SCHEME

NAME.. DATE ....

INDEX NO.. SIGNATURE ....

451/1
COMPUTER STUDIES **MARKING SCHEME**
PAPER 1
JUNE, 2022
TIME: 2½ HOURS

SUKELLEMO JOINT PRE-MOCK EXAMINATION 2022

Kenya Certificate of Secondary Education.

451/1
COMPUTER STUDIES
PAPER 1
TIME: 2 HOURS 30 MINUTES.

Instructions to Candidates
- Write your name and Index Number in the spaces provided.
- This paper consists of two sections.
- Answer **ALL** questions in **section A**
- Answer **Question 16** and other THREE questions in section B.
- All answers MUST be written in the spaces provided on this question paper.

Section	Question	Maximum Score	Actual Score
A	1 - 15	40	
B	16	15	
	17	15	
	18	15	
	19	15	
	20	15	
TOTAL		100	

SECTION A (40 MARKS)
ANSWER ALL QUESTIONS FROM THIS SECTION

1. Explain two ways in which computer can be used in the following areas. (2mks)
   a) Entertainment industries

   i) Creating and playing computer games.
   ii) Record, Synthesize, edit and distribute music $2 \times \frac{1}{2} = 1$
   iii. Create animations and special effects in movies

   b) Banking

   (i) ✓ Processing of cheques   (iii) provision of electronic money transfer.
   (ii) ✓ Preparation of payrolls   (iv) keeping records of customers accounts and staff. $2 \times \frac{1}{2} = 1$
   Manage financial transactions by use of ATM to dispense and deposit money.

2. Write the following abbreviations in full. (2mks)
   a) POST   Power - On - Self - Test

   b) SVGA   Super Video Graphics Array

3. Suggest how in future the computer may be made user-friendly for persons who are visually challenged. (1mk)
   ✓ Use of Braille keyboard.
   ✓ Speakers and voice input devices such as microphones.
   Any $1 \times 1 = 1$

4. Explain three advantages of an inkjet printer. (3mks)

   High quality printouts are produced with options of using colour
   Relatively faster than dot matrix printers.
   Relatively cheaper compared to laser printers.
   $3 \times 1 = 3$

5. Odhiambo a computer student at Lenana High School had the following problems.(2mks)
    a) Headache
    b) Backache

Give the likely cause of the above problems and give the likely solution for each problem.

Problem	Likely cause	Problem solutions
Headache	- Using a computer for a long period of time without taking breaks ✓½	Always take frequent breaks. ✓ ½ ⟩
Backache	poor sitting or use of substandard furniture ✓½	- sit in an upright posture - Use standard/Adjust the furniture to your comfort. ✓½	= 2~

6. a) Highlight four factor to consider when choosing an input device.   (2mks)

✓ Cost   ✓ Compatibility with your computer
✓ Volume of data   ✓ Type of data to be entered
✓ Availability in market. ✓ speed $4 \times \frac{1}{2} = 2$

b). State and explain **two** types of computer files   (2 mks)

Master file - Main file that contains permanent as well as semi-permanent data.

Transaction file - Contains temporary data that is generated during processing. - Used to update master file

Sort file - Contains records arranged in a predetermined order.
Report file - Contain records generated after processing.
Reference file - Contain data that is used for look up purposes.
Back up file - Contain copies of data/information   Any 2x1=

7. Juma bought a computer with the following features.
    i.   4. 0 GB primary storage
    ii. 500.0 GB SATT HDDC
    iii. Dual core processor
    iv. 19^0 TFT VDU

a) What do you understand by the term *dual core* computer? (1mk)

A computer whose motherboard has two processors.

8. Define a multimedia system and state two components of a multimedia system. (2mks)

Ability for a computer to process and output text, sound, video and pictures. ✓ 1mk = 1

Components of a multimedia system:
✓ *Speakers*   ✓ *Sound card* $2 \times \frac{1}{2} = 1$
✓ *CD/DVD drive*   ✓ *SVGA monitor*
✓ *Software that is able to play multimedia content.*

9. a) State the type of files which have the following file extensions and give an example for each (2mks)

   i. .BAT *- System file - Eg Batch file used to process log files, run series of calculations.*

   ii. .XLS *- Data file, A spreadsheet file e.g Ms. Excel worksheets.*

   b) List four types of proof reading tools in a word process. (2mks)

   ✓ *Spelling and grammar checker*
   ✓ *Thesaurus*
   ✓ *Auto complete*
   ✓ *Autocorrect* $4 \times \frac{1}{2} = 2$

10. a) While Wekesa is editing a workbook data item, a # *VALUE! Error* occurred. Identify the cause of such error in the affected worksheet. (1mk)

   Occurs when wrong type of argument or operand is used. $|X| = 1.$

b) Distinguish between an embedded chart and a chart sheet.   (2mks)

Embedded chart - A chart that is saved as part of the worksheet on which it is created.   ✓ 1×1=1

Chart sheet - A separate sheet within the workbook that contains the chart.   ✓ 1×1=1.

11. State four importance of the internet to the society.   (2mks)

Electronic mail (E-mail) has enabled faster communication.
E-banking has enabled establishment of branchless banks.
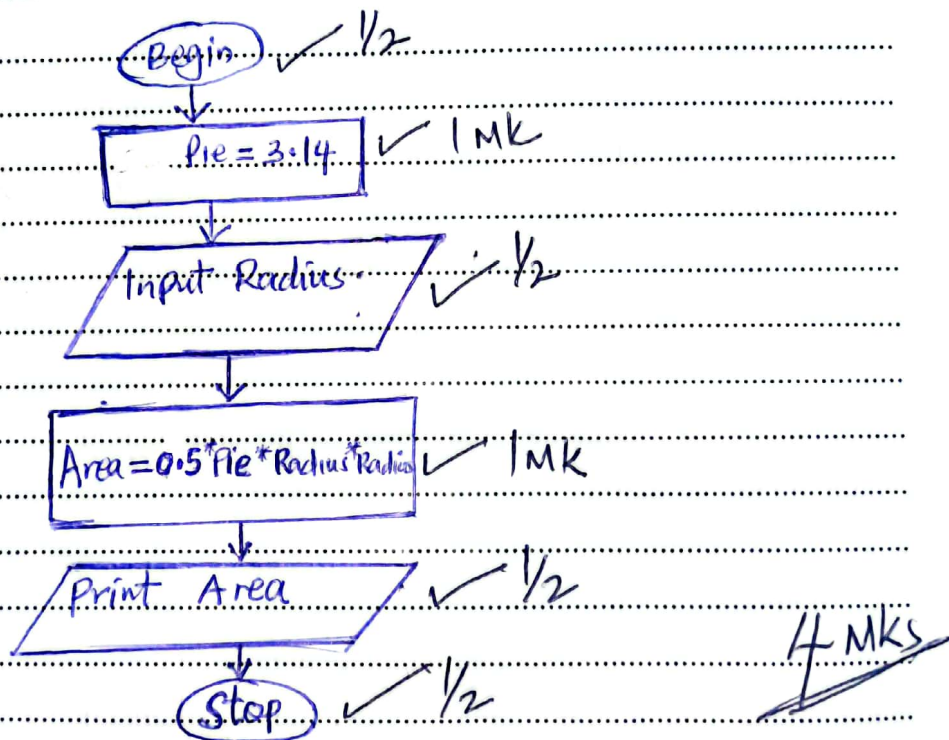It has enabled online shopping.   4×½=2
It has enabled online/distance learning
It has enabled use of social networking e.g facebook, Twitter.etc.
                                        * Allow any relevant answer.

12. Draw a flowchart that can be used to find the area of a semi-circle.   (4mks)

Begin ✓ ½

Pie = 3.14   ✓ 1MK

Input Radius ✓ ½

Area = 0.5*Pie*Radius*Radius ✓ 1MK

Print Area ✓ ½

Stop ✓ ½

4 MKS

13. Define the following terms as used in desktop publishing   (2mks)
   i. Master page

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

ii.   Gutter   — Blank space between two facing pages. OR Extra space allowance used to accomodate the binding in books and magazines.

14. Use two complements to complete the value of Y in eight bit binary notation.   (4mks)

$$96_{10} + Y_{10} = 124_{10}$$ $\Rightarrow Y_{10} = 124_{10} - 96_{10}$

96	Rem
2 48	0
2 24	0
2 12	0
2 6	0
2 3	0
2 1	1
2 0	1

$= 1100000_2$

124	Rem.
2 62	0
2 31	0
2 15	1
2 7	1
2 3	1
2 1	1
2 0	1

$= 1111100_2$

$\Rightarrow 01111100_2 - 01100000_2$

1'C of 01100000 is 10011111 ✓①

2'c will be 10011111+1

$= 10100000$ ✓①

$\begin{array}{r} 01111100 \\ + \quad 10100000 \\ \hline (1)00011100_2 \end{array}$

over flow bit (ignore)

$= 00011100_2$ ANS ✓①

(4MKS)

15. a) Natural disaster can cause loss of data and programs. State two ways of ensuring that data and programs are not lost if a disaster strikes.   (2mks)

✓ Create replicates of backups in seperate and remote environment.

✓

b) State two advantages of using robots in industries.   (2mks)

✓ They are fast in performing tasks

✓ They do not get bored of doing the same task

✓ They can do tasks that are hazardous for human be

✓ They produce high quality products.

Any 2×1 = 2

Section B (60 marks)

Answer Question 16 and any other three from this section.

16. a) State **three** functions of an assembler. (3mks)

~ Converts symbolic operations code (mnemonic) to an object code.
~ Allocates space in memory for the object code.
~ Identify errors and produce a list of all errors detected.
~ Produces a list of the source code and the object code.
~ Links the object code to the existing code libraries. (3×1)=3

b) Highlight **three** characteristics of a good flowchart. (3mks)

Must have clear one starting point and one end point.
Must flow in a logical order
Must use the correct symbols
Should have short, clear and readable statements
written inside the symbols.   Any 3X1 = 3

c) Give **two** examples of a *web scripting* languages. (2mks)

✓ HTML   ✓ XML   ✓ Coldfusion
✓ JavaScript   ✓ perl   ✓ Applescript
✓ VBScript   ✓ python
✓ PHP   Any (2X1)=2

d) Nekta company give a discount of **16%** for purchase worth **sh. 10, 000** and above; **10%** for purchase worth between **sh. 5000** and **10,000** and none for purchase worth sh. **5,000** and below. Write a pseudo code for a program that would accept the value of a purchase, compute the discount, then display the new amount to be paid by a customer. (7mks)

```
Start
        set x as the value of purchase
        set d as the discount
        set y as the new amount to be paid.

            Input x
            If x >= 10,000 Then
                    d = 0.16 * x
                    y = x - d
            Else If x > 5000 Then
                    d = 0.10 * x
                    y = x - d
            Else
                    y = x
            End If
            End IF
            Print y                         7 Marks
        Stop
                    NOTE: Accept any correct Pseudocode.
```

17. a) What is meant be each of the following terms as used in data security and controls. (2mks)
   i.   Confidentiality

   - Sensitive data or information belonging to an organisation or government should not be accessed by or disclosed to unauthorised people.

   ii. Threats

   - Circumstances that have the potential to cause loss or harm.

b) Jane a form four student was advised to partition a hard disk for her computer. Explain two reasons that may have necessitated this. (4mks)

✓ IF she wants to install two operating systems in one Computer.

✓ To use one of the portion (drive) for Backup purposes.

) If one table in a database contains the fields: **EMPLOYEE – ID, LAST – NAME, FIRST – NAME** and **HIRE – DATE** and another contains the fields **DEPARTMENT, EMPLOYEE – ID** and **SALARY**, it is possible to establish a relationship between the two tables.

i. Name the type of such a database. (1mk)

Ralational database

ii. What type of relationship can be established between the tables? (1mk)

One - to - One

iii. Provide the most appropriate data types for each of the fields. (3mks)

EMPLOYEE_ID   - Text
LAST-NAME   - text
FIRST-NAME   - text
HIRE-DATE   - Date/Time
DEPARTMENT   - Text
SALARY   - Currency

....
....
....

d) A publishing firm designed the following publication using a DTP software.

SALE!! SALE!! SALE!!

COMPUTER SALES

10% OFF

Welcome to the exciting sale of:

All at 10% off

- ✓ **Laptops**
- ✓ **Desktops**
- ✓ **CD & DVD**

i. Give two reasons why the firm prefer using DTP instead of Word Processors. (2mks)

✓ DTP provide wide range of templates.
✓ Master pages are used to set common layout
✓ Every item on a page is contained in a frame and can be edited and formatted independently.

Any 2×1 = 2

ii. Identify four formatting features used in the designing the publication. (2mks)

Bolding
Underline
Italicising
Drop cap
Bullets
Font (style, size and type

Any 4×½ = 2

Accept any correct formatting feature which can be identified in publication above.

18.a) i) Give any TWO ways of representing a negative number in computer system.

(2 marks)

................Sign bit

................Ones Complement

................Twos Complement .... Any 2×1=2

ii) The following eight-bit pattern represents the two's complement of an integer: 110001001. What is the decimal equivalent?

(2 marks)

......Its 1's Complement is 00111O110 ✓ ½

......Its 2's Complement is 00111O111 ✓ ½

= 119$_{10}$ ANS ✓ (1) 2Mks

iii) Subtract the binary number 0011001 from 10110010. (2 marks)

..........10110010

.... − 0011001

..........1001100$_2$ ✓ 2Mks

b) Describe the following types of errors in data processing, giving examples.

(3mks)

(i) Truncated

..........Shortening or cutting off part of a number or a word.