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
	Overall		**200**	**109.54**	**30.00**
2008	451/1	**5498**	100	38.78	15.64
	451/2&3		100	53.13	15.74
	Overall		**200**	**91.66**	**29.46**
2009	451/1	**6115**	100	45.41	16.48
	451/2&3		100	50.93	16.39
	Overall		**200**	**96.33**	**30.92**

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 1***(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

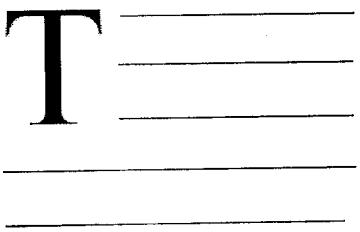
(a) Name the two files commonly used in mail merge (1 mark)
(b) Name and explain the **two** types of drop caps. (2marks)

Requirements

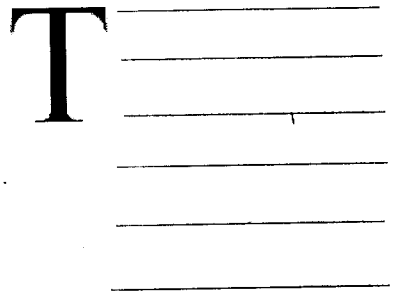
Naming two files commonly used in mail merge and also naming and explaining two types of drop caps.

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



½ mark for description / illustrations
In margin ½ mark
The dropped character is within the left margin



½ 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.

(a) Write an expression you would use to compute the year of birth of a student Using this year as the current year.

(b) What query expressions would the lecturer use to list the students whose Age is above 15 years and below 25 years?

(c) Which expression would the lecturer use to generate:
  (i) the number of students in the database?
  (ii) the mean age of the students in the database?

(d) 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 *Non redundancy *Related data items are stored in a table(or relations) *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 *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 * 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:

Currency	*CBK Mean Rate (Ksh)*
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.

Name	*U.S Dollars*	*Sterling Pounds*	*Euros*	*S.A Rands*	*Swedish Kroner*
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:

Name	*U.S Dollars*	*Sterling Pounds*	*Euros*	*S.A Rands*	*Swedish Kroner*
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^{o}
- Centre vertically all the records.

Requirements
Candidates were supposed to centre text vertically and to change text direction to 45^{0}

Weaknesses
The main weakness was on centring vertically.

Advice to the teachers
To give more exercises on formatting text orientation.

29.14 COMPUTER STUDIES (451)

29.14.1 Computer Studies Paper 1 (451/1)

SECTION A (40 marks)

*Answer **ALL** the questions in this section in the spaces provided.*

1 Give a reason for each of the following:

(a) changing a password regularly; **(1 mark)**

(b) typing and re-typing a new password when changing it. **(1 mark)**

2 With reference to quality of print, noise level and cost, compare a dot matrix with a Laser printer. **(3 marks)**

3 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	8,565.00	60	
3.	128 MB Ram	4,950.00	40	
4.	Pentium IV Processor	13,525.00	55	
5.			Total	

(a) Write the formula that can be used in:

(i) D2 **(1 mark)**

(b) 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. **(2 marks)**

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

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

(a) embedded object

(b) autoflow.

6 (a) Name **four** approaches that may be used to replace a Computerised Information system. **(2 marks)**

(b) Which of the approaches named in (a) above is appropriate for critical systems? Explain. **(2 marks)**

7 Explain the following operating system functions:

(a) job scheduling; **(1 mark)**

(b) interrupt handling. **(1 mark)**

8 Name **four** toggle keys on a standard computer keyboard. **(2 marks)**

9 A computer user typed the name Kajiado as **Kajaido** and 8726 as 8126.

(a) State the type of each error. (1 mark)

(b) Explain how such errors can be controlled. (2 marks)

10 Describe Third Generation Languages and name **two** examples. (2 marks)

11 (a) (i) What is an internet protocol (IP) address? (1 mark)

(ii) Why is an IP address necessary? (1 mark)

(b) What is the purpose of the following internet domains? (1 mark)

(i) .org

12 (a) Name **two** types of buses found on the computer motherboard. (2 marks)

(b) State the purpose of each of the types of buses named in (a) above. (2 marks)

13 (a) Name the **two** files commonly used in mail merge. (1 mark)

(b) Name and explain the **two** types of dropcaps. (2 marks)

14 Give **three** ways in which horticultural farmers can benefit from the use of Information and Communication Technology (ICT). (3 marks)

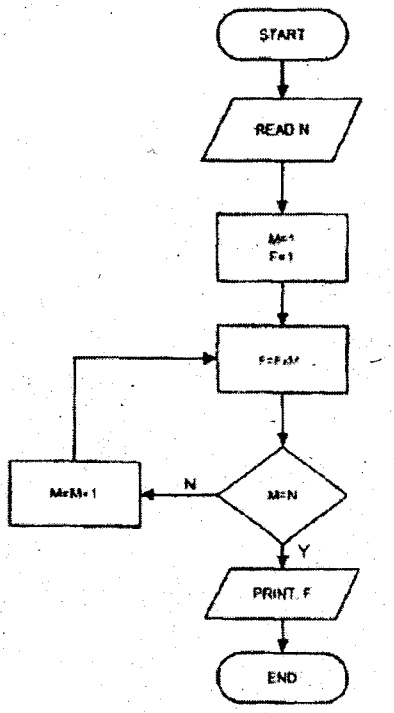
15 Arrange the following job titles in the order of their seniority.

Database administrator, ICT manager, Systems analyst. (1 mark)

SECTION B (60 marks)

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

16 Study the flowchart below and answer the questions that follow.



(a) What would the flowchart generate as output if the value of N at input was:

(i) 6? (2 marks)

(ii) 12 (2 marks)

(b) Write a pseudocode that does the same thing as the flowchart above. (7 marks)

(c) Modify the flowchart so as to reject an input below 0 and to avoid the looping when the input is 0. (4 marks)

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

(a) Write an expression you would use to compute the year of birth of a student using this year as the current year. (2 marks)

(b) What query expressions would the lecturer use to list the students whose age is above 15 years and below 25 years? (3 marks)

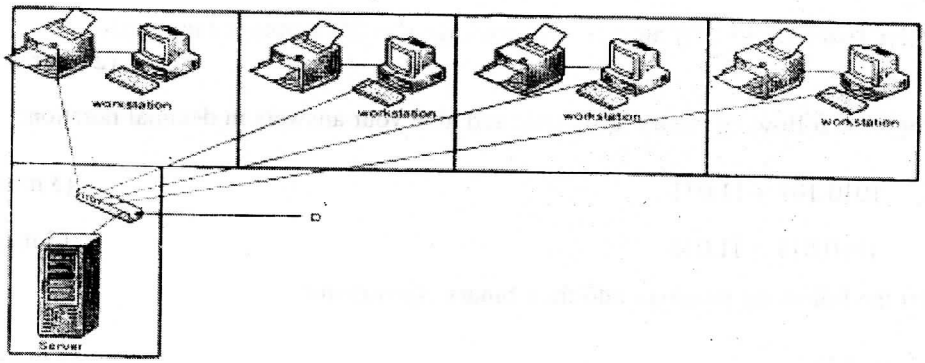
(c) Which expression would the lecturer use to generate:

(i) the number of students in the database? (2 marks)

(ii) the mean age of the students in the database? (2 marks)

(d) Name and describe any **two** types of database models. (6 marks)

18 (a) The diagram below shows a layout of a computer network used by a law firm. A workstation and a printer are located in every consulting room.



(i) Name the network topology depicted in the diagram. (1 mark)

(ii) Name the device labelled D. (1 mark)

(iii) State **four** functions of the device labelled 'server'. (4 marks)

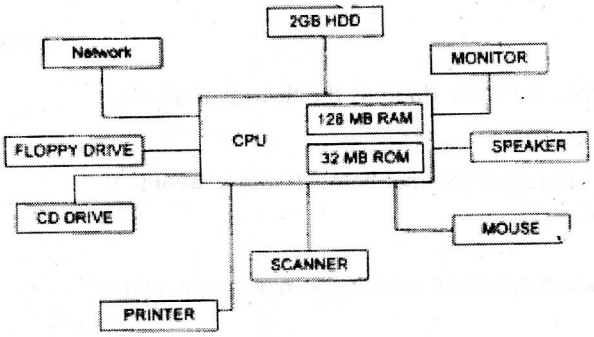
(iv) Give **two** advantages and **one** disadvantage of the above network design. (3 marks)

(v) If the firm intends to open extra offices in two different towns, name any **three** hardware devices that would be required. (3 marks)

(vi) State any **two** security problems that might arise by linking the offices in different towns. (2 marks)

(b) What is spyware? (1 mark)

19 (a) Study the following diagram and answer the questions that follow.



From the diagram:

(i) Name **two** devices that are used for long term storage. (2 marks)

(ii) Name **three** peripherals shown on the diagram that are used for input. (3 marks)

(iii) Name **two other** devices that a Computer Aided Design (CAD) user might wish to add to the set-up above. (2 marks)

(b) A customer wishes to purchase a computer system. The customer can buy word processor, spreadsheet, database and a drawing package separately or as an integrated package. State **three** advantages why many computer users prefer integrated packages to separate packages. (3 marks)

(c) (i) An anti-virus software installed in a computer is loaded into the main memory each time the computer is switched on.
Explain **three** ways in which computer viruses are spread from one computer to another. (3 marks)

(ii) Give **two** reasons why an anti-virus package should be updated regularly. (2 marks)

20 (a) Perform the following binary arithmetic and give your answers in decimal notation:

(i) 1010.101 + 11.011 (3 marks)

(ii) 1010.011 – 11.011 (3 marks)

(b) Covert the following numbers into their binary equivalents:

(i) 0.5625_{10} (3 marks)

(ii) 0.3125_{10} (3 marks)

(c) Using four-bit twos compliment, perform the following arithmetic (3 marks)

$101_2 - 111_2$

29.14.2 Computer Studies Paper 2 (451/2)

1 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. (2 marks)

(b) The heading 'Digital Bulletin' to have the following styles; (4 marks)
- Centred across the page
- Font face: Arial
- Font size: 45
- Background colour: grey

(c) The other two headings in the publication to have the styles:
- Font face: Arial narrow
- Font size: 20
- Text weight: Bold
- Character spacing: 150%
- Alignment: centred across the page (5 marks)

(d) The text under the heading 'Basic Networking and Connectivity' to be in three columns and having the following styles: (22 marks)
- Font size: 14
- First character of the paragraph to have a 3 lines dropcap
- Hyphenation: disabled
- Fully justified

(e) The text under the heading 'Antivirus Information Corner' to be in a single column. (3 marks)

(f) Design the Mercury Digishop advertisement in the position shown. (10 marks)

(g) Insert the two lines of 4 and 0.75 points respectively in their positions. (3 marks)

(h) Print the publication. (1 mark)

Digital Bulletin

Basic Networking and Connectivity

The ability to expand beyond the limit of a single computer in a single office has extended the reach of the PC to global proportions. Two technologies have driven this expansion; a Computer network and the global network known as the Internet.

A network is defined as two or more computers linked together for the purpose of communicating and sharing information and other resources. Most networks are constructed around cable connection that link computers. This connection permits the computers to *talk* (*and listen*) through a wire. More recently, a number of wireless solutions have become available. Infrared ports, Bluetooth, radio links and other protocols allow variety of new devices to link with PCs. In order for the network to function, three basic requirements must be met:

- The network must provide connections, communication and services.
- Connection include the hardware (physical components) required to hook up a computer to the network.
- Communication establishes the rules concerning how computers talk and understand each other. Computers often run different software and therefore they must speak a shared language.
- A service defines those things a computer shares with the rest of the network. For example, a computer can share a printer or specific directories or files. Unless computers on the network are capable

Antivirus Information Corner

Viruses are small programs that hide themselves on your disks (diskettes and hard disks). Unless you use virus detection software the first time that you know that you have a virus is when it is active. Different viruses are activated in different ways, for instance, the famous Friday the 13th Virus will activate only when it is both a Friday and the 13th of the month. **Be aware, virus can destroy all your data.**

Published by Elimika Secondary School and Printed by BlueText Printers Ltd

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

Currency	*CBK Mean Rate (Ksh)*
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.

Name	*U.S Dollars*	*Sterling Pounds*	*Euros*	*S.A Rands*	*Swedish Kroner*
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:

Name	*U.S Dollars*	*Sterling Pounds*	*Euros*	*S.A Rands*	*Swedish Kroner*
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. (13 marks)

(b) Using formulae with absolute and relative cell references, determine the total profit made by each trader. (14 marks)

(c) Format the profit for each trader to zero decimal places. (2 marks)

(d) Create a well labelled bar graph on a different worksheet showing the cost incurred on buying US dollars by each trader. (13 marks)

(e) Use a function to determine the trader who got the highest profit. (3 marks)

(f) Format the first table as follows:

- Set the direction of the labels to 45^{0}. (2 marks)
- Centre vertically all the records. (1 marks)

(g) Print the worksheet and the graph. (2 marks)

30.22.1 Computer Studies Paper 1 (451/1)

1 a) - To ensure that no one else / unauthorized person has access to the password/system *(1 mark)*
(Any reason related to security of the password)
b) – To ensure certainity of the chosen password *(1 mark)*

2.

	Dot matrix	Laser printer
Quality	Low quality	High quality
Noise	Noisy	Silent
Cost	Cheaper	Expensive

3 a) (i) =B2 *C2 or =PRODUCT(B2,C2) OR =PRODUCT(B2:C2) (1Mark)
(ii) =Sum(D2:D4) or =D2+D3+D4
or =(B2*C2) +(B3*C3)+(B4*C4) (Any @ 1 *mark*)

(b) = B2*1.16 *C2 *0.9 or =B2*116%*C2*90% or =(B2+B2*0.16)+(C2*0.1)
VAT- *(1 mark)*
Order- *(1 mark)*

4. Uses of computers in meteorology
- Data collection from the environment
- Analysis of complex weather patterns
- Weather forecasting

Answer should be tied to meteorological functions
Any @ 1 *mark* each

5. 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)*

6. a)
- Parallel
- Pilot
- Phase-in/phase out(phased stage)
- Direct

(½ mark each)

b) Parallel changeover **(1 *mark*)**
Reason: The system operations are not interrupted prior to the changeover in terms of time and quality of production *(1 mark)*

7 a) Job scheduling – where job/ tasks are assigned to the processor and main memory depending on their priority *(1 mark)*
b) Interrupt handling- halting of other processes taken by the processor so as to attend to remote enquiries or halting a processor for another task to be performed. *(1 mark)*

8. Toggle keys
- Caps Lock
- Num Lock
- Insert key/OVR
- Scroll Lock

(½ mark each)

9 a) Transposition error- Kajiado as Kajaido
Transcription/ misreading- 8726 as 8126 *(1 mark)*

b) Control of the errors is through

- Proofreading
- Spellchecking
- Double entry
- Improve legibility
- Use of direct data capture devices
- Being careful when typing
- Validation of input data

(any two @ 1 mark)

10. Third generation languages are imperative programming languages or structured languages that use English like statements in coding. They require compilation/translation to machine language equivalent by use of compilers or interpreters. They do not have database manipulation capabilities.
Examples: COBOL, FORTRAN, LISP, ALGOL, C, ADA, PASCAL, BASIC…. others
Describe (1 mark)
Examples (@ $^1/_2$ mark each)

(2 marks)

11. (a) (i) Unique number/name/identification code assigned to a computer/network resource that identifies a computer in a network
(1 mark)
(ii) Purpose: Uniquely identifies a computer in a network
(1 mark)

b) (i) .org - NGO's, nonprofit making bodies
(ii) .gov- Government bodies

(2 marks @ $^1/_2$ mark each)

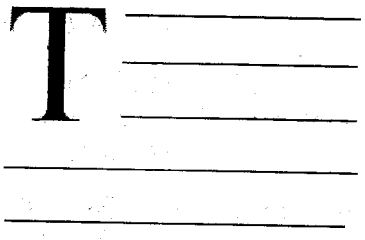
12. a) Address bus
Data bus/SATA bus/IDE/ATA/ I/O
Control bus

(any 2@1 mark each)

b) Address bus - Memory location/used to locate storage positions/transmit memory locations
Data bus- Data transmission
Control bus- Transmit control signals/ transmit instruction signals
(2marks)

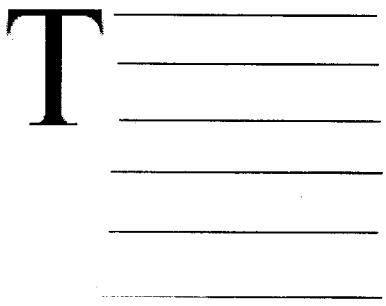
13 (a) Main /Primary/standard document
Data source/secondary @ $^1/_2$ *mark* each

(b) Dropped $^1/_2$ *mark*
The dropped character is within the paragraph



$^1/_2$ *mark* for description / illustrations

In margin $^1/_2$ *mark*
The dropped character is within the left margin



½ *mark* for description / illustrations

14. ICT serves as a:
- Source of information for the best farming practices
- Searching tool for best markets for their produce and the cheapest suppliers for farm inputs
- Marketing tool for farm produce/products
- Medium for transactions including EFT by the farmers
- Manage greenhouses

Rule : A technology and farm activity have to be there in the answer

(Any 3 @ 1 mark each)

15. Either
- ICT manager
- Systems Analyst
- Database Administrator

Or
- Database Administrator
- Systems Analyst
- ICT manager

Systems analyst should be in the middle

(1 mark)

16. (a) (i)

M=1
F=1

M	F
1	1X1=1
2	1X2=2
3	2X3=6
4	6X4=24
5	24X5=120
6	120X 6=720

OR 720 ***(2 marks)***

(ii) M =1
F=1
F=FXM=1X1
M=N=Yes ***(2 marks)***

b) Pseudo code

1. Read N
2. M=1 F=1
3. Repeat steps 4 and 5 while M<N
4. F= F*M
5. M=N
   M=M+1
6. Print F
7. Exit

Or

```
Read N
M=1
F=1
Repeat
F=F*M
M=M+1
Until M=N
Print F
End
```

Or

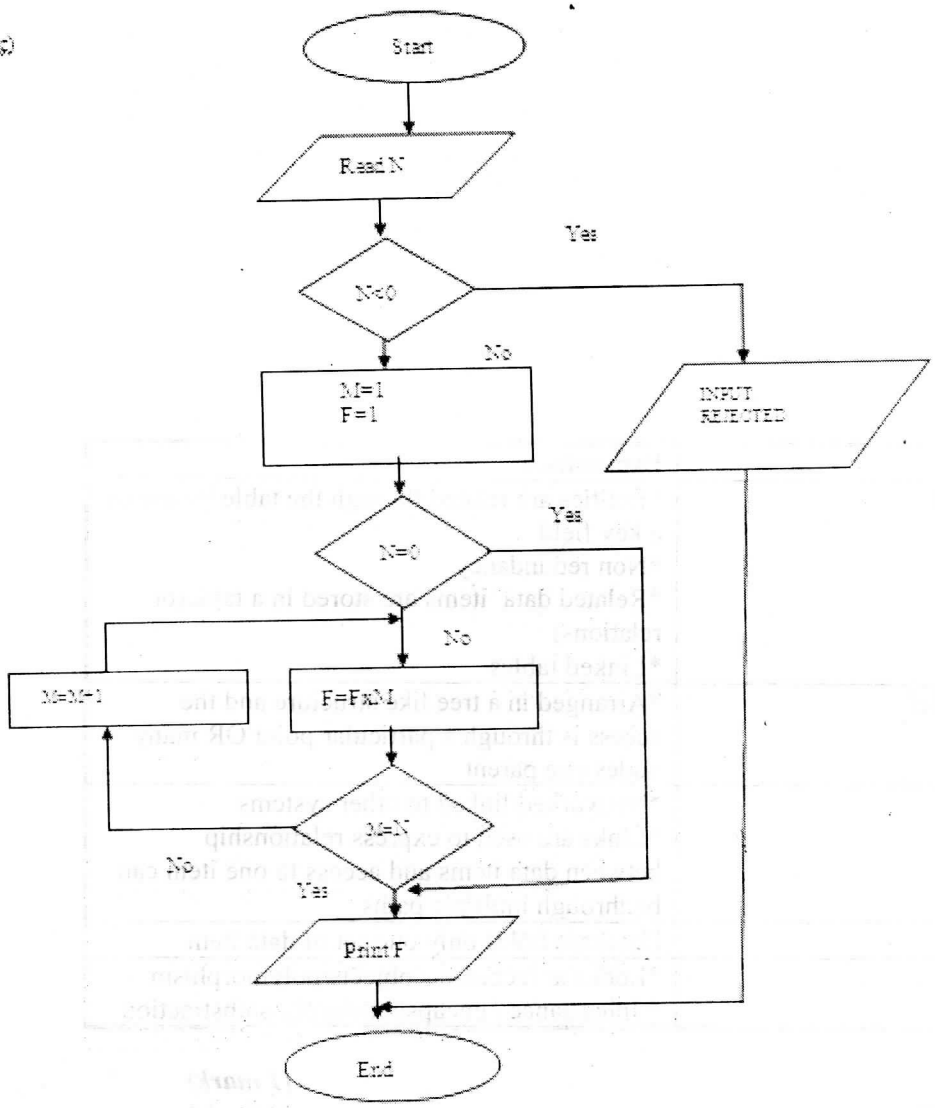
```
Read N
M=1
F=1
For(i=1, M<>N,i++)
F=FxM
M=M+1
Print F
```

Or

```
Read N
M=1
F=1
While M<>N Do
Begin
F=FxM
 M=M+1
End
Print F
```

Any pseudo code like the above ***(@ 7 marks)***

16. (a)



(4marks)

17 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 *Non redundancy *Related data items are stored in a table(or relations) *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 *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 * Inheritance / encapsulation/class/abstraction

18. (a) (i) Star *(1 mark)*

(ii) Hub or Switch/Router *(1mark)*

(iii)

- File sharing
- Manage users accounts
- Manage host applications
- Manage files/store/hold files for other workstations
- Control the use of resources
- Can be a link to another network/gateways
- Manage/control workstations
- Contain programs which are used by workstations
- Receives request/information from and to the workstations *(Any four @ 1 mark each)*

(iv)

Advantages

- Allow for concentration of network resources
- Give administrator central focal point for management
- Easy to configure/downgrade/upscale
- Easy to trouble shoot
- Faster connection
- Each work station does not have to queue for printing
- If a link to one of the workstations breaks down, the others can continue functioning independently

(Any two @ 1 mark each)

Disadvantages

- Costly to install
- Costly to install because each workstation has a its own printer
- Uses more cables than ring and bus topologies
- In case the server or the hub fails the network facilities are lost.
- Installation is time consuming because each node forms a segment of its own.

(Any one @ 1 mark)

(v)

- Server
- Modem
- Router
- Firewall
- Extra cables
- Repeater
- Bridge
- Transceiver
- Satellite dishes
- Printers
- Keyboard
- Monitor
- Telephone line

(Any three @ 1 mark each)

(vi)

- Hacking
- Tapping/trespassing
- Virus infections
- Vandalism of cables
- Cracking

(Any two @ 1 mark each)

(b)Spyware :- rouge /malicious program for spying/collecting information e.g. passwords from other systems without the user knowledge. ***(1mark)***

19) (a) (i)

- ROM
- Hard disk 2GB HDD

(2*marks*)

(ii)

- Scanner
- Mouse
- Floppy drive
- CD Drive
- Network
- HDD drive

(Any three @ 1 mark each)

(iii)

- Plotter
- High resolution graphics adapter/SVGA/XVGA
- Graphic tablet
- Digitizer
- Light pen
- Touch screen

(Any two @ 1 mark each)

(b)

- one can switch between applications fast/easily
- integrated use less storage space due to sharing of the some applications
- they are cheaper
- easier to install
- easier to learn since they have related features/to use
- maintenance is easier since only one vendor will be responsible in case of any problem
- Ease of transfer of data from one application to the other.

(Any three @ 1 mark each)

(c) (i)

- using storage media from infected computer
- internet use browsing
- Downloading files
- Through the network
- Opening unsolicited /questionable mails
- Playing fake games/using fake games
- Use of pirated software
- Freeware/shareware. **(Any three @ 1 mark each)**

(ii)

- To enable remove upcoming viruses/new viruses
- For maintenance purposes (patches)
- To upgrade/replace outdated antiviruses. ***(Any two @ 1 mark each)***

20)

(i)

1010.101
+ 11.011
1110.000_2 ***(2 marks)***

14_{10} ***(1 mark)*** (ECF)

(ii)

1010.011
- 11.011
1110.000 ***(2 marks)***

7_{10} ***(1 mark)*** (ECF)

(b) (i)

0.5625
x2
1.1250 1
x2
0.2500 0
x2
0.5000 0
x2
1.0000 1

Mark in pairs
(ECF)
Max of 2 *marks* @ 1 *mark* a pair

0.1001_2 1*mark* (consider ECF)

(ii)

0.3125		
x2		
0.6250	0	
x2		Mark in pairs
1.2500	1	(ECF)
x2		Max of 2 *marks* @ 1 *mark* a pair
0.5000	0	
x2		
1.0000	1	

0.0101_2 1*mark* (consider ECF)

(c) 101 ⟶ 0101 } conversion into four bits = ***(1 mark)***
111 ⟶ 0111 }

0111 ⟶ 1000 Switching of bits. ***(½ marks)***
+1 Adding 1 ***(½ marks)***
1001

Final

0101
1001
1110 Ans ***(1 mark)***

30.22.2 Computer Studies Paper 2 (451/2)

1.

(a)	Settings to cm All margins 2cm pgm-20cm	1 mark 1 mark	***(2 marks)***
(b)	• Centered title • Font style • Font size = 45 points • Grey background	1 mark 1 mark 1 mark 1 mark	***(4 marks)***
(c)	Heading styles • Font face = Arial • Size = 20 points • Weight = bold • Character spacing • Alignment -centre	 @ 1 mark @ 1 mark @ 1 mark @ 1 mark @ 1 mark	***(5 marks)***
(d)	Word Count • 8 paragraphs • Style • Size = 14 • First line indent • Hyphenation disabled • Justification = Full • Superscript 13^{th} x2	 @ 2 marks 1 mark 1 mark 1 mark 1 mark 1 mark 1 mark	***(22 marks)***
(e)	• Drop cap • Lines to drop • Single column	1 mark 1 mark 1 mark	***(3 marks)***

(f)	Advertisement • Two text boxes • Text box formatting • Text formatting • Position w.r.t text • Text box borders	 4 marks 2 mark 2 mark 1 mark 1 mark	 ***(10 marks)***
(g)	Each line with formatting Text below the lines 4pts, 0.75pts	2 marks 1 mark	***(3 marks)***
(h)	Print out	1 mark	***(1 mark)***

2. **Spreadsheet.**

2. (a)	• 10 Rows @ 1 mark each • Columns with mean rates @ ½ mark per col • Save • 2 headings correct (½ mark each) • Mean rates @½ mark • Others and copying @½ mark	10 marks 1 mark 1 mark 1 mark	***(13 marks)***
(b)	• Formulae for the first trader(1st currency) • Other currencies 1 mark each • Copy for other traders • Overall sum • Column label	5 marks 4 marks ½x4 = 2 marks 2 marks 1 mark	***(14 marks)***
(c)	• Highlighting range • Formatting to 0 decimal	1 mark 1 mark	***(2 marks)***
(d)	• Title • X – axis • Y- axis • Legend • Correct chart (Bar) • Insert new column • Formulae • Column label • Copying to other cells • Selecting the cells {names and values} • Chart on own sheet	1 mark 1 mark 1 mark 1 mark 1 mark 1 mark 2 marks 1 mark 1 mark 2 marks 1 mark	***(13 marks)***
(e)	• Function (highest profit earner) max. • Correct range • Identify the person {label} and name	1 mark 1 mark 1 mark	***(3 marks)***
(f)	(i) Setting the text direction of labels to 45^0 in the first table. • Selection • the text direction • Centre vertically the records	 1 mark 1 mark	***(2 marks)***
(g)	• Selection • Centering vertically	½ mark ½ mark	***(1 mark)***
(h)	Printing • Worksheet • Graph	 1 mark 1 mark	***(2 marks)***