

## 25.0 COMPUTER STUDIES (451)

This was the sixth time the subject was tested under the revised syllabus. The subject is tested using one theory paper, a practical and a project.

### 25.1 CANDIDATES' GENERAL PERFORMANCE

The table below shows performance in Computer Studies in the year 2008, 2009, 2010 and 2011.

**Table 36: Candidates' Overall Performance in Computer Studies for the last four years**

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2008	451/1	5498	100	38.78	15.64
	451/2&3		100	53.13	15.74
	<b>Overall</b>		<b>200</b>	<b>91.66</b>	<b>29.46</b>
2009	451/1	6115	100	45.41	16.48
	451/2&3		100	50.93	16.39
	<b>Overall</b>		<b>200</b>	<b>96.33</b>	<b>30.92</b>
2010	451/1	7045	100	51.98	17.38
	451/2&3		100	59.83	16.86
	<b>Overall</b>		<b>200</b>	<b>111.81</b>	<b>32.30</b>
2011	451/1	7455	100	52.76	16.77
	451/2&3		100	62.27	13.92
	<b>Overall</b>		<b>200</b>	<b>115.02</b>	<b>29.03</b>

From the table above, it is to be observed that:

24.1.1 Candidature increased from **7045** in 2010 to **7455** in 2011 representing **5.82%** increment.

24.1.2 Performance in *paper I*(451/1) improved minimally from a mean of **51.98%** in 2010 to **52.76%** in 2011, representing **1.50%**

24.1.3 Performance in both the *practical paper* (451/2) and the project *paper* (451/3) improved significantly from **59.83%** in 2010 to **62.27%** in 2011 representing **4.08%**

24.1.4 Overall performance in the subject improved from a mean of **111.81** in the year **2010** to **115.02** in the year 2011 representing **2.87%**.

Questions which were poorly performed are briefly discussed below.

## 25.2 Paper 1 (451/1)

### Question 3

Give **three** reasons why primary storage devices are not used for secondary storage. (3 marks)

#### Requirements

Candidates were required to give three reasons why primary storage devices not being used for secondary storage.

#### Weaknesses

Many were stating characteristics of secondary storage which do not explain the required reasons.

#### Expected responses

- They are more expensive.
- They hold less volume of data.
- They are volatile hence cannot store information once power is off.
- Its shorter access time is dependent on the memory size hence increasing the size of primary memory will eventually lead to longer access time.
- ROM cannot store data.

#### Advice to the teachers

The teachers should emphasize to their students the purpose and suitability of the characteristics associated with secondary and primary storages.

### Question 6

A secretary saved a document in a computer. After some time, she could not remember the name and the location of the file. State **four** file details that are assigned a file by the operating system which can assist in tracing the file. (2 marks)

#### Requirements

The candidates were required to state four file details that an operating system stores about a file that can assist in tracing it.

#### Weaknesses

Many candidates were unable to state the details stored by an operating system.

#### Expected responses

File properties:

- File types.
- File extension.
- File size.
- Creating time/date of storage/saves time.
- Owner/Account used.
- Time of modification/date.
- Usage conditions/File attributes (Read Only/Archives/Hidden).
- Protection information.
- Contents of the file - Access time.

### Advice to the teachers

They are required to teach thoroughly and explain the concepts of the operating system to the learners.

## SECTION B

### Question 16

- (a) Give **two** characteristics of scripting languages. (2 marks)
- (b) Describe **two** types of errors that may be detected during program testing. (4 marks)
- (c) A company's workers travel to work either by public or by private means. All workers are paid a travel allowance of Ksh. 200, but those using private means are paid an additional Ksh. 100.
- (i) Write a pseudocode to determine a worker's travel allowance. (3 marks)
- (ii) Draw a flowchart to determine a worker's travel allowance. (4 marks)
- (iii) Other than occupying large space, state **two** disadvantages of using a flowchart instead of a pseudocode. (2 marks)

### Requirements

The candidates were required to:

- i) give characteristics of scripting languages;
- ii) describe types of errors detected during programme testing;
- iii) write a pseudocode and draw a flowchart to determine a workers travel allowance.

### Weaknesses

Many candidates had problems in giving the characteristics and in designing the correct pseudocode and flowchart.

### Expected responses

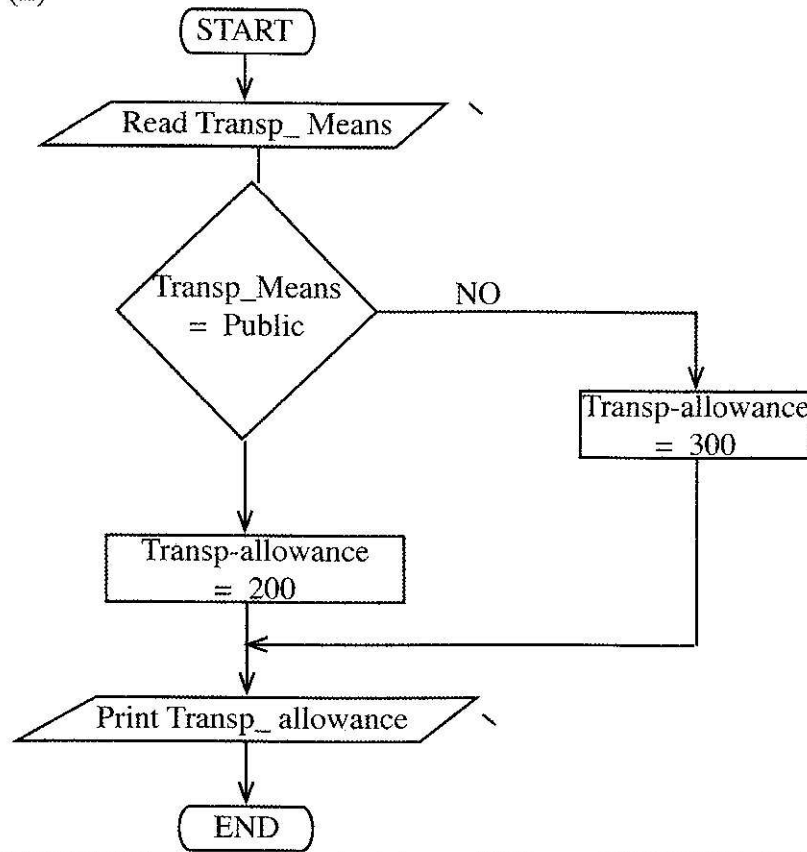
- (a) Characteristic of scripting language:
- Use of tags.

- It is interpreted and not compiled.
- Do not have declaration part.
- User friendly
- Are portable.
- Must be embedded in the browser.

- b) Syntax Errors: Errors arising due to violation of language rules.  
 Logical Errors: Errors arising from poor logic such as incorrect use of formulas/semantic.  
 Runtime Errors: Occur when there is abrupt interruption of running program.  
 When the running program stops abruptly.

- c) (i) 1. Input transp\_means  
 2. If Transp\_means = Public Then  
     Transp\_allowance = 200  
     Else  
     Transp\_allowance = 300  
 3. Print Transp\_allowance  
 4. Exit

(ii)



- (iii) - Flowcharts require templates/complex symbols/special software while pseudo code requires only a text editor.
- Drawing flowcharts takes a lot of time.
- Flowcharts occupy more space.
- Flowcharts permit development of logic sequences which cannot be coded using valid structured code.
- Translation of flow charts into individual code is harder/difficulty.

**Advice to the teachers**

They should thoroughly teach elementary programming concepts since many of the candidates showed lack of the skills.

**Question 18**

- (a) What is meant by each of the following terms as used in table creation?
  - (i) cell margin; (1 mark)
  - (ii) nested table. (1 mark)
- (b) State **four** types of text wrap that can be applied to a graphic. (2 marks)
- (c) Distinguish between each of the following:
  - (i) axis labels and data labels; (2 marks)
  - (ii) cropping and sizing. (2 marks)
- (d) Figure 1 shows a section of a worksheet containing information on household items. Use it to answer the questions that follow.

ITEM DESCRIPTION	NO OF UNITS	COST PER UNIT	TOTAL COST
Wheat flour	12	110	
Rice	6	145	
Sugar	7	140	
Salt	2	20	

**Figure 1**

- (i) Write a formula to calculate the total cost of rice. (1 mark)

- (ii) The prices of all items increased by 10% and the value 10% is placed in cell B8. Using cell addresses with absolute referencing only, write a formula to calculate the new unit price of salt. (2 marks)
- (iii) Write a function to display the number of cells in which the cost per unit is equal to 110. (2 marks)
- (iv) Write a function to display the least total cost for all items. (2 marks)

### Requirements

- i) define some practical terms and activities in word processing and spreadsheet;
- ii) state types of text wrap applied to a graphic;
- iii) distinguish between terms;
- iv) write formulae and functions for given operations.

### Weaknesses

Most candidates were unable to carry out the tasks demanded by the question.

### Expected responses

- (a) (i) Cell margin: Its the space between the boundary of the cell and the text/content inside the cell.  
 (ii) Nested table: is a table created inside another table.
- (b) - In line with text.  
 - Square  
 - Behind text.  
 - Infront of text.  
 - Tight.  
 - Through.  
 - Top and bottom.  
 - None.
- c) (i) Axis labels: Data corresponding to the vertical or horizontal lines of a given chart where as x-axis and y-axis.  
 Data labels: are data that provide additional information about a data marker which represents a single data point on a value that originates from a worksheet cell.
- (ii) Cropping is the process of trimming/cutting/hiding vertical or horizontal edges of an object/picture while sizing is the process of enlarging/expanding or reducing/contracting an object/ picture to appropriate dimension.

- d) (i) = Product (B3:C3)=Product (C3,B3)  
 (ii) = & B & 8 \* C5 + C5 = Product (&B & \* \*C5)+C5  
 (iii) = Count If (C2:C5 = 110)  
 (iv) = Min (d2:d5)

### Question 19

- (a) What is meant by each of the following terms as used in the internet?
- (i) surf; (1 mark)
- (ii) uploading; (1 mark)
- (iii) inbox. (1 mark)
- (b) A school has set up its network using wireless technology to link computers. State **three** problems that the school is likely to experience when using this technology. (3 marks)
- (c) List **three** ways by which parents can protect their children from accessing inappropriate content from the internet. (3 marks)
- (d) Explain **three** problems associated with using e-mail technology for communication. (6 marks)

### Requirements

Candidates were required to:

- i) define some terms as used in the internet;
- ii) state problems likely to be experienced when setting a network using wireless technology;
- iii) list ways of protecting children from accessing inappropriate information from internet;
- iv) explain problems associated with e-mail technology for communication.

### Weaknesses

Many candidates could not explain the meaning of given internet terms and state the problems associated with wireless communication.

### Expected responses

- (a) Surfing: It is the process of accessing /browsing/visiting internet resources like webpages.

Uploading: Transferring files from a computer to a remote computer.

Inbox: Folder/place in email system where incoming messages are stored/saved.

- (b) - Slower than a wired network.  
 - The network can be less stable, wireless reception may be impaired by other wireless and wired devices within the network.

- Risk of outsider accessing the network.
- Very difficult to configure.
- Very hard to secure.
- Very hard to trouble shoot.

- (c) - Block in appropriate content/Firewall/Filter.
- Set limits on downloads.
  - Monitor where children go online.
  - Counsel children eg. not talking to strangers online.
  - Supervise them.
  - Giving user accounts/passwords/log ins.

- (d) - Threat to privacy.
- Organisation "system administration"
  - Can snoop into peoples mails.
  - Email can be unsolicited/spam mail.  
Messages can be sent to masses of people without their consents.
  - Vulnerability to machine failures.
  - Emails can be overwhelming when many messages are received leading to email overload and going through each of them can be taxing.
  - Email can be faked.
  - Email attached can be a source of viruses.
  - Email technology not available to all/Technology illiteracy.
  - Encourage illicit communication such as immoral behaviour.

### Question 20

- (a) Explain **three** reasons why an organization may need to change to a new computerised system. (6 marks)
- (b) State why each of the following is important in system documentation.
- (i) sample data; (1 mark)
- (ii) output reports. (1 mark)
- (c) Name the tools used for data storage in each of the following methods of data processing.
- (i) manual; (1 mark)
- (d) A teacher manages students' records by storing daily attendance information in a file called *register* and students' personal records such as year of birth and home address in a file called *students*.
- (i) Identify the types of computer files named above. (2 marks)
- (ii) Give a characteristic of data held in each file. (2 marks)
- (iii) Name the field that should be used to link the two files. (1 mark)

### Requirements

Candidates were required to :



- i) Explain reasons for an organization to change to a new computerized system;
- ii) state importance of some processes in system documentation;
- iii) name tools used for data storage in given methods of data processing;
- iv) identify the types of computer files named, give characteristic of data held in each file and to name the field used to link the files.

### **Weaknesses**

Many candidates could not give major reasons why adoption of a new system nor state the importance of sample data and output reports.

### **Expected responses**

- (a) - Current system may be experiencing problems thereby being unable to meet organisation requirements.
  - New directives may be received from authorities and the organisation must comply.
  - Changes in the operating environment forces the organisation to change in order to fit and continue in business. eg. competition.
  - Changes in technology requiring the upgrading or total change in the existing system.
  - Peer pressure need to remain fashion
- (b) (i) Sample data should be provided so that all modules can be tested.  
 (ii) Output reports show that the system actually works/testing process/expected output.
- (c) (i) Manual: Manual files stored in cabinets/books/paper/in-tray/out-tray .  
 (ii) Electronic: Secondary storage devices/individual storage devices eg. Flash.
- (d) (i) Student: Master file/Parent/Reference File/Primary.  
 Register: Transaction file/Child table/Secondary.  
 (ii) Master file: Data is static/Permanent/Semi-permanent.  
 Transaction file: Data is dynamic/Temporary/Changes frequently  
 (iii) Key field: Student number/Admission No./Reg. No./File No.

### **Advice to the teachers**

Teachers to guide the students in acquiring the important concepts in system development, data processing and how they are practically applicable in real life situation.

### 25.3 Paper 2 (451/2)

#### Question 2

Create a folder. The name of the folder should be the last three digits of your index number. Type the document below exactly as it appears using a word processing package and save it as LANGUAGE in the folder created. (15 marks)

#### Requirements

Candidates were required to:

- i) Create and name a folder, then type and save a given document;
- ii) Save a copy and format ;
- iii) Drop cap;
- iv) Apply bullet;
- v) Convert paragraph to columns;
- vi) Set margins and page setup;
- vii) Align texts and paragraphs;
- viii) Correct spelling errors;
- ix) Select the paragraph and set line spacing;
- x) Select and move a paragraph;
- xi) Insert footer, line in the footer and type a text;
- xii) Create a table and enter data;
- xiii) Insert a row;
- xiv) Use formulae to find average;
- xv) Save the document;
- xvi) Print the documents.

#### Weaknesses

Inability to:

- create and name the folder;
- use the save as feature;
- rename the file;
- drop cap;
- apply bullet;
- set margins and page setup;
- align texts and paragraphs;
- select and set spacing;
- select and move paragraph;
- insert line in the footer;
- create tables with borders;
- insert rows;
- use formulae to find average;
- save the document;
- Print within range.

## Expected responses

- (a)   ◇ Folder created:
- existence (1 mark)
  - renaming (1 mark)
- Five paragraphs @ 1 mark x 5 (5 marks)
- ◇ Graphics
- cylinder (1 mark)
  - shaded cylinder (1 mark)
  - arrowed lines (1 mark)
  - thickness of arrowed line (1 mark)
  - correct label (1 mark)
  - copies of cylinders (1 mark)
  - copies of arrows (1 mark)
  - Saving (1 mark)

## Advice to teachers

Teachers should expose the learners to more practice in the concepts learned in class by giving them many exercises testing the different concepts taught in class. They should also put emphasis on the most difficult concepts.