



## 24.0 COMPUTER STUDIES (451)

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

### 24.1 CANDIDATES' GENERAL PERFORMANCE

The table below shows performance in Computer Studies in the year 2007, 2008 and 2009.

**Table 29: Candidates' Overall Performance in Computer Studies for the last three years**

| Year | Paper          | Candidature | Maximum Score | Mean Score    | Standard Deviation |
|------|----------------|-------------|---------------|---------------|--------------------|
| 2007 | 451/1          | 4732        | 100           | 45.89         | 18.3               |
|      | 451/2&3        |             | 100           | 63.62         | 15.44              |
|      | <b>Overall</b> |             | <b>200</b>    | <b>109.54</b> | <b>30.00</b>       |
| 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>       |

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

- 24.1.1 Candidature increased from **5498** in 2008 to **6115** in 2009 **representing an 11.22% increment.**
- 24.1.2 Performance in *paper I*(451/1) improved significantly from a mean of **38.78%** in 2008 to **45.41%** in 2009, representing **6.63%**
- 24.1.3 Performance in both the *practical paper*(451/2) and the project *paper* (451/3) declined from **53.13%** in 2008 to **50.93%** in 2009 representing **2.20%**
- 24.1.4 Overall performance in the subject improved from a mean of **91.66** in the year **2008** to **96.33** in the year 2009.

Questions which were poorly performed are briefly discussed below.

### 24.2 PAPER 1 (451/1)

#### Section A

#### Question 4

List **two** uses of computers in meteorology (2 marks)

#### Requirements

The candidates were expected to give the uses of computers in meteorology. Meteorology is the study of the changes in temperature, air pressure, moisture, and wind direction in the troposphere.

#### Weaknesses

Many did not understand the term meteorology. Some mistook it for the study of space.

**Expected responses**

- Data collection from the environment
- Analysis of complex weather patterns
- Weather forecasting

*Answer should be tied to meteorological functions*

**Advice to the teachers**

The learners need to be exposed to as many applications of computers as possible. They should be made to figure out how they can be used in different fields.

**Question 5**

Explain the following terms as used in desktop publishing (2marks)

- (a) Embedded object
- (b) autoflow

**Requirements**

The candidates were required to explain the terms “embedded object” and “autoflow” as used in DTP.

**Weaknesses**

Many candidates have not grasped the above DTP concepts hence could not explain them.

**Expected responses**

- a) Embedded object: a separate object/image/graphic/clip imported into the file permanently (1 mark)
- b) Autoflow: Facility that allows text/cursor to flow automatically from one text box to the next when the first text is full. (1 mark)

**Advice to the teachers**

The teacher needs to explain DTP concepts and also more practical lessons in the topic be provided to the candidates. By doing this the candidates will be able to understand these and more terminologies.

**Question 13**

- (a) Name the two files commonly used in mail merge (1 mark)
- (b) Name and explain the **two** types of drop caps. (2marks)

**Requirements**

Naming two files commonly used in mail merge and also naming and explaining two types of drop caps.

**Weaknesses**

Many candidates had problems naming the mail merge files and explaining types of drop caps.

**Expected responses**

- (a) Main /Primary/standard document  
Data source/secondary @ 1/2 mark each
- (b) Dropped 1/2 mark  
The dropped character is within the paragraph

T \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1/2 mark for description / illustrations  
In margin 1/2 mark  
The dropped character is within the left margin

T \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1/2 mark for description / illustrations

#### Advice to the teachers

Should ensure that the students have understood terms and concepts used in word processing.

#### SECTION B

#### Question 17

A lecturer keeps the following student details in a database: name, age, course.

- Write an expression you would use to compute the year of birth of a student  
Using this year as the current year.
- What query expressions would the lecturer use to list the students whose  
Age is above 15 years and below 25 years?
- Which expression would the lecturer use to generate:
  - the number of students in the database?
  - the mean age of the students in the database?
- Name and describe any two types of database models.

#### Requirements

Writing query expressions for: Computing the year of birth, listing students of a particular age bracket, counting students and computing the mean. They were also expected to describe database models.

#### Weaknesses

Majority of the students (over 80%) avoided the question. This is an indication that database concepts are not well taught in schools.

#### Expected responses

a) YOB: 2009-[Age]

While taking 2009 to be the current year

SQL Format:=Now()- Age

=Now(yyyy)-Age

OR= Year-Age

=Year(Now)-Age

Appropriate label -- 1 mark  
Formula - 1 Mark

- b) Typing  
>15 AND<25  
In the criteria row of the query.  
Or  
Between 15 and 25  
Select Name from db where  
Age>15 and age<25;  
Or  
Select \* from db where age>15 and age<25

- c) (i)  
=Count ([Name])  
Or  
=Count ([Age])  
Or  
=Count ([Course])  
Or  
Recordcount []

- (ii)  
=Average ([Age])

d)

| Model                       | Explanation   |
|-----------------------------|---|
| Relational Database Model   | *Entities are related through the table by use of a key field<br>*Non redundancy<br>*Related data items are stored in a table(or relations)<br>*Linked tables |
| Hierarchical Database Model | *Arranged in a tree like structure and the access is through a particular point OR many nodes one parent  |
| Network Database Model      | *Networked/linked to other systems<br>*Links are used to express relationship between data items and access to one item can be through multiple paths         |
| Flat File Model             | Database holds only one set of data item  |
| Object Oriented Model       | *Looks at records as objects/polymorphism<br>* Inheritance / encapsulation/class/abstraction  |

#### Advice to the teachers

The students need to be helped to have a positive attitude towards databases by using simpler approaches when teaching queries and database models. More practical lessons in the topic can also help them understand these concepts.

### 24.3 PAPER 2 (451/2)

#### Question 1(a)

Design a newspaper publication to appear as indicated in the next page using the following instructions.

- (a) Launch the DTP package and set the preference measurements to centimetres

and the document margins to 2cm on all sides.

**Requirements**

Use a DTP package to setup a publication by adjusting the margins and measurements.

**Weaknesses**

Several candidates were unable to change the settings from inches to centimeters.

**Advice to the teachers**

Guide the students from the initial page setup in publication layout.

**Question 1(d)**

- (d) The text under the heading 'Basic Networking and Connectivity' to be in three Columns and having the following styles:
- Font size: 14
  - First character of the paragraph to have a 3 line dropcap
  - Hyphenation: disabled
  - Fully justified

**Requirements**

Candidates were supposed to enter the given text and format it as it appears and as guided.

**Weaknesses**

Some candidates were unable to disable hyphenation, indent paragraphs and set the text into three columns.

**Advice to the teachers**

Guide students on general text formatting

**Question 1(f)**

Design the Mercury Digishop advertisement in the position shown.

**Requirements**

Candidates were required to design the advert shown and place it in the correct position.

**Weaknesses**

Some candidates had weaknesses in selecting the correct border style and changing the text colour in the shaded boxes.

**Advice to the teachers**

Guide the students on the accuracy of information in any advert.

**Question 1(g)**

Insert the two lines of 4 and 0.75 points respectively in their positions.

**Requirements**

Candidates were required to draw two lines with the measurements shown and insert text below one of the lines.

**Weaknesses**

Several candidates were unable to format the line weights as required and to position the text below the thinner line.

**Advice to the teachers**

Guide students on line drawing and formatting.

NB: Some candidates used a word processor to answer question one which was a DTP.

**Question 2(a)**

The Central Bank of Kenya (CBK) exchange rates on a certain day for foreign currencies against the Kenya Shilling (Ksh) were as follows:

| <i>Currency</i>   | <i>CBK Mean Rate (Ksh)</i> |
|-------------------|----------------------------|
| 1 US Dollar       | 67.0222                    |
| 1 Sterling pound  | 137.7984                   |
| 1 Euro            | 96.6552                    |
| 1 S.A. Rand       | 10.3100                    |
| 1 Sweddish Kroner | 10.4509                    |

Kariuki, Hamisi, Mumbua, Otieno and Nekesa trade in buying and selling of foreign currencies. On that day, they bought the following foreign currencies from CBK.

| <i>Name</i> | <i>U.S Dollars</i> | <i>Sterling Pounds</i> | <i>Euros</i> | <i>S.A Rands</i> | <i>Swedish Kroner</i> |
|-------------|--------------------|------------------------|--------------|------------------|-----------------------|
| Kariuki     | 400                | 200                    | 340          | 1200             | 290                   |
| Hamisi      | 500                | 400                    | 400          | 2000             | 3000                  |
| Mumbua      | 200                | 600                    | 300          | 4000             | 5000                  |
| Otieno      | 600                | 200                    | 200          | 1000             | 3000                  |
| Nekesa      | 400                | 200                    | 600          | 2000             | 1000                  |

They then sold their foreign currencies at the following rates:

| <i>Name</i> | <i>U.S Dollars</i> | <i>Sterling Pounds</i> | <i>Euros</i> | <i>S.A Rands</i> | <i>Swedish Kroner</i> |
|-------------|--------------------|------------------------|--------------|------------------|-----------------------|
| Kariuki     | 70.5               | 139.0                  | 96.7910      | 10.4213          | 10.6725               |
| Hamisi      | 69.0               | 138.5                  | 96.79        | 10.5712          | 10.2676               |
| Mumbua      | 70.0               | 141.5                  | 96.76        | 10.3974          | 10.7432               |
| Otieno      | 69.55              | 139.0                  | 96.80        | 10.6371          | 10.5942               |
| Nekesa      | 69.5               | 138.5                  | 96.40        | 10.7218          | 10.6155               |

- (a) Using a spreadsheet package, represent the above information in one worksheet and save it as FOREX.

**Requirements**

Candidates were expected to enter the given information into a spreadsheet package

**Weaknesses**

Some candidates had weaknesses in entering numerical figures correctly (accurately)

**Advice to the teachers**

Stress on the importance of verifying the accuracy of data.

**Question 2(b)**

Using formulae with absolute and relative cell reference, determine the total profit made by each trader.

**Requirements**

Candidates were expected to compute the profit made by each trader, by computing the profit for the first then copying the formula to the rest.

**Weaknesses**

Some candidates could not type the correct formula while others had difficulties in the use of absolute cell references.

**Advice to the teachers**

Guide the students on the importance of formulas since it is the most useful feature of a spreadsheet. They also need to be exposed to as many practical lessons in spreadsheets as possible.

**Question 2(d)**

Create a well labeled bar graph on a different worksheet showing the cost incurred on buying US dollars by each trader.

**Requirements**

Candidates were required to create a chart on a new sheet. The chart was to be well labeled.

**Weaknesses**

Some candidates had weaknesses in selecting the required data range while some could not place the chart on its own sheet.

**Advice to the teachers**

Teachers should give more exercises on charts as a way of presenting summarized data

**Question 2(f)**

Format the first table as follows:

- Set the direction of the labels to 45°
- Centre vertically all the records.

**Requirements**

Candidates were supposed to centre text vertically and to change text direction to 45°

**Weaknesses**

The main weakness was on centring vertically.

**Advice to the teachers**

To give more exercises on formatting text orientation.