

451/1

COMPUTER STUDIES

FORM THREE

PAPER 1

MARKING SCHEME

1. For each of the following file organization methods state an appropriate storage medium

- (i) Serial
 - *Magnetic tape.*
- (ii) Random
 - *Hard disk*
 - *Optical Disks*
 - *Flash Disk*
 - *Memory card*

Award 1 mark each max 2

2. State three criteria of choosing an operating system

- *Hardware specification*
- *Cost*
- *Security*
- *Application intended*
- *Available documentation*
- *User friendliness*
- *Application program to be installed.*

Award 1 mark each max 3

3. Suggest how technological advancement in ICT can be used to make the computer more user friendly for persons that are

- (i) Blind
 - *Design Braille keyboards to allow them issue instructions using braille*
- (ii) Without hands
 - *Design computers that use voice input*

Award 1 mark each max 2

4. Describe how each of the following would affect the suitability of a room for use as a computer room

- (i) Burglar proofed doors
 - *Enhances security of computers, programs and data by preventing entry of users with malicious intentions.*
- (ii) Availability of Taps and sinks
 - *Taps and sinks are not ideal in a computer lab since water may damage the sensitive parts of the computer.*

Award 1 mark each max 2

5. Give three methods that are used to transform an object in DTP

- **Cropping.**
- **Resizing.**
- **Rotating.**

Award 1 mark each max 3

6. A computer student from Mbita High school typed Smith instead of Simth and 3455 instead of 3456

(i) Identify the type of error in each case

- **Simth instead of Smith- transposition error.**
- **3455 instead of 3456- misreading error.**

Award 1 mark each max 2

(ii) Explain how the error can be controlled

- **Using methods that capture data direct from the source.**
- **Enforce data validation**
- **Perform data verification**

Award 1mark each max 2

7. Typing in Ms-Word is easier and efficient. Give three features that make this possible

- **Autocomplete.**
- **Autocorrect.**
- **Word wrap.**

Award 1 mark each max 3

8. Describe three reasons why primary storage is not used for secondary storage

- **Primary storage is volatile hence data keeps on getting lost**
- **Primary storage devices have a lower storage to be used for secondary storage.**
- **Primary storage is more expensive**

Award 1 mark each max 3

9. List two arithmetic operations that can be performed on a row of numeric in a word processing table

- **Addition.**
- **Average.**
- **Multiplication**

Award 1 mark each max 2

10. One of the tasks of an operating system is to allow communication between the computer and the user. Give three platforms created by operating systems to allow users to communicate with the computer

- **Command line**
- **Menu driven**
- **Graphical user interface**
- **Voice recognition**

Award 1 mark each max 3

11. Describe the following terms as used in data security

(i) Threat

- **Potential danger to an information system.**

(ii) Vulnerability

- **Weakness in a system which may be exploited to cause harm on it.**

Award 1 mark each max 2

12. Give three ways you can wrap text on an object in DTP publication

- *Square*
- *Tight*
- *Through*
- *Top and bottom*

Award 1 mark each max 3

13. Name three change case options supported by Ms-publisher

- *Normal*
- *Small caps*
- *All caps.*

Award 1 mark each max 3

14. Describe two reasons which make laptops suitable for personal computing

- *They are portable hence one can carry them along.*
- *Have inbuilt batteries enabling them to be used in places without power.*
- *Have key peripheral devices integrated together thus easy to handle*
- *Have advanced power management capabilities.*

Award 1 mark each 2

15. State three damages that a computer virus may cause to computer

- *Destroy boot files causing boot failure*
- *Deleting files from computer causing data loss*
- *Making file inaccessible disrupting the normal operation of the computer*
- *Increasing the file sizes which eventually slows the speed of the computer*

Award 1 mark each max 3

16.

(a) Describe three language processors used in programming

- *Assemblers- convert assembly language source code to object code.*
- *Interpreters- convert high level programming source code to object code line by line.*
- *Compiler- convert entire high level programming language source code to object code.*

Interpreter evidence of line by line

Compiler evidence of entire

Award 1 mark each max 3

(b) Identify the programming languages represented by the source code shown below

```
<!DOCTYPE html>
<html>
<head>
<title> RIZZY
</title></head>
</html>
```

Figure 1

```
program
writeDemo(output);
var
    x: integer;
begin
    x := 10;
    WriteLn(output,
```

Figure 2

```
MOV AL, 1h
MOV CL, 2h
MOV DL, 3h
```

Figure 3

- *Figure 1: Web scripting language.*
- *Figure 2: Third generation language/ Procedural/ Structured Language.*

Figure 3: Assembly language.

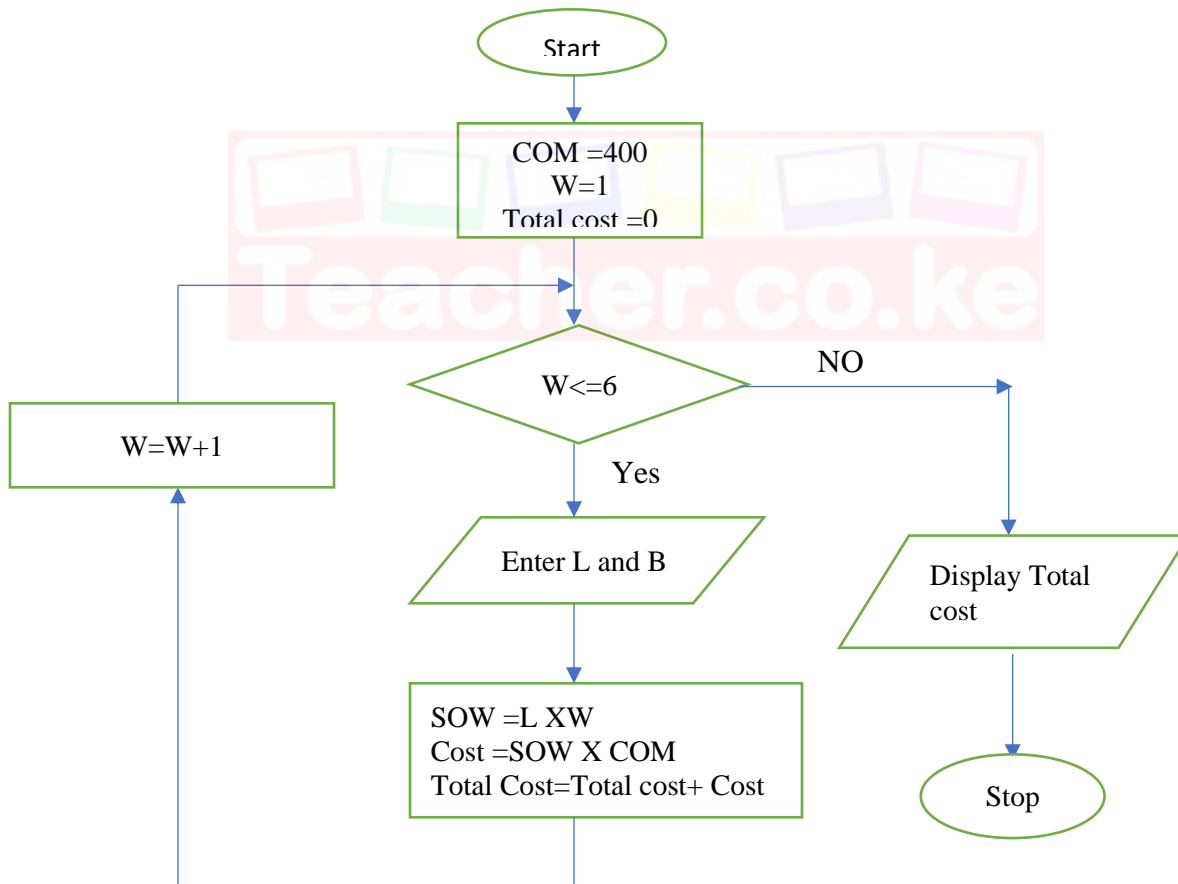
Award 1 mark each max 3

(c) Draw a flowchart which can be used to design a program to work out the cost of covering the windows of a house with curtains given that; (9marks)

- Number of windows are six
- The area of the window is in square meters (SOW)
- The cost of material per square meter is (COM) is 400
- The length of a window is (L) and the breadth (B) in meters.

The Program should;

- Calculate the Area in square meters (SOW) required for each window and the cost per window.
- Calculate the total cost for the six windows.
- Print the total cost of the material required



Start = ½ mark
 Initialization = 1mark
 Condition $W \leq 6$ 1mark
 Enter L and B 1mark
 Computation of SOW, Cost and Total cost 2
 $W = W + 1$ 1mark
 Display Total cost 1mark
 Stop ½ mark

17.

(a) Convert $\frac{12}{32}$ base 10 to binary number system

(3marks)

$$\frac{12}{32} = 0.375$$

0.375×2	$= 0.75$
0.75×2	$= 1.5$
0.5×2	$= 1.0$

0.011_2

(b) Convert 1001011.01010_2 to decimal number

$$\begin{array}{rcccccccc} 6 & 5 & 4 & 3 & 2 & 1 & 0 & \\ 1 & 0 & 0 & 1 & 0 & 1 & 1 & \\ 64 & + & & 8 & + & 2 & + & 1 = 75 \end{array}$$

$$\begin{array}{rcccccc} -1 & -2 & -3 & -4 & -5 & \\ 0.0 & 1 & 0 & 1 & 0 & \end{array}$$

$$0.25 + 0.0625 = 0.3125$$

$$75.3125_{10}$$

(c) Subtract 1101.01111_2 from 110111.11001_2

(3marks)

$$\begin{array}{r} 110111.11001 \\ - 1101.01111 \\ \hline 101010.01010 \end{array}$$

(d) Using twos complement subtract 29_{10} from 23_{10} leave your answer in decimal notation

(3marks)

$$29 = 11101$$

$$00010 \dots I_c$$

$$+1$$

$$00011 \dots 2c$$

$$23 = 10111 + 00011 = 11010 - 1 = 11001$$

$$\text{Recompliment } 11001 = 00110 = 6$$

$$= -6$$

(d) Arrange the following numbers in order from smallest to largest

(3marks)

110011_2 , $1FH$, 67_8 and 45_{10}

Convert to the same number system decimal

$$110011 = 51$$

$$1FH = 31$$

$$67_8 = 55$$

$$45$$

$$1FH, 45_{10}, 110011_2, 67_8$$

18.

(a) Describe the following database features

- (i) Macro
 - **Database feature used to automate frequently performed tasks.**
- (ii) Module
 - **Inbuilt programming environment used to automate database operation.**
- (iii) Table
 - **Database structure used to hold related records.**

Award 2 marks each max 6

(b) Study Table A and B then use it to answer questions that follow

Table: A

Field Name
ID Number (PK)
Last Name
First Name
Address
Town

Table: B

Field Name
ID Number
Product ID(PK)
Product Name
Unit cost
Quantity
Date of Birth
Total

- (i) Identify the most appropriate data type for ID Number, Product Name and Quantity
 - **ID number- short text**
 - **Product name- short text**
 - **Quantity- number**

Award 1 mark each max 3

(ii) Given that the data type for Total is calculated write an expression to be entered in the expression builder

- **Total:[Unit cost]*[Quantity]**

To score the field names must be the same with the ones on the table

Award 2 mark max 2

(iii) Suggest how date birth can be validated to accept dates in 2025 only

- **>=#01/01/2025# AND<=#31/12/2025#**

Award 2marks max 2

(iv) Explain how a relation can be created between Table A and B

- **The relationship between Table A and B is one to Many and this is created by linking ID Number in Table which is a primary key field and ID number in table B which a foreign key**

Award 1 mark max 1 for citing the relationship

Award 1mark max 1 for stating how the fields are linked

19.

(a) Describe three component of a formula as used in spreadsheet

- **Equal sign- (=) marks the beginning of a formula.**
- **List of values to be acted up represented using their cell reference Like A1,B1 and C3**
- **Arithmetic operators used to perform the operation = B1+C2 the plus in between B1 and C2 is the arithmetic operator**

Award 1 mark each max 3

(b) Explain why spreadsheet is suitable for the following applications

(i) Statistical

- **It has numerous statistical function like Mean, media, mode and Ranks that are used to perform simple and complex statistical analysis.**
- **It also has the ability to represent base data in graphical format which is easy to interpret**

Award 1 mark each max 2

(ii) Accounting

- **Since accounting require arithmetic manipulations, it has functions and formulas to carry out arithmetic manipulations.**
- **Support automatic recalculation**
- **Spreadsheet have a ledger layout which forms the basis of a accounting books**

Award 1 mark each max 2

(c) A form two student was feeding data in a Ms-excel table. He keyed in half in cell and then the cell displayed 02-Jan after pressing the enter key. State the cause of this anomaly and how it can corrected

- **The number format in cell does not accept fraction**
- **Change the number format in the cell to fraction**

Award 1 mark each max 2

(d) The formula =C1+\$D\$2 was typed in Cell G3. State how the formula will appear if it copied to cell H4

- **=C2+\$D\$2**

Award 2marks max 2

(e) The table below is an extract from a spreadsheet application used to capture remedial lessons a teacher cover per day in a school, use it to answer the questions that follow

	A	B	C	D	E	F	G
1	Mon-Fri Rate	300					
2	Saturday Rate	500					
3	Teacher	Mon	Tues	Wed	Thur	Fri	Sat
4	Mr.Kimani	1	0	3	2	1	2
5	Ms. Wamalwa	1	2	1	3	3	2
6	Mr. Kizito	2	1	1	1	1	1
7	Mr.Mugambi	1	1	1	1	1	3
8	Mr.Kirui	1	1	1	1	1	3

(i) The school have a policy of paying for this service in two installments. Lessons taught from Monday to Friday are paid on Friday while Saturdays are settled on Sundays. Write a formula that will computer

Amount paid to Teacher on Friday

- **=sum(b4:F8)*\$B\$1**

Award 2marks max 2

Total Amount paid for week

$$= (sum(b4:F8)*\$B\$1) + ((g4+g5+g6+g7+g8)*\$b\$2)$$

Award 2 marks max 2

20.

(a) What is Internet Service Provider

- ***Refers to a company that provides internet services.***

Award 2marks max 2

(b) Below is an email address name the parts labelled A,B, C and D

risperjuma@malipolink.co.ke

A
B
C
D

- ***A-username.***
- ***B-at.***
- ***C-domain name.***
- ***D-top level domain***

Award 1/2 each max 2

(c) Give three ways which parents can protect their children from accessing inappropriate content from the internet

- ***By blocking sites with inappropriate content.***
- ***By guiding and counselling their children.***
- ***Controlling access remotely using google platform***

Award 1 mark each max 3

(d) Describe three ways in which the use of Internet make reporting of corruption easier

- ***CCTV and digital cameras capture corruption activities taking place***
- ***Through sharing of corruption videos through platforms like WhatsApp.***
- ***Internet platform help the public to report corruption cases with identify concealed.***

Award 1 mark each max 3

(e) Explain three problem associated with using email technology for communication

- ***Email technology facilitates transfer of malicious programs***
- ***Intrusion of privacy since hacker tend to access other peoples' account without their permission***
- ***Email technology is limited to internet connectivity and cannot be used in areas without internet connectivity***

Award 1 mark each max 3

(f) Describe the following internet features

- (i) Inbox
 - ***An inbox is an email location where all incoming emails are stored in an email account.***
- (ii) Junk
 - ***Designated location within your email account where unwanted or unsolicited messages are automatically filtered. This helps keep your inbox clutter-free and allows you to focus on more important emails.***

Award 1 mark each max 2