## 3.9 COMPUTER STUDIES (451)

This was the **eighth time** the subject was tested under the revised syllabus since 2006. The subject is tested using a **theory paper,** a **practical paper** and a **project paper** .The project paper is usually school - based.

### 3.9.1 CANDIDATES' GENERAL PERFORMANCE

The table below shows performance in Computer Studies in the year 2010, 2011, 2012and 2013.

***Table 16: Candidates' Overall Performance in Computer Studies for the last four years***

| Year | Paper | Candidature | Maximum Score | Mean Score | Standard Deviation |
|---|---|---|---|---|---|
| **2010** | 451/1 | | 100 | 51.98 | 17.38 |
| | 451/2&3 | | 100 | 59.83 | 16.86 |
| | **Overall** | **7045** | **200** | **111.81** | **32.30** |
| **2011** | 451/1 | | 100 | 52.76 | 16.77 |
| | 451/2&3 | | 100 | 62.27 | 13.92 |
| | **Overall** | **7455** | **200** | **115.02** | **29.03** |
| **2012** | 451/1 | | 100 | 54.59 | 17.82 |
| | 451/2&3 | | 100 | 60.83 | 15.34 |
| | | **8069** | **200** | **115.35** | **31.70** |
| **2013** | 451/1 | | 100 | 49.28 | 17.48 |
| | 451/2&3 | | 100 | 61.12 | 15.00 |
| | | **9181** | **200** | **110.36** | **30.88** |

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

(i) Candidature increased from **8069 in 2012** to **9181** in **2013** representing **13.78%** increment.

(ii) Performance in ***paper 1***(451/1) dropped from a mean of **54.59%** in **2012** to **49.28 %** in **2013**, representing **9.73 %**.

(iii) Performance in both the ***practical paper*** ***(451/2)*** and the project ***paper (451/3)*** improved from **60.83% %** in **2012** to **61.12%** in **2013** representing **0.477%**.

(iv) Overall performance in the subject dropped from a mean of **115.35** in the year **2012** to **110.36** in the year **2013** representing **4.33%**.

Questions which were poorly performed in 2013 are briefly discussed below.

### 3.9.2 Computer Studies Paper 1 (451/1)

**Section A**

**Question 2**

A school keeps student records in a database. The data is coded before entry.
State **three** reasons why the coding is necessary. (3 marks)

**Requirements**

Candidates were required state reasons for coding data before entry.

**Weaknesses**

Most of the candidates did not answer the question as required.

**Expected responses**

- Indexing becomes easier.
- Minimises on memory used.
- Ease of data entry.
- Reduces redundancies/double entry.
- Speedy searches due to shortened comparisons
- Simplifies validation

**Advice to the teachers**

The teachers should assist the students to differentiate coding in databases and programming.

**Question 3**

Differentiate between Bcc and cc in an email. (2 marks)

**Requirements**

Candidates were required to differentiate between Bcc and cc in an e-mail.

**Weaknesses**

Many candidates did not know the meaning of Bcc hence they failed to score in the question.

**Expected responses**

In cc, all the recipients of the mail are able to see other recipients of the same mail.
Bcc: In Bcc, all recipients of the mail are not able to see other recipients.

**Advice to the teachers**

Teachers should exhaustively cover the topic on e-mail.

**Question 13**

A computer is idle but the hard disk light is blinking, indicating some activity.
State **two** possible causes of this. **(2 marks)**

**Requirements**

Candidates were required to state what causes a hard disk light to blink when a computer is idle.

**Weaknesses**

Most of the candidates could not answer the question correctly. The question was too difficult for the candidates.

**Expected responses**

Possible causes of Hard disk blinking.
- Virus executing itself.
- Updating of some software applications.
- Network access taking place.

**Advice to the teachers**

Teachers ought to emphasize on application questions.

## SECTION B

### Question 16

(a) **Figure 3** shows a flowchart. Use it to answer the questions that follow.

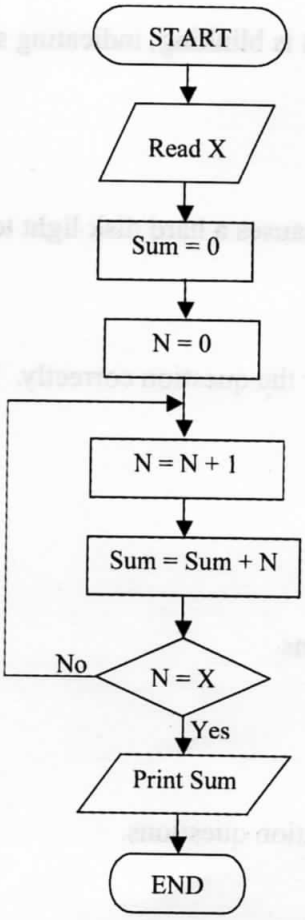



**Figure 3**

(i) Determine the output from the flowchart if:

I. X = 5; (2 marks)

II. X = 7. (2 marks)

(ii) Write a Pseudocode for the flowchart in **figure 3**. (5 marks)

(iii) Modify the flowchart so that it can be used to get the sum of integers between 50 and 100. (4 marks)

(b) List **two** programming language translators. (2 marks)

### Requirements

Candidates were expected to understand the flowchart and other skills in elementary programming.

**Weaknesses**

Most of the candidates could not dry run the program as expected while others could not write pseudocode neither comprehend the logic of the flowchart.

**Expected responses**

(a) (i) Output from the flow chart if:

(I) X = 5, (II) X = 7

(I) when X = 5, output = 15 (2 marks)

| x | S | N |
|---|---|---|
| 5 | 0 | 0 |
| | 1 | 1 |
| | 3 | 2 |
| | 6 | 3 |
| | 10 | 4 |
| | 15 | 5 |

(II) when X = 7, output = 28 (2 marks)

| 7 | 0 | 0 |
|---|---|---|
| | 1 | 1 |
| | 3 | 2 |
| | 6 | 3 |
| | 10 | 4 |
| | 15 | 5 |
| | 21 | 6 |
| | 28 | 7 |

(ii) Pseudocode for the flowchart is:

① Input X √ ($\frac{1}{2}$ mark)

② Initialize the sum
sum = 0 √ (1 mark)

③ Initialize the term N,
N = 0 √ ($\frac{1}{2}$ mark)

④ Increment N by 1
N = N + 1 √ ($\frac{1}{2}$ mark)

⑤ Add the new value of N to sum;
Sum = Sum + N √ (1 mark)

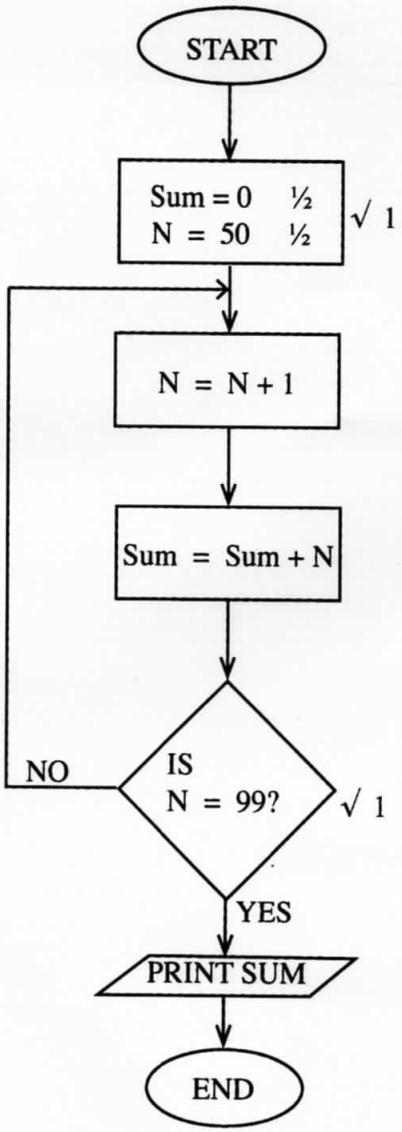
⑥ IF N = X √
Go to step 7
ELSE √
Go to step 4 √
ENDIF (1 mark)

⑦ Print sum √ ($\frac{1}{2}$ mark)

⑧ End.

10 statements @ $\frac{1}{2}$ mark each = (5 marks)

(iii) Modifying the flowchart sum between 50 and 100




Logic = 2 marks

(b) Language translators
- Assemblers
- Compilers
- Interpreters

**Advice to teachers**

Teachers should expose the students to a lot of practice on flowcharts and other related skills in this topic.

**Question 17**

(a) Describe **three** types of validation checks as used in data processing. (6 marks)

(b) A company has opted to store its employees' personal details in a computer system. Describe **two** software methods that may be used to prevent unauthorized access to these details. (4 marks)

(c) (i) Describe each of the following data processing modes:

I. real-time; (2 marks)

II. interactive. (2 marks)

(ii) State an application area where real-time data processing mode is applied. (1 mark)

**Requirements**

Candidates were required to describe types of validation checks as used in data processing, data security and data processing..

**Weaknesses**

Many candidates did not attempt this question and those who attempted performed poorly in all the parts. This is an indication that the candidates had not understood the concept of validation checks in data processing, data security and data processing.

**Expected responses**

(a) Validation checks
- Range checks: checks that data lies within a range of values.
- Presence checks: checks that data is there and has not been missed out.
- Length checks: checks that fields are of the right number of characters.
- Type checks: checks that the data is of the right type.
- Format checks: checks whether data is in the correct format.

(b) Methods to prevent unauthorised access:
- Password: A secret word; a string of characters known only to a restricted group for authentication.
- User Access levels: A case where each group is granted different levels of access
- User Access rights: An individual is granted access or denied access to resources.

(c) (i) (I) Real-time
In a real-time processing, there is a continual input, process and output of data instantaneously upon receipt of command.

(II) Interactive processing
A computer processing in which the user can modify the operation appropriately while observing results at critical steps.

(ii) Application area for real-time mode
Airline booking, medical system, car tracking system, hotel booking system, banking system.

**Advice to the teachers**

Teachers should use the recommended reference materials.

**Question 19**

(b) The worker needs to make regular backups of documents sent to the office. State **three** reasons for this. (3 marks)

(c) Explain **two** benefits that the employer will get by allowing this worker to do the office work through telecommuting. (4 marks)

**Requirements**

Candidates were required to state reasons for making regular backups of the documents sent to the office and the benefits accrued by the employer when a worker does office work through telecommuting. Majority of the candidates the concept of telecommuting.

**Weaknesses**

Majority of the candidates were unable to state the reasonsfor regular backups and the benefits of working through telecommuting.

**Expected responses**

(b) - Communication systems may fail/communication channel may fail.
- The document sent may get lost due to sending to wrong address.
- The documents may be re-used or updated.
- Malfunctioning of either sending/ receiving computers (failure of DTE).

(c) - Employer will only pay for work done.
- The working time is not limited to official working hours/office available 24 hours.
- Employer saves on office space.
- Does not have to pay for commuter allowance.
- Employer may not require permanent employees.
- Employer may outsource expert skills that are not available locally.

**Advice to the teachers**

Teachers should emphasize on the application areas of ICT in relation to emerging issues.

### 3.9.3 Computer Studies Paper 2 (451/2)

**Question 2**

The **Figure** on **page 5** shows the design of the cover page of a book. It comprises of the front, the back and space in between where book pages will be attached. Use a desktop publishing package to design the cover page as follows:

(a) Create a new publication named book cover with the following page layout.

(i) paper size: A4,
(ii) orientation: landscape,
(iii) margins: 3 cm or 1.18 inches all round. (4 marks)

(b) Enter the text and objects and format them as they appear in the **Figure**. The front and back sections of the book cover, each measures 18 cm (7.1 inches) by 12.5 cm (4.9 inches) and the space between them measures 1.7 cm (0.7 inches). (45 marks)

(c) Save and print the publication. (1 mark)

**Requirements**

Candidates were required to:

a. Create and name a publication;
   i. Select paper size for the publication ;
   ii. Select paper orientation;
   iii. Set publication margins;
b. Create objects, enter text ,use free form objects and free form text objects and format;
c. Save and print the publication;

**Beginning Computer Studies** is one in a series of books published by Nyota Publishing Press to comprehensively cover introductory Computer Studies.

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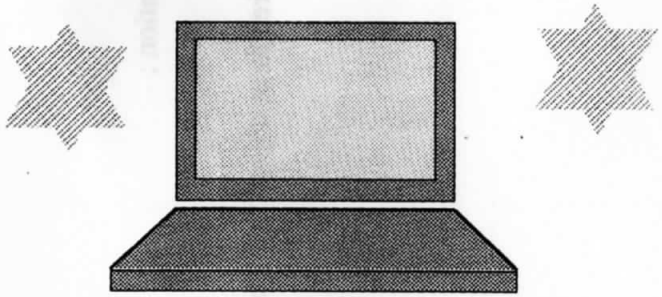
Beginning Computer Studies
A Quick Revision Guide

Peters Sylvester
Lynne Sliza

# BEGINNING COMPUTER STUDIES



## QUICK REVISION GUIDE

Nyota Publishing Press

REVISED EDITION
2012



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**Weaknesses.**

Candidates were unable to:

- Name the publication as expected;
- Select the suggested paper size;
- Select the described paper size;
- Select the correct orientation for the publication;
- Set the suggested publication margin measurements;
- Enter text as suggested, manipulate the free form text objects and position them as required;
- Create the publication in the correct location and print the publication in a single page.

**Expected responses**

(a)

Margin - page layout 4 @ ½ mark each

Orientation (order/arrangement of back/spine/front) ½ mark

Paper size ½ mark

Saving (Book Cover) 1 mark

Fit of the three parts - back, spine and front

FRONT COVER

(b)

Authors / Rectangle

Text typing 1 mark text either case ½ mark

Text box positioning/text position at centre ½ mark

Insertion of Rectangle/text-box ½ mark

Fill type (gradient shading)/gradient centre ½ mark

Positioning the rectangle ½ mark

Size ½ mark

Inserting textbox/thick outline border ½ mark

Book title

text typing (capital) text + title case 1 mark

positioning in relation to the front cover ½ mark

Computer

Position of the computer ½ mark

Drawing four polygons 4 @ ½ mark

Filling polygons 4 @ ½ mark penalise ½ mark for wrong shading

**Stars**

Six sided star 1 mark / 5 sided and 8 sided $\frac{1}{2}$ mark

No outline $\frac{1}{2}$ mark

Fill pattern $\frac{1}{2}$ mark

Positioning star 1 and star 2 @ $\frac{1}{2}$ mark

Copying and pasting star $\frac{1}{2}$ mark

Lower rectangle

- Positioning $\frac{1}{2}$ mark
- Sizing $\frac{1}{2}$ mark
- Outline (bigger) $\frac{1}{2}$ mark
- Filling (fill) different from the border $\frac{1}{2}$ mark

Revised edition triangle

- Right angled triangle $\frac{1}{2}$ mark
- Positioning $\frac{1}{2}$ mark
- Fill (white) - no shade $\frac{1}{2}$ mark
- Text typing 1 mark (award $\frac{1}{2}$ mark is test is in one line)
- Textbox rotation 1 mark

Quick revision guide

- Typing text (text & caps + initial) 1 mark
- Background colour of the textbox $\frac{1}{2}$ mark
- Positioning of textbox $\frac{1}{2}$ mark

Nyota Publishing Press

- Typing Text 1 mark Text $\frac{1}{2}$ mark case $\frac{1}{2}$ mark
- Positioning of textbox $\frac{1}{2}$ mark

**Spine**

- Typing of text (text & case) 1 mark
- Rotating 1 mark
- Positioning of text box $\frac{1}{2}$ mark
- Background (fill pattern) $\frac{1}{2}$ mark
- Fitting in between $\frac{1}{2}$ mark

**Star**

Spine star

- Resizing/ 1 star fitting inside the spine $\frac{1}{2}$ mark
- Shading $\frac{1}{2}$ mark
- Copying star/existence of the star $\frac{1}{2}$ mark
- Positioning $\frac{1}{2}$ mark
- Positioning star 2 $\frac{1}{2}$ mark

**BACK PAGE**

Big rectangle

- Outline (thick border) ½ mark
- Fitting ½ mark
- Filling/any fill ½ mark
- Positioning ½ mark

Rounded rectangle

- Outline (none) ½ mark
- Filling (no fill)/ white ½ mark
- Positioning/placement ½ mark
- Sizing/fitting proportional to the rectangle ½ mark
- Correct shape ½ mark

Text in rounded rectangle

- Typing text 4 paragraphs (existence and completeness @ 1 mark x 4
- Bullets (style & character) ½ mark x 2
- Paragraphing (spacing) ½ mark
- title case -last paragraph ½ mark

ISBN rectangle

- Text ISBN 214s @ 1 mark
- Bars varying thickness @ 1mark
- Position of ISBN and Bars @ ½mark
- No fill ISBN and bars @ ½mark

Text at bottom

- Copyright symbol ½ mark
- Text and case 1 mark
- Positioning ½ mark

Printing 1 mark

**Advice to teachers**

Teachers should assist learners in:

- naming publications using given names;
- Setting the correct paper size;
- Selecting different publication orientations;
- Setting appropriate margins as specified in the publication;
- Manipulating text free form text object and free form object to produce the desired object/ effect;
- Creating the publication in the correct location and printing the required publication in page(s);

**NB:** The teachers should expose the learners to DTP questions which are testing the skills taught in this package.