are accurate in processing data*
C   *They use CPU called microprocessor*
D   *They perform complex operations*

This item tested the student's knowledge about categories of computers. The correct answer was C, *They use CPU called microprocessor.* Laptops and desktop computers utilize microprocessors as their primary processing units, hence falling under the category of microcomputers. Most students selected alternative B, *They are accurate in processing data.* It is not the correct answer because accuracy in processing data is important for all types of computers, regardless of their classification as microcomputers, minicomputers, or mainframe computers. Option A, *They can process huge*

data. This was not the most correct answer because the ability to process huge data alone does not classify them as microcomputers. Students who opted for alternative D, *They perform complex operations* failed to differentiate between the functions performed by microcomputers and supercomputers. The analysis reveals that, these students had insufficient knowledge of mastering the types of computers according to their functionality.

2.1.2 Question 2: Word Processing

This question measured student's ability to identify parts of the word processor. The students were required to match the function of different parts of word processors in list A with their corresponding parts in list B.

The question was as follows;

Match the functions of the features of word processors in list A with their corresponding features names in list B by writing the letter of the correct answer below the item number in the table provided.

List A		List B	
(i)	It is used as communication channel between user and the application program.	A	Window bar
		B	Menu bar/ribbon
(ii)	It indicates the name of the document currently running.	C	Toolbars
		D	Document window
(iii)	It consists of buttons and icons that provide shortcut commands available in the menu bar.	E	Formatting toolbar
		F	Title bar
(iv)	It consists of group of commands where each command has a drop-down list with commands.	G	Status bar
		H	Task pane
(v)	It is used to make a document more attractive.		

A total of 14,765 (100%) students attempted this question whereas 5,398 (36.6%) scored from 0 to 1 mark, 6,225 (42.2%) scored from 2 to 3 marks and 3,142 (21.2%) scored from 4 to 5 marks out of 5 marks allocated. Thus,

the general students' performance in this question was good as 63.4 per cent scored above 1 mark. Figure 3, summarizes the students' performance in this question.
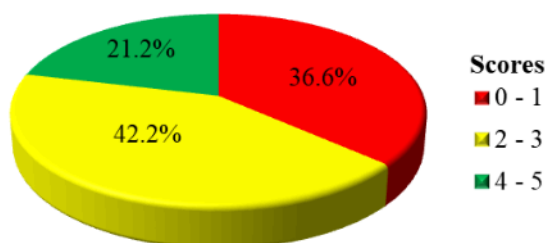

Figure 3: *Students' Performance in Question 2*

Although the general students' performance was good, most of the students (42.2%) scored average marks because they lacked practical skills on Word processing. The following is the analysis of students' responses to each item of this question.

Item (i) accessed the ability of the students to identify the features of word processors used as communication channels between the user and the application program. The correct answer was G, *Status bar.* Students who selected the correct answer understood that the status bar displays the number of words and pages available in a current word document. However, some students selected option B, *Menu bar/ribbon*, which was wrong because it contains a list of options to manage and customize documents. Other students selected option A, *window bar* which does not exist in Word processor window. This indicates that these students had insufficient knowledge of the functions of each part of word processor.

Item (ii) required the students to identify the feature which indicates the name of the document currently running from the feature of word processor. Most of students' opted correct answer F, *Title bar.* However, some of the students selected wrong option C, *Toolbars* which contains shortcut buttons for the most popular commands. Few students chose option D, *Document window* which is the area within software application where a specific document or file is displayed and can be edited.

Item (iii) required the students to identify the feature that consists of buttons and icons that provide shortcut commands available in the menu bar. The correct answer was C, *Toolbars.* Most students selected option B, *Menu*

bar/ribbon. These students associated the term *menu bar* used in the stem with that used in response. Other students chose option G, *Status bar*, which does not provide the described features.

Item (iv) required the students to identify the feature that consists of group of commands where each command has a drop-down list of commands. The correct answer was *B Menu bar/ribbon*. Majority of the students who scored zero selected this response in item (iii) which led them to choose other options which were wrong. Most of them chose option A, *Window bar* which does not exist.

Item (v) required the students to identify the feature of word processor that are used to format a word document. The correct answer was E, *Formatting toolbar*. Most students responded correctly to this item. This implies that the student had adequate knowledge on the use of formatting toolbar. However, few students select option D, *Document window*. This alternative is not correct because the document window does not make a document more attractive rather it provides a visual representation of the working file and allows the user to interact with its contents. These students were attracted by the tem "document" used in the response.

2.2   SECTION B: SHORT ANSWER QUESTIONS

This section comprises question 3 to 9. The analysis of students' answers to each question is as follows:

2.2.1   Question 3: Computer Networks and Communication

This question had three parts: (a), (b), and (c). The question was intended to assess students' understanding on the physical arrangement of computers in a network. The students were required to carefully study the following figure and answer the questions that follow:
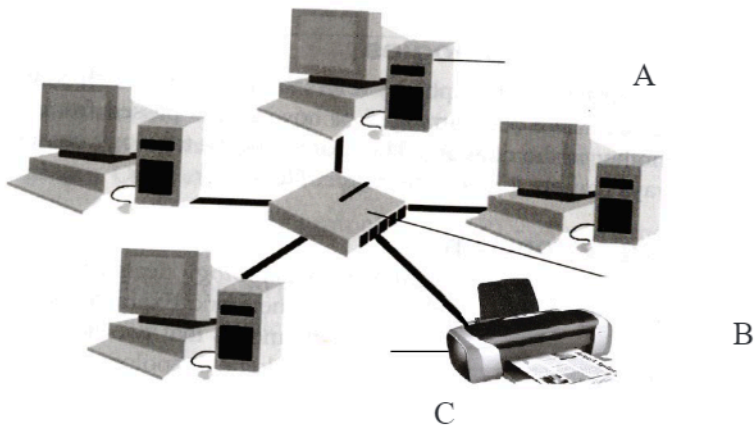
(a) What is the name of the physical topology presented in the figure provided?

(b) What are the names of the components labeled with letters A, B and C?

(c) What three advantages of the type of network used in Figure 1.

The analysis of students' performance showed that 14,765 (100%) students attempted this question, out of which 5,647 (38.2%) scored from 0 to 2.5 marks. Students who scored from 3 to 6 marks were 6,636 (44.9%), while 2,482 (16.9%) scored from 6.5 to 10 marks. Generally, this question had an average performance because 61.8 % of the students scored above 2.5 marks, as shown in Figure 4.
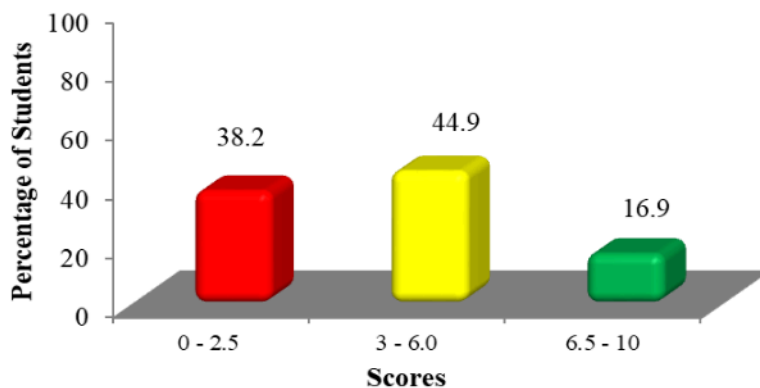

Figure 4: *Students' Performances in Question 3*

Figure 4 shows that the majority of students (44.9%) scored average marks in this question. Most of these students correctly identified the type of physical topology asked in part (a). They also correctly gave the components labelled with letters A, B, and C as the system unit, hub/switch,

and printer in part (b). However, in part (c), some of these students faced difficulties in understanding the advantages of the star topology given in the figure. It was noted that, some of them wrote correctly only one advantage and mixed with advantages of other types of topologies. For example, one of the students wrote that, *it minimizes the cost*. This student gave the advantages of the ring topology as it minimizes the cost due to the use of few cables compared to star topology where each node needs an independent cable. Moreover, some of the students wrote the functions of the components labelled with letters A, B, and C. For example, one student wrote, *it helps to print document, examination and other*. Although the majority of the students scored average marks, 16.9 per cent scored high marks. Most of these students correctly gave at least two advantages of star topology while others failed to identify the node component labelled with letter A. Extract 3.1 shows the sample of a correct response.

3. The following figure shows a physical arrangement of computers in a certain office. Study it carefully and answer the questions that follow:

(a) What is the name of the physical topology presented in the figure provided?
   Star topology

(b) What are the names of the components labeled with letters A, B and C?
   (i) Letter A System unit
   (ii) Letter B Hub / Switch
   (iii) Letter C Printer

(c) What three advantages of the type of network used in Figure 1.
   (i) It is easy to troubleshoot where by it is easy to detect various faults
   (ii) Failure of one computer doesn't affect the entire network
   (iii) It is cheap to install where by it doesn't require much expences on installation.
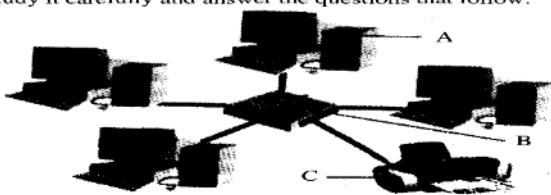
Extract 3.1: Sample of the students' responses to Question 3

Extract 3.1 shows the response of a student who gave the correct type of topology in part (a). The student also correctly identified the components of a star topology in part (b) and its advantages in part (c).

11

On the other hand, 38.2 per cent of the students scored low marks. The majority of these students correctly identified "star topology" as the type of physical topology provided in the figure. This can be linked with the fact that star topology has a straightforward structure with a central device (hub, switch, or router) connected to individual devices like computers. This simple structure makes it easier to visualize and understand compared to more complex topologies like mesh or bus. However, some of the students lacked knowledge about physical network topology which led them to guess the answer in part (a). For example, some students wrote *ring topology* and *hybrid topology*. In part (b) (i), some students wrote components of computer such as *trunker, hardware, server and CPU* instead of hub/switch, printer and computer.

Moreover, some students failed to distinguish printer from photocopy machine and scanner in part (b) (iii). Furthermore, in part (c), some students failed to understand the requirement of the question as they wrote the advantages of computer network instead of star topology. For example, one student wrote *it helps to communicate with other people* while another student wrote *it enables sharing of resources*. Extract .3.2 presents a sample of incorrect responses from one of the students.

Extract 3.2: Sample of the students' incorrect responses to question 3

The response of a student provided in Extract 3.2, shows that in part (a), the student identified the topology provided in a figure as a tree instead of a star

topology. However, this student correctly gave only one device (printer) labelled by letter C in part (b). The student also wrote the characteristics of the LAN instead of the advantages of the star topology in part (c).

2.2.2 Question 4: The Computer

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

(a)   Give two advantages of choosing desktop computers instead of laptop computers.

(b)   Which five parts would you need to connect together to use desktop computers?

The analysis of students' performance showed that out of 14,765 (100%) students who attempted this question 5,352 (36.2%), scored from 0 to 2.5 marks. Students who scored from 3 to 6 marks were 8,394 (56.9%) and 1,019 (6.9%) scored from 6.5 to 10 marks. Generally, the performance of the question was average because 63.8 per cent of the students scored more than 2.5 marks as shown in Figure 5.
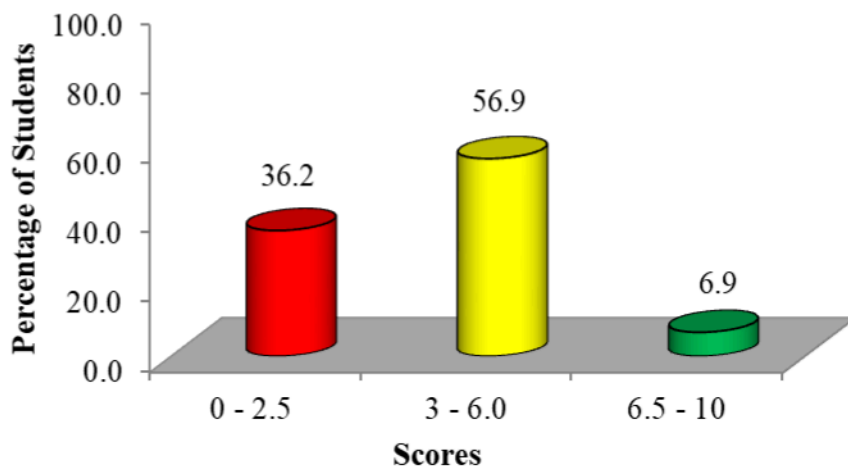

Figure 5: *Students' Performances in Question 4*

This question tested students' ability to classify microcomputers. The analysis of statistics showed that the majority of students (56.9%) scored average marks, as shown in Figure 5. Some of these students correctly gave only one advantage of choosing a desktop instead of a laptop in part (a). These students relied on convention understanding whereby desktop computers with the same configuration as the laptop are often sold at a

relatively cheaper price. Based on the students' responses, it was observed that some students confused the terms "advantage" and "characteristics" because they explained the characteristics of desktop and laptop computers instead of their advantages. For example, some students wrote that *desktop computers are large in size compared to laptop computers.* In part (b), most students correctly identified at least two parts of desktop computer. Commonly identified parts were the mouse, keyboard, and monitor. However, some students identified categories of hardware such as input devices, output devices and processing devices, while other students listed other components such as scanner and photocopier machine which are not basic parts in connecting the desktop computers. This shows that students had an idea of the device required to be connected together in order to use a desktop computer but failed to recognize the basic components in connecting desktop computers.

On the other hand, 36.2 per cent of the students scored low marks. The analysis of the students' responses revealed that some of them failed to understand the requirement of the question in part (a) as they wrote the importance of computers in various areas such as hospitals and offices contrary to the question demand. Other students mentioned functions of desktop computers such as *stores information* and *to processes data.* These students failed to understand that the laptop computers also perform the same functions. However, some students correctly gave the advantage of choosing desktop computer over laptop computer by comparing their purchasing cost. In part (b), some students correctly identified two to three components need to be connected together in order to use desktop computers. However, some of them wrote steps for switching on computers while others gave safety measures to protect laboratory users, such as *insulated cables* and *using antiglare screen.* Moreover, other students wrote types of computers *such as microcomputers and mainframe computer.* This indicates that students did not understand the requirement of the question. Extract 4.1 shows the sample of such an incorrect answer.

Extract 4.1: Sample of the students' incorrect responses to Question 4

Extract 4.1 shows the response from a student who wrote the general advantages of computers without considering the categories provided in part (a). The student also gave parts of the Microsoft window instead of desktop computer in part (b). This student failed to understand the requirements of the question.

Furthermore, a few students (6.9%) scored more than 6 marks. Some of these students faced difficulties in understanding the disadvantages of desktop computers in part (a). It was observed that there were students who explained areas where desktop computers can be used, while others interchanged the advantage of laptop and desktop computers. For example, *some students wrote desktop computers can be used at any place.* However, the majority of these students correctly identified the parts of desktop computers that need to be connected. Extract 4.2, shows a sample of correct responses from a student.

Extract 4.2: Sample of the students' correct responses to question 4

Extract 4.2, shows the response of the student who gave the correct reasons for the users' preference on using desktop computers compared to laptop. The student also identified correctly all parts needed to connect desktop computers.

2.2.3 Question 5: Word Processing

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

Shafii is a Standard Four pupil who wants to practice on how to use Microsoft word program. Assist him to identify the steps of inserting the following:

(a) *Page numbers.*

(b) *Tables with 3 rows and 5 columns.*

A total of 14,765 (100%) students attempted this question, out of whom 11,353 (76.9%) scored 0 to 2.5 marks, 63.9% scored 0 out of the 10 marks allocated to this question. Students who scored 3 to 6 marks were 2,262 (15.3%), while 1,150 (7.8%) scored from 6.5 to 10 marks. This question had a weak performance because majority (76.9%) scored below 3 marks. Figure 6 summarizes students' performance in this question.
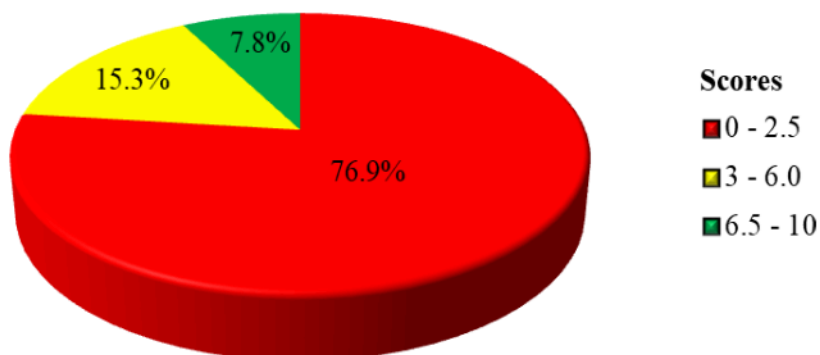
Figure 6: *Students' Performance in Question 5*

Figure 6 show that the majority of the students (76.9%) scored low marks, including 63.9% who scored zero. The analysis of students' responses showed that these students lacked practical skills in using Ms.-Word program. In part (a), most students wrote procedures of opening or saving document in Ms.-Word program while others wrote steps of inserting bullet instead of page number. It was also noted that some students wrote steps of opening document in Ms.-excel contrary to the question demand. In part (b), most students drew tables with 3 rows and 5 columns instead of identifying steps of inserting such table in a Ms.-Word program. Few students had an idea of creating tables but failed to arrange steps in specific order. This indicates that students lacked competences in creating word document. Extract 5.1 shows the sample of an incorrect response.

5. Shafii is a Standard Four pupil who wants to practise on how to use Microsoft word program. Assist him to identify the steps of inserting the following:

(a) Page numbers.

(i) Select the document you want to insert number.

(ii) click home tab

(iii) find the page number ribon.

(iv) Select the type of page you want They appear.

(v) click OK. the page will appear to your document.

(b) Tables with 3 rows and 5 columns.

(i) Highlight the document you want to make.

(ii) click to the home tab.

(iii) On The home tab choose table ribon.

(iv) choose the type of table you want.

(v) Then click OK.

Extract 5.1: Sample of the students' incorrect responses to question 5

Extract 5.1 shows the responses of a student who had an idea of word document but failed to recognize the insert feature which displays the command for table and page number.

Apart from students' weak performance, 15.3 per cent of students scored average marks. Some of these students wrote only one to two steps of inserting page number in part (a). The analysis showed that these students failed to understand that the page numbers can be inserted at the top or bottom of the word document. For example, one student wrote *Click insert, select paragraph, and click table*. In part (b), some students wrote correctly the first step of creating table which is *click insert then click table* but they failed to identify the third step *click table* that gives a dialog required to select the number of rows and column. The students' responses revealed that they had insufficient knowledge about inserting page numbers and tables in a word document. Moreover, in part (a) and (b), a few students gave the correct steps for inserting page numbers and tables with 3 rows and 5 columns respectively. The analysis shows that most of these students faced difficulties inserting tables in part (b). Some of these students failed to give the steps in the correct order, which led them to lose some marks.

18

2.2.4 Question 6: Computer Handling

The question had three parts: (a), (b) and (c). The question was as follows;

(a) *GGP Company experienced a great problem of losing all data saved in the computer saver because it was stolen. Currently, there is no any data available for future use.*

   (i) *Explain the mistake made by the company.*
   (ii) *What should be done to avoid such problem in future?*
   (iii) *Which two devices should be used in solving the problem of losing all data?*

(b) *How can you differentiate computer worm from virus?*

(c) *Explain two importance of using Uninterruptible Power Supply (UPS).*

The analysis of students' performance showed that out of 14,765 (100%) students who attempted this question, 8,913 (60.4%) scored from 0 to 2.5 marks. Moreover, 3,439 (23.3%) students scored from 3 to 6 marks, whereas 2,413 (16.3%) scored from 6.5 to 10 marks, as shown in Figure 7. Generally, this question had an average performance because 39.4 % of the students scored above 2.5 marks.

Figure 7: *Students' Performance in Question 6.*
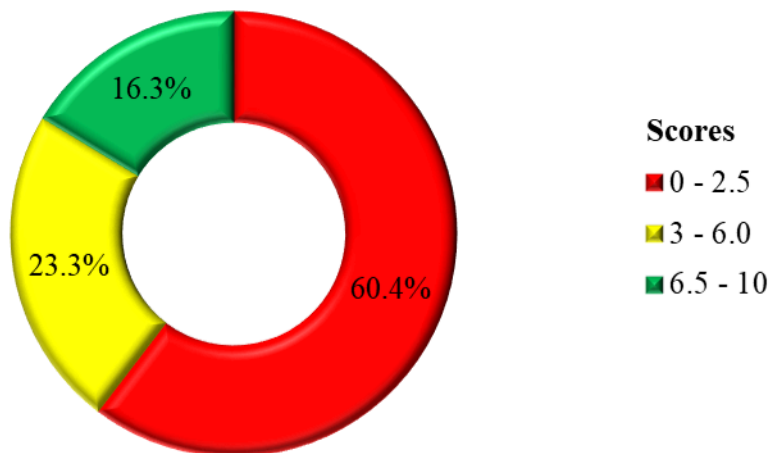
Figure 7 show that, the majority of students (60.4%) scored low marks in this question, out of which (33.9%) scored zero. The analysis shows that most students misinterpreted the question in part (a) (i) as they wrote the methods of protecting data saved in a computer instead of mistakes made by a company for not creating backup. For example, some students wrote that

19

the mistake made by the company was *not setting password* or *not installing antivirus*. These students failed to understand that the mistake provided cannot protect data when a computer is stolen. The student's failure in identifying the mistake made by the company led to failure in giving measures to avoid such problems in part (a) (ii). It was observed that some students correctly identified the devices such as DVD and flash disk which used to save data in part (a) (iii). However, other students could not differentiate the devices for storing data from computer memory. For example, some students wrote *RAM* and *ROM*. These students failed to know that RAM and ROM are computer memory and thus cannot solve the problem of losing data when a computer is stolen.

In part (b), most students used the biological concept to differentiate the computer worms from computer viruses. For example, some students wrote *worms and virus are microscopic organisms which infect computers and cause loss of data*. It was observed that some students confused the terms "computer worm" and "computer warm-up" which led them to differentiate computer virus from computer warm-up instead of computer worm. For example, one student wrote that *computer worm occurs during turning on the computer while virus cause problem of losing data*. These students did not know that worm is a program that self-replicates, hence clogging the machine memory while a virus attaches itself to overwrite or otherwise replace another program in order to reproduce itself and causes system failure or data loss. Moreover, a few students correctly explained the only one importance of using the Uninterruptible Power Supply (UPS) in part (c). Some of these students had adequate knowledge about UPS as a standby power supply in case of total power failure in the main source but did not know that it can protect the computer from power fluctuation. Extract 6.1, shows a sample of incorrect responses.

6. (a) GGP Company experienced a great problem of losing all data saved in the computer saver because it was stolen. Currently, there is no any data available for future use.
    (i) Explain the mistake made by the company.

    mistake by the company is losing all data saved in the computer saver because it was stolen.

    (ii) What should be done to avoid such problem in future?

    Company experienced a great problem of losing. so all data saved in the computer saver. This avoid such problem in future.

    (iii) Which two devices should be used in solving the problem of losing all data?

    - *There are two device. the first is Input devices*
    - *and another is Output device. Example of output device is Mouse scanner and speaker.*

    (b) How can you differentiate computer worm from virus?

    computer is an differentiate computer worm from virus

    (c) Explain two importance of using Uninterruptible Power Supply (UPS).
    (i) *It help to not damage the computer*

Page 6 of 11

Extract 6.1: Sample of the student's incorrect response to question 6

Extract 6.1, shows the responses of the students who provided irrelevant answers in (a) and (b). However, the student had an idea of the importance of UPS in part (c) but failed to give clear explanations.

Likewise, the analysis showed that 23.3 per cent of the students scored average marks. Some students correctly identified the mistake of not creating backup made by the company in part (a) (i). This led them to provide the correct solution of preventing such problem in part (a) (ii). However, some of them faced difficulties in identifying the devices for creating backups in part (a) (iii). It was observed that some students wrote devices for protecting computer damage such as surge protectors and UPS while others mixed backup devices and computer protector devices. Moreover, some students had an idea of backup but failed to differentiate the backup methods from backup devices. For example, some students wrote *cloud backup* and *online backup*. In part (b), some students

21

interchanged the explanations for worms with those for viruses, while others wrote the signs of computer affected with virus. However, most of the students correctly explained the importance of UPS. Further analysis shows that some students listed the importance of UPS without providing explanations. This indicates that these students had insufficient knowledge of the importance of using UPS.

Furthermore, the majority of students (16.3%) who scored the highest marks correctly identified the mistake done by the company that led to the loss of data in part (a) (i) and they provided the correct solution of preventing data loss in part (a) (ii). In part (a) (iii), most students correctly gave the devices used to solve the problem of losing data. Some of them also differentiated computer worms from viruses in part (b). However, some students explained the outcomes resulting from malware attacks by worms and viruses. In part (c), most students correctly explained the importance of using UPS, but some of them gave unclear explanations. For example, one student wrote *it store power*. This student failed to give clear explanations on the importance of stored power in case of computer source power failure. This indicates that the student had insufficient knowledge about computer handling. Extract 6.2 shows the sample of correct answers.

Extract 6.2: Sample of the students' correct responses to Question 6

Extract 6.2, shows the response of a student who correctly answered parts (a), (b), and (c) in this question.

2.2.5 Question 7: Spreadsheet

This question had five parts (a), (b), (c), (d), and (e). In this question students were required to study the screenshot of a given worksheet and answer the following questions:

Hana had a problem of calculating the selling price and keeping records of her sells. She was advised to use the software which would simplify the work. The given screenshot shows a part of the data she entered in the software. Study it carefully and answer the questions that follow:

	A	B	C	D	E
1		THE PRICE OF DIFFERENT CROPS			
2	No.	Name	Buying Price	Selling Price	
3	1	Maize	1,500.00	2000	
4	2	Millet	1,000.00	1500	
5	3	Groundnuts	2,500.00	3000	
6	4	Cotton	2,500.00	3000	
7	5	Soya bean	3,000.00	3500	
8	6	Rice	2,000.00	2500	
9		Total	10,500.00	13,000.00	
10					

(a) What is the name of the software used to enter data?
(b) What are the three data types used in the worksheet?
(c) In the worksheet given, which cell is active?
(d) Which formula can you use in cell E9 to calculate the profit?
(e) How can you insert a pie chart of crop "Name" against "Selling Price"? Give six steps.

The question was attempted by 14,765 (100%) of the students out of whom 8,691 (58.8%) scored below 3 marks. The students who scored from 3 to 6 marks were 4,752 (32.2%) and 1,322 (9%) scored above 6 marks, as shown in Figure 8. Generally, this question had an average performance because 41.2 % of the students scored above 2.5 marks.
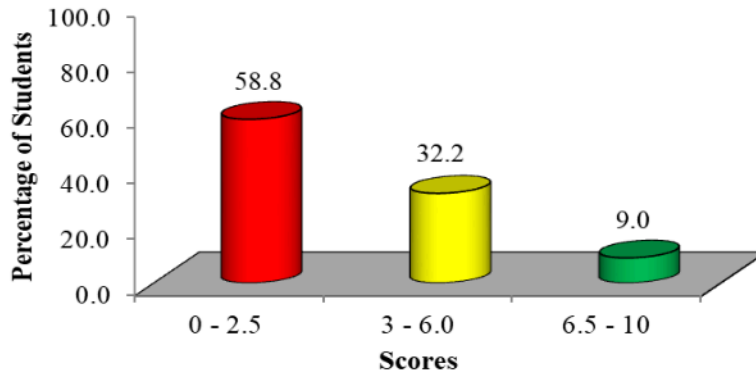
Figure 8: *Students' Performances in Question 7*

Figure 8 show that 58.8 per cent of the students scored low marks. The analysis showed that the majority of these students lacked practical skills for using Ms. - Excel. In part (a), some students wrote the title of the worksheet instead of giving the name of the software used to enter data. For example, some students identified *THE PRICE OF DIFFERENT CROPS* as the name of the software instead of Ms.-Excel. Other students wrote *worksheet application software.* These students failed to understand that worksheet is not software rather it is a single worksheet within a workbook which consists of a grid of cells arranged in rows and columns. It was observed that some students thought that the worksheet provided was the table inserted in the Ms.- Word program, which was incorrect because the Ms.-Word program cannot be used for spreadsheet tasks. However, few students correctly identified the name of the software required. In part (b), majority of students failed to identify spreadsheet program data types. The analysis on the student responses showed that, some of them misinterpreted the question because they wrote the types of computers instead of data types. For instance, some students wrote *Microcomputer, Supercomputer and Minicomputer*.

Moreover, in part (c), most students correctly identified the active cell. However, some of them wrote the meaning of active cell while others gave cells that were in the same row as with an active cell. For example, some students wrote B5 or C5. This response indicates that the students had insufficient knowledge of cell referencing. In part (d), most students lacked knowledge about cell referencing and mathematical skills, which led them to give incorrect formula. For instance, some students wrote formulas

24

without including their cell reference, such as *profit = selling price - buying price*. Others failed to understand that the profit is obtained by subtracting the buying price from the selling profit. For example, some students wrote *= C9 - D9* while others wrote *D9+C9*. Likewise, in part (e), the majority of students wrote steps of opening the Ms.-Excel program while others wrote the importance of using the Ms.-Excel instead of giving steps of inserting a pie chart. Extract 7.1 shows a sample of an incorrect answer.

7. Hana had a problem of calculating the selling price and keeping records of her sells. She was advised to use the software which will simplify the work. The given screenshot shows a part of the data she entered in software. Study it carefully and answer the questions that follow:

	A	B	C	D	E'
1		THE PRICE OF DIFFERENT CROPS			
2	No.	Name	Buying Price	Selling Price	
3	1	Maize	1,500.00	2000	
4	2	Millet	1,000.00	1500	
5	3	Groundnuts	2,500.00	3000	
6	4	Cotton	2,500.00	3000	
7	5	Soya bean	3,000.00	3500	
8	6	Rice	2,000.00	2500	
9		Total	10,500.00	13,000.00	
10					

(a) What is the name of the software used to enter data?

Microsoft Excel.

(b) What are the three data types used in the worksheet?

(i) _Name_

(ii) _Buying Price_

(iii) _Selling price._

(c) In the worksheet given, which cell is active?

Cell A5, D5

(d) Which formula can you use in cell E9 to calculate the profit?

Average = SC ≠30, 998:90

(e) How can you insert a pie chart of crop "Name" against "Selling Price"? Give six steps.

(i) _Click first cell._

(ii) _Click the tool bar._

(iii) _click right hand and format highligh whole cell_

(iv) _click the status bar._

(v) _Write the Information in the cell_

(vi) _After writting Information high light again and save your File. then right a File name._

Extract 7.1: Sample of students' incorrect responses in Question 7

25

Extract 7.1, shows the responses of a student who correctly identified the name of the software used to enter data in part (a) and the reference cell of the active sheet in part (c). However, the student wrote the names of the table header in part (b) instead of giving data type. The student also gave irrelevance steps in part (e).

Furthermore, 32.2 per cent of students scored average marks. Some of these students correctly gave the name of the software in part (a). Likewise, a few students wrote *worksheet* instead of spreadsheet. In part (b), some students correctly identified some of the data types but other students repeated the same data types in different terms. For example, some students wrote *label* and *text*, *values* and *numbers* as different data types. In part (c), most of the students correctly identified cell D5 as an active cell. Moreover, most of the students wrote incorrect formulas for calculating profit in part (d). The analysis showed that some of them used the cell reference of the column title instead of the values in their formula. For example, some students wrote *profit = D2 −C2*. These students lacked knowledge of cell referencing. In part (e), some students skipped the first step of inserting a pie chart which is highlights the columns required but other steps were correct.

On the other hand, 9.0 per cent of the students who scored highest marks correctly gave the name of the software used to enter data in a worksheet in part (a). In part (b), some students wrote the correct data types, such as labels, numbers, formula and functions which were used in the worksheet. These students also correctly identified the active cell in part (c) and gave the correct formula for calculating profit in part (d). However, some students did not start with '=' sign in their formula. In part (e), some students correctly identified all steps for inserting pie chart but some of them included only one column instead of two columns. For example, some of students wrote *highlight the Crop Name* but ignored selling price. However, a few students (0.6%) correctly gave the name of the software, data types, active cell and steps for inserting pie chart. Extract 7.2, shows the sample of the correct response.

7. Hana had a problem of calculating the selling price and keeping records of her sells. She was advised to use the software which will simplify the work. The given screenshot shows a part of the data she entered in software. Study it carefully and answer the questions that follow:

	A	B	C	D	E
1		THE PRICE OF DIFFERENT CROPS			
2	No.	Name	Buying Price	Selling Price	
3	1	Maize	1,500.00	2000	
4	2	Millet	1,000.00	1500	
5	3	Groundnuts	2,500.00	3000	
6	4	Cotton	2,500.00	3000	
7	5	Soya bean	3,000.00	3500	
8	6	Rice	2,000.00	2500	
9		Total	10,500.00	13,000.00	
10					

(a) What is the name of the software used to enter data?

    spreadsheet program

(b) What are the three data types used in the worksheet?

    (i) _Labels_

    (ii) _values_

    (iii) _formulas and functions_

(c) In the worksheet given, which cell is active?

    Cell D5

(d) Which formula can you use in cell E9 to calculate the profit?

    _= D9 - C9_

(e) How can you insert a pie chart of crop "Name" against "Selling Price"? Give six steps.

    (i) _Go to the spreadsheet document_

    (ii) _Highlight the data you want to put in pie chart._

    (iii) _Go to insert chart._

    (iv) _Choose pie chart_

    (v) _Fill in the data and Write "Name" and "Selling price."_

    (vi) _Click OK._

Extract 7.2: Sample of the students' correct responses to Question 7

Extract 7.2, shows the response from a student who correctly identified the name of the software in (a) and the data types in part (b). The student also identified the correct active cell in (c) and formula for calculating profit in part (d). Moreover, the steps for inserting the pie chart in part (e) were correct.

2.2.6 Question 8: Computer Software

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

(a)   Why most of computer users prefer to use Graphical User Interfaces than Command Line operating system?

(b)   Explain four factors to be considered when purchasing computer systems including software.

All students 14,765 (100%) attempted this question, and 7,989 (54.1%) scored from 0 to 2.5 marks. The students who scored from 3 to 6 marks were 4,407 (29.8%), while 2,369 (16.1%) scored from 6.5 to 10 marks. The students' general performance in this question was average because 45.9 per cent scored more than 2.5 marks as shown in Figure 9.
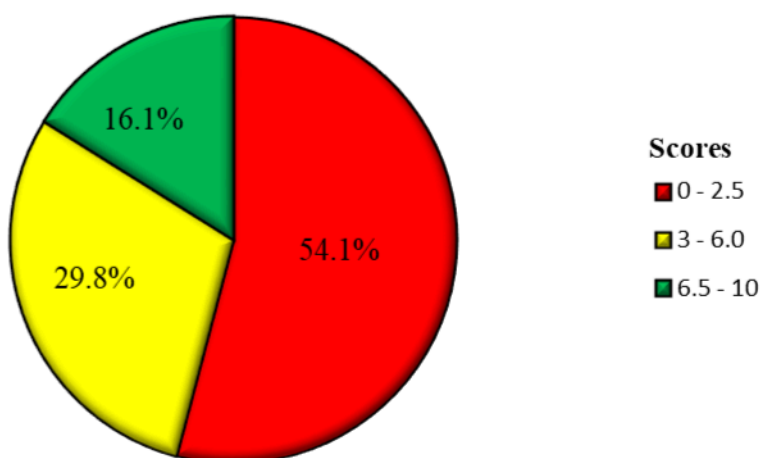
Figure 9: *Students' Performance in Question 9*

The majority of the students (54.1%) scored low marks, as shown in Figure 9. Most of these students could not understand the requirements of the question while others lacked knowledge about the types of operating systems according to the user interface. For example, some students gave the definitions of the Graphical User Interface (GUI) and Command Line Interface (CLI) instead of giving a reason for the domination of the GUI to the computer users in part (a). Other students translated the given interfaces. For instance, one student wrote *GUI shows accurate arrangement of data and information graphically compared to Command line show data and information using a line.* Furthermore, some students provided the features of GUI such as icons, pictures and commands. However, others classified

the operating systems according to the numbers of users. For example, one student wrote, *Because GUI is used more than one user in computer than CLI used one user in line operating system.*

A few students correctly explained one or two factors to consider when purchasing a computer system in part (b). The factors commonly provided by these students were cost of purchasing the computer hardware and the warranty. However, other students wrote the characteristics or functions of a computer system, while others explained components of computer system such as hardware, software and user. This indicates that these students failed to understand the requirements of the question. Extract 8.1 presents one of the incorrect responses provided by the student.

8. (a) Why most of computer users prefer to use Graphical User Interfaces than Command Line operating system?

.... Because many people they don't know to use a Command Line Operating System.

....

....

(b) Explain four factors to be considered when purchasing computer systems including software.

(i) .... Editing ....

....

(ii) .... Scanning ....

....

(iii) .... Printing ....

....

(iv) .... Formating. ....

....

Extract 8.1: Sample of the students' incorrect responses to Question 8

Extract 8.1 shows the responses of a student who gave a general reason for computer users' preference on using the Graphical User Interface in part (a). The student wrote the function of the application software instead of the factors of purchasing a computer in part (b).

On the other hand, some students (29.8%) who scored average marks correctly gave a reason for computer users' preference for using the GUI than CLI in part (a). These students understood that a graphical user Interface is easy to use compared to a CLI which demand the use of command prompt. In part (b), some students identified the correct factors for purchasing a computer without giving clear explanations. For example, some students listed factors such as; *storage capacity, compatibility* and *storage capacity*. It was noted that, other students associated factors to be considered when purchasing a computer system with characteristics of a good computer such as accuracy, versatility, and tireless. Moreover, some students could not differentiate the functions of operating system such as memory management from memory capacity. This indicates that these students had insufficient knowledge about the types of operating systems.

Conversely, 16.1 per cent of students scored high marks. Some of them correctly gave the reason for many computer users' preference for using GUI rather than CLI in part (a). In part (b), some students correctly explained the factors to be considered when purchasing computers systems, including software. However, some of them faced difficulties in giving clear explanations to the factors provided. Moreover, few students correctly gave the reason for computer user preference on using graphical user interface and explained factors to be considered when purchasing computer systems including software. Extract 8.2 presents one of the correct responses provided by the student.

8. (a) Why most of computer users prefer to use Graphical User Interfaces than Command Line operating system?

Because Graphical User Interface is very easy to use where by it just provides windows, Icons, Menus and pointers but Command Line Operating system is hard to use because it requires the user to only insert Commands.

(b) Explain four factors to be considered when purchasing computer systems including software.

(i) Data security – While purchasing software a user must Ensure that it has the security for various data.

(ii) User-friendliness – While purchasing a software a user must ensure that the software is very friendly to the user.

(iii) Portability – While purchasing a software, one must ensure that the software is portable where by it can easily be carried and used.

(iv) Authentication – While purchasing a software, one must ensure that the particular software is authentical in nature.

Extract 8.2: Sample of the students' correct responses to Question 8

Extract 8.2, shows the response of a student who gave the correct reason for the popularity of the GUI and the factors to be considered when purchasing the computer system.

2.2.7 Question 9: Information

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

Tambani villagers were facing severe social problems such as lack of safe water and Hospitals. They decided to use modern communication media to raise their voice to the government.

(a) Which communication media can be used by the villagers? Give four.
(b) Why the Tambani villagers opted to use modern communication media to address their problems? Give three reasons.

A total of 14,765 (100%) students attempted this question whereas 2,312 (15.7%) scored from 0 to 2.5 marks, 4,347 (29.4%) scored from 3 to 6 marks and 8,106 (54.9%) scored from 6.5 to 10 marks. This question had good performance because 84.3 per cent of students scored more than 2.5 marks. Figure 10 summarized the students' performance in this question.
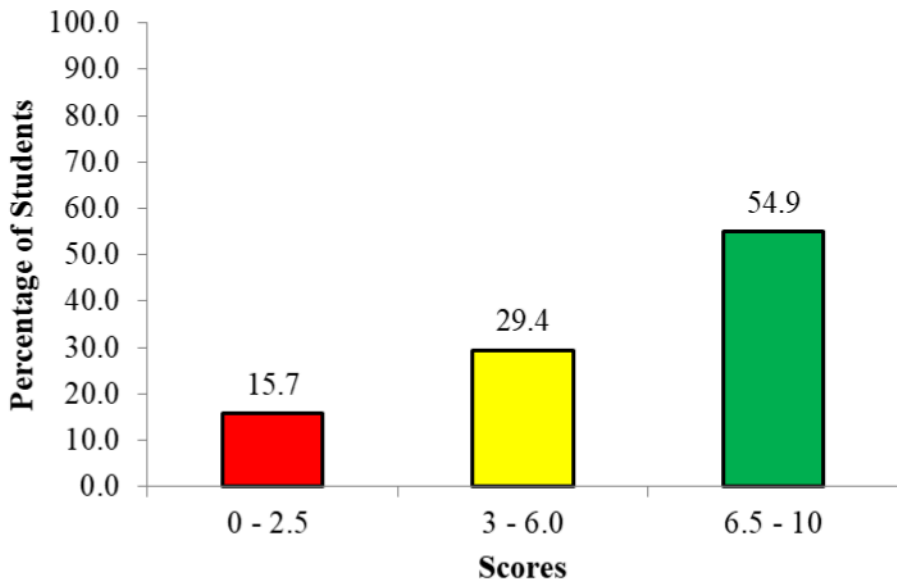

Figure 10: *Students' Performances in Question 9*

The majority of students (54.9%) scored high marks as presented in Figure 10. The students' good performance in this question is associated with the fact that modern communication media are most popular in contemporary societies. Most students correctly identified the communication media used by the villagers in part (a). The common media provided by these students include; *social media, Telephone, Television and newspaper*. They also gave the correct advantages of the opted modern communication media in part (b). However, some students gave unclear explanations on their reasons for using the modern communication media. Extract 9.1 shows a sample of correct answers provided by a student.

9. Tambani villagers were facing severe social problems such as lack of safe water and Hospitals. They decided to use modern communication media to raise their voice to the government.

(a) Which communication media can be used by the villagers? Give four.

(i) ...Radios and Televisions...

(ii) ...The use of mobile phones...

(iii) ...Use of computers...

(iv) ...The use of newspapers and magazines

(b) Why the Tambani villagers opted to use modern communication media to address their problems? Give three reasons.

(i) ...Modern communication media are faster in disseminating information and efficiency in dissemination.

(ii) ...Modern communication media such as radios cover long distances within short period of time.

(iii) ...Modern communication media ensures that information have reached a lot of people compared to traditional media.

Extract 9.1: Sample of students' correct responses to Question 9

Extract 9.1, shows the responses from a student who correctly identified the modern communication media in part (a) and their advantages in part (b).

Those students (29.4%) who scored average marks correctly identified the modern communication media in part (a). However, some of these students could not explain of the advantages of modern communication in part (b). The analysis shows that some students wrote the disadvantages of modern communication media instead of its advantages. In addition, some students listed the correct advantages with incorrect explanations, while others gave one or two advantages and disadvantages. For example, one student wrote that *they are fast, information can be spread for few people, and they are expensive.* This indicates that the students had knowledge about communication media but failed to organize their idea.

Moreover, 15.7 per cent of students who scored low marks faced difficulties in identifying modern communication media that can be used by the villagers in part (a). It was noted that some of these students wrote the traditional communication media instead of modern communication media. For example, some students wrote *horns and beating drum*. Consequently, they failed to identify its advantages in part (b) due to their failure of identifying the modern communication media used in part (a). Thus, they wrote the advantages of traditional communication media such as being *less expensive* and *easy to use*. This observation shows that these students had insufficient knowledge of differentiating the modern communication media from the traditional. The students also related the term "village" with traditional communication media as most interior villagers use traditional communication media. Extract 9.2 shows a sample of an incorrect answer.

9. Tambani villagers were facing severe social problems such as lack of safe water and Hospitals. They decided to use modern communication media to raise their voice to the government.
    (a)   Which communication media can be used by the villagers? Give four.
        (i)   Horn.
        (ii)   Drawing
        (iii) Meeting
        (iv)   Story telling
    (b)   Why the Tambani villagers opted to use modern communication media to address their problems? Give three reasons.
        (i)   Used in a small area.
        (ii)   Short time.
        (iii) Cover in a small area in a place.

Extract 9.2: Sample of the students' incorrect responses to Question 9

Extract 9.2 shows the responses of a student who listed the traditional communication media in part (a). The student also listed the features of traditional communication media instead of giving reasons for opting modern communication media in part (b).

2.3   SECTION C: STRUCTURED QUESTION

This section consisted of one (1) structured type question, carrying 15 marks. The analysis of students' responses to the question is as follows:

2.3.1   Question 10: The Computer

This question required students to describe the use of the Internet in simplifying life at Home, Education institution, Commerce, Banks and at Hospital. The question aimed to test student's competence on the use of the Internet in different areas.

The analysis of data shows that out of 14,765 (100%) students who attempted this question, 3,518 (23.8%) scored 0 to 5 marks, 4,289 (29%) students scored 5.5 to 10 marks, and 6,958 (47.2%) students managed to score from 10.5 to 15 marks. Generally, students had good performance on this question as 76.2 per cent scored more than 5 marks. The summary on students' performance is presented in Figure 11.
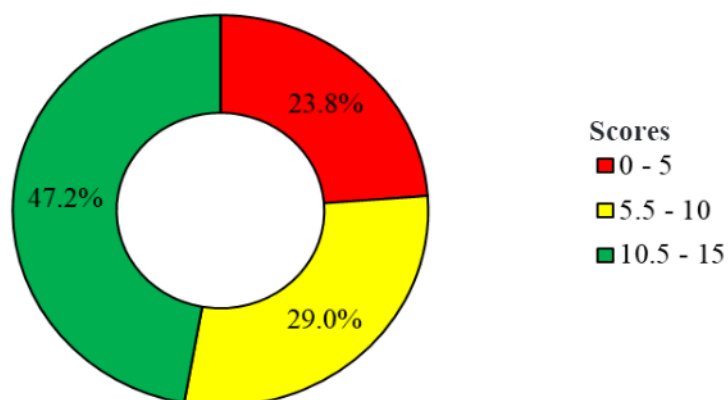

Figure 11: *Students' Performance in Question 10*

The majority of students (76.2%) scored above 5 marks as shown in Figure 11. The analysis shows that most of the students had adequate understanding and awareness regarding the use of the internet in simplifying life across different sectors. Some of these students correctly described the use of the internet at Home, Education institution, Commerce, Banks and at Hospital. They also gave relevant introductions and conclusions. However, some of them gave unclear explanations on the use of the internet at banks and hospitals. It was observed that some students described the issue of keeping

patients records at the hospital. These students wrote the function of network at the hospital instead of the use of the internet. Extract 10.1 shows a sample of correct responses from a student.

10. Describe the use of internet in simplifying life at Home, Education institution, Commerce, Banks and at Hospital.

Internet refers to the global interconnection of computers. Internet stands for Intercommunication network. Internet allows people around the world to share resources and ideas from one person to another. It also helps in the communication of people through various sources such as e-mail and whatsapp from one person to another living in different locations in the world. Internet also links various business organizations together from different locations. Since the introduction of internet it has helped various people at homes, education institutions, Banks and at Hospital. The following are the uses of internet at home, at school or education institutions, Commerce, Banks and Hospital

At homes. at homes internet can be used by people as a source of entertainment because by using internet it links a person in using various websites such as spotify, youtube, Boom play and others which help a person to entertain himself or herself in listening to music, videos and playing various games which require a person to be online. It can also be used to acquire different knowledge of various activities such as cooking by watching cooking videos or doing online teachings and others.

In Education institutions: At various education institutions such as schools, universities and others. Internet can be used to search for various resources by using search engines such as google chrome, google chrome and others in searching of various resources and having or obtaining various knowledge about something that you knew or you didn't know.

In Commerce: Commerce is the distribution and exchange of goods and services from the area of production to the area of consumption. One of the advantage of internet in commerce is E-commerce. E-commerce is the buying and selling of goods and services online or in the internet. E-commerce is common these days example of the sites for E-commerce are like Amazon, kiritou Alibaba and others. This method is mostly preffered due to geographical distance.

> In Banks: Banks are large financial insti
> tutions that preserve money of various peo
> ple in the society. The internet is used in
> banks to allow the proper withdrawal
> and deposit of the money this is because
> the internet links the owner of the money
> and the bank worker hence it will lead
> to better wit communication between the
> bank and the customer.
>   In hospitals: In hospitals internet is
> used to acquire proper medication to the
> customers or patients because it tends
> to communicate with various patients who
> are not feeling well also for the patients
> who cannot be treated in the hospitals, the
> hospital can call and transfer the victim
> to another hospital
>   In conclusion. However internet
> has got so many advantages it also has dis
> advantages which are lead to moral de
> cay, disruption of culture, drug traffi
> cking, Eruption of bad behaviours eg
> wearing mini-skirts and others

Extract 10.1: Sample of the students' correct responses to Question 10

Extract 10.1, shows the response from a student who correctly explained the uses of internet in simplifying life at a given areas and gave the correct introduction and conclusion.

However, 29 per cent of the students scored average marks. Some of these students gave the correct introductions but failed to give detailed descriptions of the use of the internet in commerce and hospitals. It was also observed that some students explained the general use of internet without considering the specified areas. Moreover, some students correctly described the use of the internet at home and in education but had problem in articulating the connections between internet technologies and simplifying processes in commerce, banks, and hospitals. This indicates that the students had insufficient knowledge about internet applications and their potential benefits.

On the other hand, some students (23.8%) who scored low marks correctly explained only one point without giving the introduction and conclusion. It was observed that some students wrote the uses of computers instead of internet while others gave the uses of computer network. For example, one student wrote that *computer is used in institution in order to prepare government budget.* Moreover, some students described the advantages of using a computer contrary to the question demand. For instance, some students wrote that *computers save time* and *it is flexible.* These responses indicate the students' failure to recognize the impact of the internet on simplifying tasks and processes. Extract 10.2 shows a sample of the incorrect responses from one of the students.

Extract 10.2: Sample of the students' incorrect responses to Question 10

Extract 10.2 shows the response of a student who gave the wrong concept of the Internet in the introduction. The student also described the negative effects of the internet instead of uses of internet in simplifying life at home, education institutions, commerce, banks and at hospitals.

3.0 ANALYSIS OF PERFORMANCE OF STUDENTS IN EACH TOPIC

The paper for Information and Computer Studies in FTNA 2023 had 10 questions composed from 9 topics. The tested topics were *Data and Information, Computer Handling, The Computer, Word Processing, Spreadsheet, Computer Networks and Communication, The Internet, Computer Software* and *Computer Evolution*.

The analysis indicates that the students' performance was good in Multiple - Choice items (92.9%). The items were composed from the topics of *Data and Information, Computer Handling, The Computer, Word Processing, Spreadsheet, Computer Networks and Communication, The Internet* and *Computer Evolution*. It was noted that the students' performance was also good in the questions derived from the topics of *Information* (84.3%) and *The Computer* (70%). The students' good performance in these topics was attributed to adequate knowledge about modern communication media and the use of internet in various areas.

Likewise, students' had an average performance on five (5) topics. The topics include: *Computer Networks and Communication* (61.8%), *Computer Software* (45.9%), *Word Processing* (43.3%), *Spreadsheet* (41.2%) *and Computer Handling* (39.4%). The students' average performance in these topics were due to misinterpretation of the requirements of the questions and poor English proficiency which caused some of the students to provide unsatisfactory explanations of the necessary concepts. Moreover, the students also had insufficient knowledge about computer handling and lacked practical skills on Ms.-Word software. The analysis of the students' performance on each topic is presented in Appendix of the report.

4.0 CONCLUSION

The analysis showed that the general performance on the Information and Computer Studies Assessment in 2023 was good (67.62%). The performance has improved by 7.92% compared with that in 2022. Analysis of performance in different topics has shown that in 2023, two (2) topics had good performance, five (5) had average performance, and no topic had weak performance. The reasons that contributed to average performance on the topics include misinterpretation of the requirements of the questions, poor English proficiency which caused some of the students to provide unclear responses and give unsatisfactory explanations of the necessary concepts, lack of practical skills on Ms.-Word software, and lack of knowledge and skills of the tested concepts.

5.0 RECOMMENDATIONS

To enhance the academic achievements of students in the field of Information and Computer Studies, the following suggestions are proposed:

(a) Teachers should demonstrate how to create and format the documents typed in Ms.-Word.

(b) Teachers should demonstrate how to backup data and its importance to computer users.

(c) Teachers should demonstrate how to enter data in a worksheet and its manipulation.

(d) Students should practice to enter data in a worksheet and performing various manipulations.

(e) Students should read the questions carefully to understand clearly the requirements before attempting them.

(f) Students should be motivated to learn English fluently because it is an added advantage in attempting the assessment.

Students Performance Per Topic

S/N	Topic	Number of Questions	Percentage of Students who Scored an Average of 30% or Above	Remarks
1	Data and Information, Computer Handling, The Computer, Word Processing, Spreadsheet, Computer Networks and Communication, The Internet and Computer Evolution	1	92.9	Good
2	Information	1	84.3	Good
3	The Computer	2	70.0	Good
4	Computer Networks and Communications	1	61.8	Average
5	Computer Software	1	45.9	Average
6	Word Processing	2	43.3	Average
7	Spreadsheet	1	41.2	Average
8	Computer Handling	1	39.4	Average