

451/1 - COMPUTER STUDIES – Paper 1
(THEORY)
NOVEMBER 2021 – 2½ hours

NameClassAdm no.....

Index no. Candidate's signature

MARKING SCHEME.

SUKELLEMO EVALUATION EXAMINATION - 2021

Instructions to Candidates

- (a) Write your name and index number in the spaces provided above.
- (b) This Paper consists of **two** sections **A** and **B**.
- (c) Answer **all** the questions in **section A**.
- (d) Answer **question 16** (compulsory) and any other **three** questions from **section B**.
- (e) **All** answers should be written in the spaces provided.
- (f) **This paper consists of 14 printed pages.**
- (g) Do **not** remove any pages from this booklet.
- (h) **Candidates should check to ensure that all pages are printed as indicated and no questions are missing.**
- (i) **Candidates should answer the questions in English.**

FOR EXAMINER'S USE ONLY

Section	Questions	Candidate's score
A	1- 15	
B	16	
	17	
	18	
	19	
	20	
	TOTAL SCORE	

SECTION A (40 MARKS)

Answer ALL questions in the spaces provided

- 1) A) Define peripheral device (1 mark)

Devices connected to the system unit through interface cables

- b) Give two examples peripheral of devices (2 marks)

- ***Mouse***
- ***Keyboard***
- ***Monitor***
- ***Scanner***
- ***Printer***

- 2) Define the following monitor terminologies (2marks)

- a) Resolution

The number of pixels per inch on the screen.it determines the clarity of images displayed

- b) Pixel

Dots used to form images displayed on the screen

- 3) Give two reasons why are USB ports becoming quite common with modern devices(2mks)

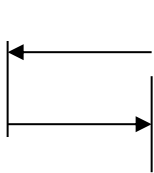
They offer high speed data transmission

A variety of devices can be connected to it

- 4) Indicate whether the following devices are used for input or output (2marks)

- i) Plotter***output***
- ii) Scanner***input***
- iii) Mouse***input***
- iv) Visual display unit***output***

5) Name and explain the function of the keyboard keys shown below

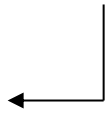


Name.....*tab key*

Function

move the cursor at set interval

(2mks)



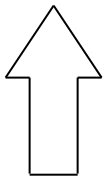
Name.....*enter key*

Function

1. *Accept an entry*

2. *Move cursor to beginning of next line*

(2mks)



Name.....*shift*

Function

Used in combination with other key to carry out some operations (2mks)

6) Define the following terms as used in data security (2mks)

a) Log files

Records the activities taking place in a computerized system

b) Tapping

Gaining unauthorized access to data that is being transmitted from one point to another in a network

7) List three factors one would consider before enrolling for an ICT course in a college

(3marks)

Cost

One's grade against the college minimum requirement

Level of courses offered

Examinations offered, whether national or internal

Whether the course is recognized internally /externally by accredited examining bodies

One's ambition

8) State two advantages of automated production in manufacturing industries(2marks)

Increased efficiency due to balancing of workload

Adequate and high quality goods are produced

Efficient utilization of resources like raw materials

9) Describe each of the following Desktop publishing terms: (2marks)

a) Cropping

Trimming unwanted parts of a picture

b) Master page

A page used in designing the general layout that is to be replicated in other pages in the publication

10) List three classification of operating systems based on user interface. (3 marks)

Command line interface

Graphical user interface

Menu driven interface

11) Explain each of the following disk management activities carried out by operating systems:

a) Formatting (2 marks)

Process of preparing a disk for use by imprinting empty tracks and sectors

b) Back up (1 mark)

Process of creating spare copy of a file for use in the event of failure or loss of the original

c) Defragmentation. (2marks)

Collecting and putting together scattered files on a disk to bring consistency and improve performance

12) Explain two uses of forms in database design (2 marks)

Enter data into tables

Display data from tables & queries

Edit data

13) State one advantage of relational database over flat file (1mark)

Access/search of data items is fast and easy

14) List three components of an expert system (3 marks)

User interface

Knowledge base

Inference machine

15) Distinguish between sign in and sign up in relation to emails (2 marks)

Sign in is getting access to an already existing email account by entering username and password while sign up is creating a new email account by entering ones details

SECTION B (60 MARKS)

Answer question 16 and any other three questions from this section in the spaces provided.

16) a) State *three* qualities of a good pseudocode? (3marks)

- i) Show the 'start' and 'end' of the executable statements.***
- ii) Input, output and processing statements are clearly stated***
- iii) The statements should not have more than one meaning***
- iv) It should have clear and readable.***

b) i) State the *three* translators used in programming (3marks)

- Compilers**
- Assemblers**
- Interpreters**

ii) List *two* examples of;

i. Third generation languages (1mark)

Pascal, Fortran, Cobol, C, Agog

ii. Object oriented languages (1mark)

Visual basic, C++, visual Foxpro, Delhi, Java, VB, net

c) Draw a flowchart that was used to come up with the following pseud code (7marks)

Start

N=0

X=0

While n < 3

Repeat

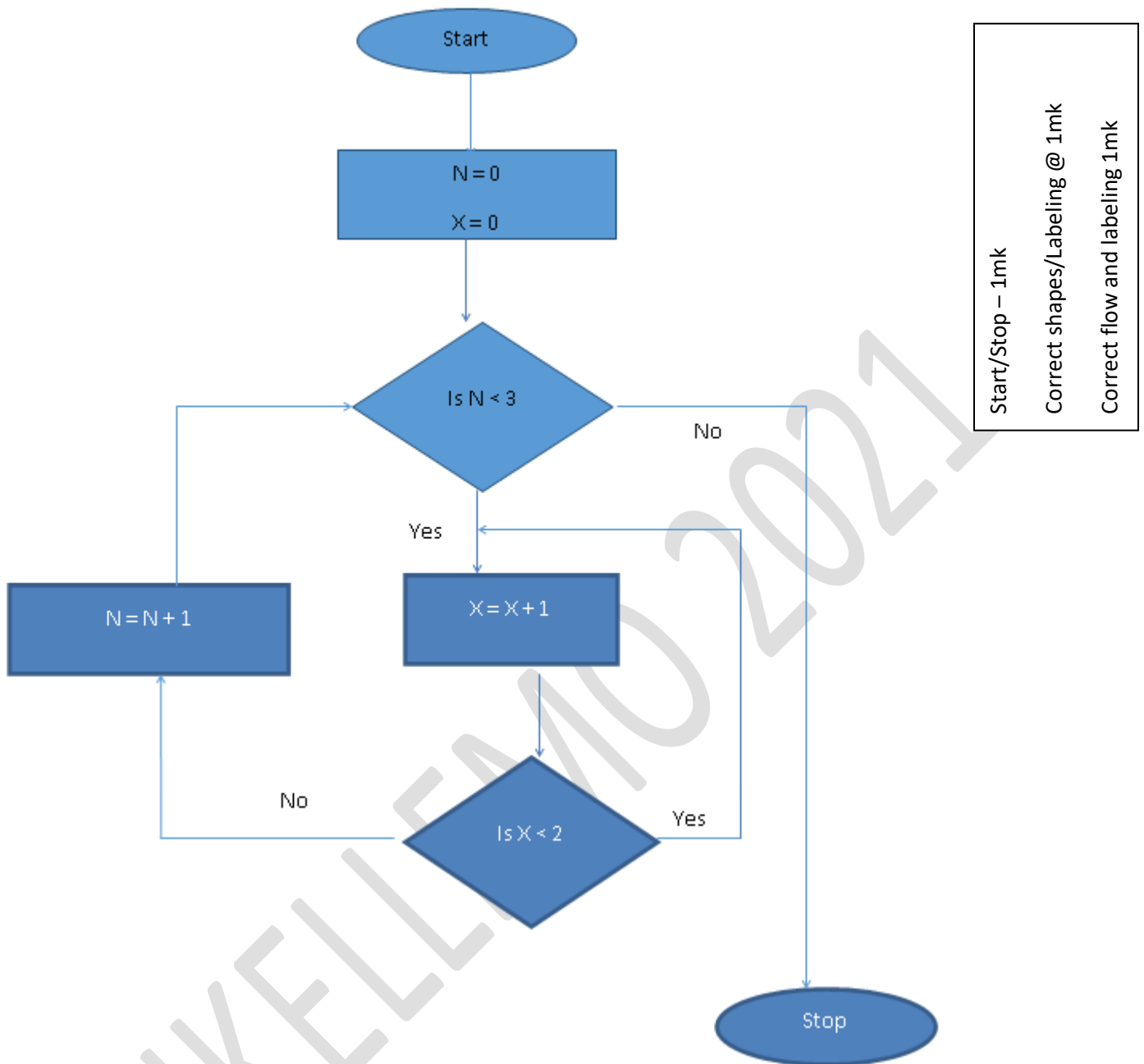
X = X + 1

While x < 2

N = N +1

End while

Stop



Start/Stop – 1mk
 Correct shapes/Labeling @ 1mk
 Correct flow and labeling 1mk

17) a) Some of the stages in the system development life cycle (SDLC) include system analysis, system design, system implementation, system review and maintenance. State **four** activities carried out during system implementation stage. (4marks)

- file conversion
- training
- installation
- security control measures
- module testing
- system changeover

- b) Explain **three** circumstances under which observation method may be preferred during data collection (3marks)

When the subject to be observed need not be made aware of the facts

When there is need to directly see the subjects do rather than rely on what they tell you/ firsthand information;

When there is need to collect data without interfering with the working of the subject;

When nature of data can only be collected via observation e.g. traffic flow;

When collecting data in situation that the subject may be unwilling to give information

- c) List any **four** areas that have to be designed at the fourth stage. (4marks)

- *Flowcharts*
- *Data flow diagrams*
- *Entity relationship models*
- *Structured charts*

- d) Explain the meaning of the following system characteristics. (4marks)

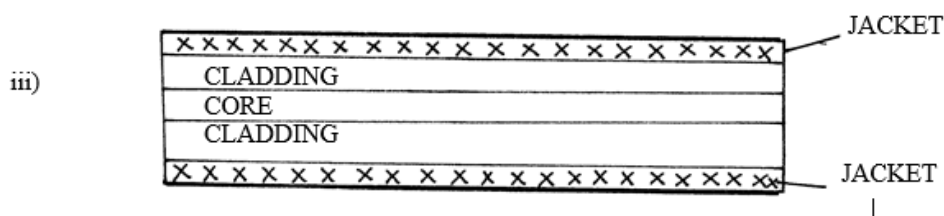
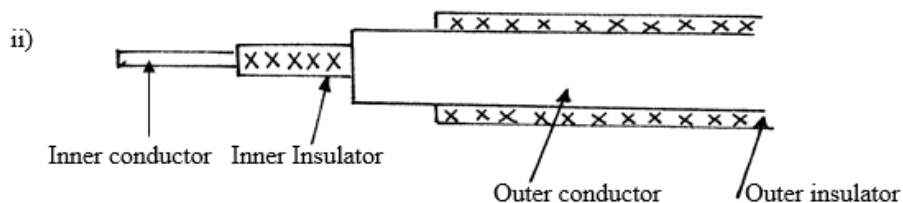
- i) Entropy

✓ *System decay or Lifetime of a system. System slowly becomes irrelevant.*

- ii) Controls

✓ *Methods by which a system adopts to changes in the environment for it give expected output.*

18) The following diagrams shows various transmission media for networking to computers.



a) Name the transmission media shown in the diagrams above. (3marks)

i) *Twisted pair*

ii) *Coaxial*

iii) *Fibre optic*

b) State any *two* advantages of using medium (i) over medium (iii) (2marks)

- *Installation equipment is cheap.*
- *It is readily available.*

c) Explain the difference between a bridge and a gateway. (2marks)

Bridge – a network device that selectively determine the appropriate network segment for which a message is meant while a gateway is any device configured to provide access to wide area networks or internet.

d) Give the use of the following networking devices. (3marks)

i) **NIC**- Creates physical link between the computer and the transmission media.

ii) **Router** – Interconnects different networks and directs the transfer of data packets from source to destination.

iii) **Repeater** – boosts a weakening signal

iv) **DTE** is any device e.g. a computer workstation on a network, while a **DCE** ends marks the end of physical network circuit.

(e) (i) Distinguish between **microwave** and **satellite** transmissions. (2marks)

Microwave transmission consists of point to point transmissions meaning a signal is divided through a focused beam from transmitter to receiver while satellite is usually launched into space.

(ii) Give an example of internet protocol (1mark)

FTP, TCP, HTTP, IP, SMTP

19) (a) Convert each of the following binary numbers to decimal equivalent given that the left most digit is a sign bit.

(i) 00101101 (2marks)

(ii) 11001001 (2marks)

(a) (i)

$$\begin{array}{r}
 00101101 \\
 1 \times 2^5 = 32 \quad \frac{1}{2} \\
 1 \times 2^3 = 8 \quad \frac{1}{2} \\
 1 \times 2^2 = 4 \quad \frac{1}{2} \\
 1 \times 2^0 = 1 \quad \frac{1}{2} \\
 \hline
 45_{10}
 \end{array}$$

(ii)

$$\begin{array}{r}
 11001001 \\
 \uparrow \text{sign bit} \\
 1 \times 2^6 = 64 \quad \frac{1}{2} \\
 1 \times 2^3 = 8 \quad \frac{1}{2} \\
 1 \times 2^0 = 1 \quad \frac{1}{2} \\
 \hline
 -73_{10}
 \end{array}$$

Mark correct for those who use the two's or one's complement correctly.

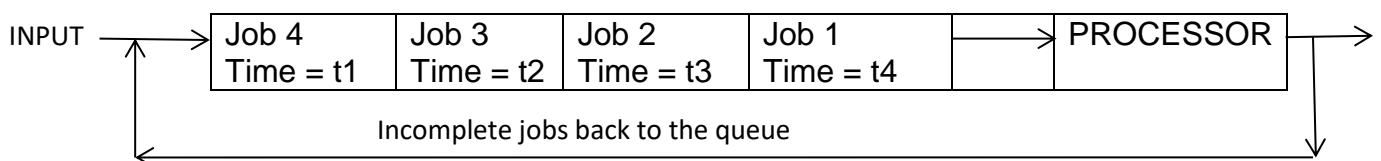
(b) Convert the decimal number 0.42_{10} to 6 bit binary notation (4marks)

(b)

$$\begin{array}{r}
 0.42 \times 2 = 0.84 \quad \sqrt{1 \text{ mark}} \\
 0.84 \times 2 = 1.68 \\
 0.68 \times 2 = 1.36 \quad \sqrt{1 \text{ mark}} \\
 0.36 \times 2 = 0.72 \\
 0.72 \times 2 = 1.44 \\
 0.44 \times 2 = 0.88 \quad \sqrt{1 \text{ mark}} \\
 \hline
 = 0.011010 \quad \sqrt{1 \text{ mark}}
 \end{array}$$

(b) Time sharing mode is most commonly used in data processing. With the aid of a diagram, describe the processing mode (5marks)

This is a processing mode in which a central processor serves two or more users with different requirements. The processor time is equally divided among tasks in a queue. A user whose task requirements are more than is apportioned is sent back to the queue. For example, four jobs requiring time t_1 , t_2 , t_3 and t_4 to complete is apportioned equal time in each round until when they are done.



20) a) Explain data series, axis and legends as used in spreadsheet charts. (3marks)

Explain data series, axis and legends as used in spreadsheet charts. (3 marks)

Data Series

The selected range in a worksheet that EXCEL converts into a graphic and displays as a chart (in spreadsheet applications)

Axis

A reference line from which distances or angles are measured in a coordinate system, such as the X-axis and y-axis in the Cartesian coordinate system.

Legend

Brief description accompanying an illustration (chart) also known as a caption.

b) A Computer accessories vendor needs to order supplies. A spreadsheet is used to calculate the order part of which is shown below.

	A	B	C	D
1	Item	Price per unit	Number ordered	Cost (Kshs)
2	56K modem	8565.00	60	
3	128 MB Ram	4950.00	40	
4	Pentium IV Processor	13525.00	55	
5			Total	

Write the formula that can be used in:

(i) D2 (1mark)
= B2 * C2

(ii) D5 (1mark)
=D2 + D3 + D4

(iii) if a value added tax (VAT) of 16% was charged on each item and the number ordered was decreased by 10%, write a new formula that can be used in D2. (2marks)
=(0.9*B2*C2)-(0.16*B2*C2)

c) a) In word processing lines of text can be indented in several ways,name the type of paragraph indent illustrated in the paragraphs below.

i)

This document does not contain headings. To createnavigation tabs, create headings in your document to apply heading styles

Hanging indent ✓1

..... (1mark)

ii)

This document does not contain headings. To createnavigation tabs, create headings in your document to apply heading styles

First line indent ✓1

..... (1mark)

d) Differentiate between footnotes and endnotes as used in word processing (2marks)

footnotes provides comments or explanation in a large document and they appear at the bottom of a page while endnotes provides comments explanations at the end of a section or docment text √2 for correct difference

e) Amina a teacher of computers studies in Barnet high was teaching her students how to manipulate data using a word processing table. A section of the table is shown below,study it and answer the question that follows

SUBJECT	SCORE
ENGLISH	78
GEOGRAPHY	91
CRE	68
MATHS	73
TOTAL	

Suggest the formula that can be entered to obtain the Total score of the subjects listed (2marks)

=sum (Above)

f) Describe the function of each of the following alignment tools (2marks)

i) Text wrap

Arranges a lengthy text in a cell in multiple lines so that the complete text can be read √1

ii) Shrink to fit

Changes the font size instead of the row height or column width thus reducing the size of the text to fit in the cell √1

THIS IS THE LAST PRINTED PAGE.