

# COMPUTER STUDIES

## PAPER ONE

\*NYR\*

1. Identify programming language used in the following generations:-
  - (i) First generations
  - (ii) Second generation
2. Give importance of having the following in computer laboratory:-
  - (i) Standard furniture in the laboratory
  - (ii) Antiglare screen/monitor
  - (iii) UPS
3. (a) Explain the following terms as used in booting:-
  - (i) BIOS
  - (ii) POST(b) Differentiate between:-
  - (i) Backspace and delete keys on the keyboard
  - (ii) Insert and type over mode
4. Explain the functions of the following central processing unit components
  - (i) ALU
  - (ii) Control unit
  - (iii) Primary memory
5. (a) Differentiate between static RAM and Dynamic RAM  
(b) Distinguish between compilers and interpreters
6. (a) List **two** softcopy output devices  
(b) Distinguish between impact and non-impact printers citing one example in each
7. State **two** merits of using the following input devices:
  - (i) Speech recognition
  - (ii) Touch screen
8. Differentiate between freeware and open source as end-user –license softwares.
9. (a) List **four** types of system software  
(b) Explain the following functions of the operating system :-
  - (i) Job scheduling
  - (ii) Interrupt handling
10. Explain the following disk management tools:-
  - (i) Disk formatting
  - (ii) Disk defragmentation
11. Differentiate between the following terms as applied in operating system:-
  - (i) Multi-user
  - (ii) Multi-tasking
12. Explain the following terms as applied in word processor
  - (i) Text wrap
  - (ii) Word wrap
13. (a) Distinguish between first line and hanging indentation  
(b) Differentiate between the following combinations of terms:-
  - (i) Filtering and sorting
  - (ii) Relative and absolute cell referencing
14. (a) Differentiate between the following combinations of terms:-
  - (i) Filtering and sorting
  - (ii) Relative and absolute cell referencing
15. Identify the elements of a function
16. A class teacher of form 3E in Nzambani secondary school requested a programmer to design a simple program that would help do the following:-

- (a) Enter the names of students and marks obtained in 8 subjects; maths, English, Kiswahili, Biology, Chemistry, Business Studies, History and Computer Studies.
- (b) After entering each subject mark the program should calculate for each student
- (c) Depending on the average mark obtained, the program should assign the grades as follows:-
  - Between 80 and 100 = A
  - Between 70 and 79 = B
  - Between 60 and 69 = C
  - Between 50 and 59 = D
  - Below 50 = E
- (d) The program should display each students name, total marks and the average grade. Using a flow chart, show the design of the program

17.
  - (a) Define the following terms in reference to the internet:-
    - (i) Protocol
    - (ii) Website
    - (iii) Search engine
    - (iv) Spam mail
  - (b) List **three** examples of search engines
  - (c) Identify the functions of the following devices in data communication:-
    - (i) Modem
    - (ii) Network interface card
    - (iii) Brouter
  - (d) Describe bounded and unbounded forms of communication giving two examples in each case
  - (e) Outline **four** advantages of using fibre optic cables
18.
  - (a) Define the following terms as used in data representation
    - (i) Amplitude
    - (ii) Frequency
    - (iii) Nibble
    - (iv) Byte
  - (b) Perform the following  $11111.1111_2 + 100001.1010_2 - 1111.00111_2$
  - (c) Using two's complement subtract 73 from 115 and convert the answer to decimal notation
  - (d) Identify the duties of the following ICT specialists
    - (i) Software engineer
    - (ii) System analyst
  - (e) List **two** types of opportunities available in the field of computer hardware
19.
  - (a) Describe the following computer files
    - (i) Logical and physical files
    - (ii) Master and backup files
  - (b) Explain the following computational errors
    - (i) Truncation
    - (ii) Overflow
    - (iii) Rounding errors
  - (c) Define data integrity and state **three** ways of minimizing threats to data integrity
  - (d) Define virtual reality and state **three** ways of minimizing threats to data integrity
  - (e) Discuss how computers are used in reservation systems
20.
  - (a) Explain the main activity carried out in each of the following system development stages
    - (i) Problem recognition
    - (ii) Coding
    - (iii) Implementation
  - (b) Explain the following changeover methods:-
    - (i) Direct
    - (ii) Parallel

- (iii) Phased
- (c) Explain **two** advantages of modular programming
- (d) Explain how the use ICT may affect the society
- (e) Explain the **four** main areas of artificial intelligence

**\*MAT\***

1. Distinguish between white-collar crime and blue –collar crimes
2. Lutomia and Naibei were arguing about computer criminal. They realized four types of criminals namely; thieves, burglars, terrorists, hackers and cracker. Briefly explain difference between hackers and crackers
3. State where the cell pointer on a worksheet moves when the following key combinations
  - a) Ctrl + Home
  - b) Shift + Tab
  - (c) End followed by down arrow key
  - (d) Shift + Enter
4. Explain the meaning of the following domains on a web address
  - (a) .co.ke
  - (b) .ac.uk
  - (c) .or.ug
5. Study the flow chart below and write down the output from the table below is entered. Show your working.

Nambwaya	59	60
Murono	60	62
Kisiang'ani	79	46
Makhanu	41	84

6.
  - (a) Distinguish between a primary key and index key as used in databases
  - (b) Explain the relevance of foreign key in a database entity
7. Briefly explain how the operating system uses interrupt Request (IRQ) numbers to allocate computer resources
8. Name an input or output device used in the following tasks
  - (a) Capturing still images
  - (b) Printing detailed architectural designs
  - (c) Playing flight and driving games
  - (d) Capture data at ATM
9. Outline **three** distinctions between a super computer and microcomputer
10. Briefly explain **four** features of third computer generation
11. Define the following terms as used with the internet;
  - (a) Surf
  - (b) Compose
  - (c) Cookie
12. State **four** reasons why you would advertise a typesetter to use MS Publisher in designing calendar other than MS Word
13. Briefly explain how electronic spreadsheet is used in “What if analysis”
14. The formula = \$A4\*C\$3 was entered in cell D4. What will be the formula if it is copied to cell F10
15. Design a pseudo code for a program that will compute and display the are of a triangle whose base is not less than 10cm

16. Study the flow chart below and attempt questions that follow
- (a) Your working what will be output if the following was entered?
- |             |    |    |    |    |    |
|-------------|----|----|----|----|----|
| Lutomia     | 65 | 50 | 46 | 77 | 76 |
| Naibei      | 60 | 80 | 55 | 81 | 10 |
| Nambwaya    | 80 | 15 | 40 | 82 | 60 |
| Makhanu     | 50 | 35 | 70 | 40 | 43 |
| Kisiang'ani | 30 | 70 | 55 | 60 | 44 |
| Murono      | 60 | 45 | 43 | 77 | 30 |
- (b) Write a pseudo code equivalent for the above flowchart modifying it to compute result of 100 students.
- (c) Name any **two** control structures used in the flowchart above
17. (a) Explain **three** negative impact of ICT on Kenyan culture
- (b) Perform the following arithmetic operations
- $765_8 + 1645_8$
  - $ABCH + D14_{16}$
  - $7112_8 - 767_8$
  - $A146_{16} - BCD_{16}$
- (c) Name at least **two** areas where the following processing modes are used
- Real time processing
  - Distributed processing
  - Batch processing
  - Time sharing processing
- (d) Write the alternative name of the following types of software
- (a) Bespoke
- (b) Vendor-off-the-shelf software
18. (a) Explain RAD and structured approach as methods of system development
- (b) Hassan was designing in out screens for the new school database management system. Outline **three** factors she MUST consider during the designing
- (c) State **four** difference between Low-level and High-level languages to a programmer
- (d) Name any **four** public universities that offer computer courses at degree level
19. (a) Simplex, Half duplex and full duplex are modes o data communication. With examples of where used, explain each of these communication modes
- (b) Distinguish between “wrap text” and “shrink to fit” as used in Microsoft Excel data formatting
- (c) Safaricom has implemented broadband as their modem communication technique. Explain the meaning of broadband communication
- (d) Continuous use of computers has adverse health effects. State **five** ways of averting these effects
20. (a) Artificial intelligence is out to develop devices that emulate a human being in all aspects as applied in expert systems. Explain **three** components of expert systems
- (b) Distinguish between job replacement and job displacement
- (c) State **four** ways in which threats to data integrity may be minimized
- (d) Name **two** programming languages in each of the following:
- OOPe
  - Procedural language
  - 5GLs

**\*KKE\***

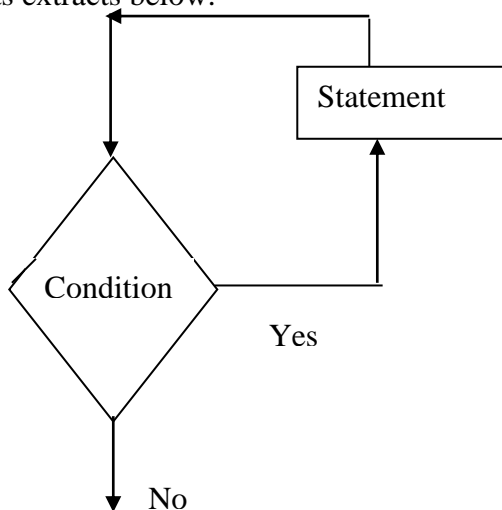
- Distinguish between **ROM** and **RAM**. (2 mks)
- Convert the octal Number  $1111_8$  to its ten equivalent. (2 mks)
  - Convert  $11.011_2$  to a decimal Number. (2 mks)
- Define the following terms with reference to computer crime.
    - Cracking. (1 mk)
    - Hacking (1 mk)

- (b) State any **two** laws governing the information. (2 mks)
4. Distinguish between **job scheduling** and **job sequencing**. (2 mks)
5. List any **four** precautions that must be observed in a computer lab. (2 mks)
6. Mention **four** database models that you have learnt. (2 mks)
7. Differentiate between **a computer operator** and **computer technician**. (2 mks)
8. Define the term '**mail merge**'. (2 mks)
9. (a) What is the advantage of electronic spreadsheet over manual work. (2 mks)
- (b) What is cell replacing? (1 mk)
10. State **two** types of desktop publishing (DTP). (2 mks)
11. List **three** elements of networking. (3 mks)
12. Briefly explain any **three** application areas of ICT (Information and communication Technology). (3 mks)
13. List any **two** types of
- (a) Optical disk. (1 mk)
- (b) Magnetic disk (1 mk)
14. Distinguish between **Disk formatting** and **disk partitioning**. (2 mks)
15. (a) State and define any **two** types of computer processing file. (1 mk)

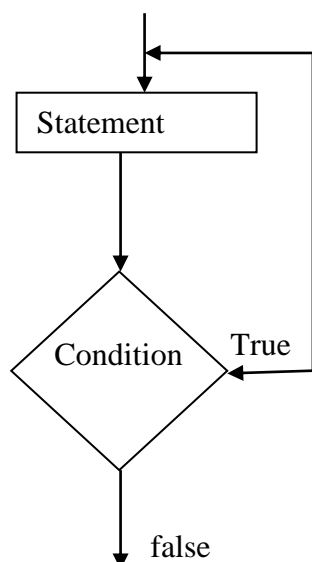
**Answer question 16 (Compulsory) and any other three questions in the spaces provided.**

16. (a) Consider the module flow charts extracts below.

(i)



(ii)



State the looping structure demonstrated in

- (b) State **four** examples of third generation languages.

- (c) Define the following terms as used in programming.

- (i) Assembler
- (iii) Translator
- (ii) Compiler
- (iv) Interpreter

- (d) Jokins retailers has two categories of customers processing category. "A" obtain 10%discount on all orders upto Kshs. 10,000. Otherwise the discount is 20% on entire order. Category "B"

obtains 30% on all orders if the debt payment records is good otherwise the discount is 15%.  
Write a pseudo code for the order processing. (9 mks)

17. (a) Below are two tables structures of files in a database.

<b>Employee</b>		<b>Employee Details</b>	
<b>Field</b>	<b>Data type</b>	<b>Field</b>	<b>Date type</b>
Employee Name	Text	Employee No.	Number
Employee Number	Auto Number	Date employed	Date / Time
DOB	Date/ Time	Department	Text
Address	Text	Salary	Currency

- (i) Which of the tables is likely to be the parent table? (1 mk)  
(ii) It is advisable to 'enforce referential integrity' when creating a relationship. When creating a relationship, what do you understand by the term **referential integrity**? (2 mks)

(iii) The field 'employee no' in the employee details table is likely to be the primary key.

What is a **primary key**? (2 mks)

(iv) Which fields in both tables is not appropriate for creating a relationship? (1 mk)

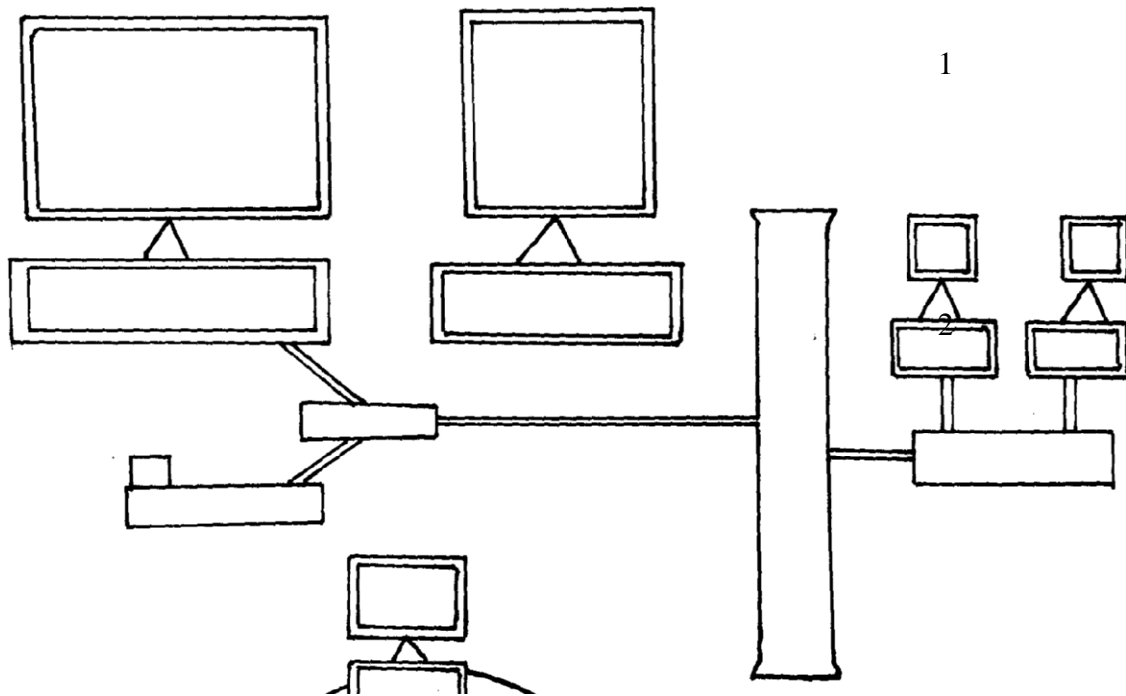
(v) What would make the relationship between the tables fail to work? (2 mks)

(b) In database, the field properties specify finer details related to the fields and the table entries expected. State **four** field properties. (4 mks)

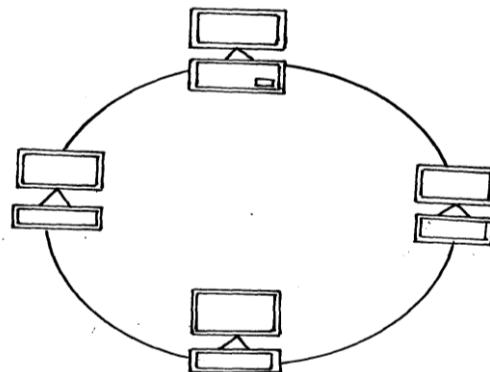
(c) State **three** functions of a database. (3 mks)

18. (a) Consider the topologies demonstrated in the diagram below.

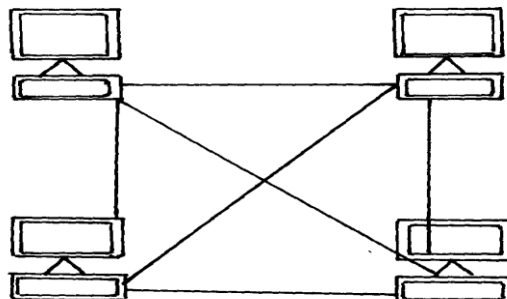
A



B



C



(i) Identify the network topologies.

(3 mks)

A .....

B .....

C .....

(ii) In topology A, identify the network device that should be at the end points 1 and 2.

(iii) Which of the above topologies is likely to be used in a wide area network?

(1 mk)

(iv) Highlight **three** disadvantages of topology B.

(3 mks)

(v) Identify the device labeled x in topology A.

(1 mk)

(b) State **two** main classes of network surface.

(2 mks)

- (c) Briefly describe the following as used in networking. (4 mks)
- Repeaters.
  - Network hub
  - Fibre optic cables
  - Network Interface Card (NIC)
19. (a) Define **feasibility study** as used in system. (2 mks)
- (b) State **four** devices under direct control of the operating system. (2 mks)
- (c) Briefly describe the following terms of computational error. (5 mks)
- Truncated
  - Transposition
  - Transcription
- (d) Explain **three** most commonly used coding schemes. (3 mks)
- (e) Distinguish between **online** and **real time processing**. (2 mks)
- (f) State **one** advantage and **two** disadvantages of command line interface. (3 mks)
20. (a) (i) Explain **three** communication services offered through internet. (3 mks)
- (ii) Describe the following terms. (2 mks)
- Links
- URL

(b) The following is a spreadsheet relating to a farmer.

	A	B	C
1	Crop	Amount	
2	Maize	150	
3	Bean	300	
4	Cashew nuts	850	
5	Cabbages	1036	

- (i) A function = IF (B2<200, “Not viable”, IF (B2 > 300 “Moderate”, IF (B2> 1000, “viable”))))  
Give the appropriate result returned in cell C2, C3, C4 and 5. (2 mks)
- (c) Text can easily be selected using a mouse in word processing. How do you select;
- Multiple paragraphs? (2 mks)
- (d) (i) Distinguish between a widow and an orphan in word processing. (2 mks)
- Cut and copy commands.
- (e) Give **one** purpose of drop caps on a text paragraph. (2 mks)
- (f) Give **two** application of expert systems. (2 mks)

### **\*RCH\***

- Define the terms ‘**Data Integrity**’. (1 mk)
  - Give **two** features of data integrity. (1 mk)
- Describe how each of the following printers work. (3 mks)
  - Thermal .....
  - Electrostatic printer .....
  - Laser printer .....



3. Nina Secondary School wanted to buy some text books for Computer Studies. The following list show an example of a spreadsheet which was used to calculate the minimum, maximum and Total of the total price.

	A	B	C	D
1.	BOOK	UNIT PRICE	COPIES	TOTAL PRICE
2.	Computer Studies BK 1	250	70	
3.	Computers Studies BK 2	275	50	
4.	Computer Studies BK 3	280	60	
5.	Computer Studies BK 4	320	70	
6.				
7.	Minimum			
8.	Maximum			
9.	Total			

- (a) Write down in each case the formula that can be used in:-
- Cell D7
  - Cell D8
  - Cell D9
- (b) **Format** all the numeric figures **to US Dollar symbol** and **2 decimal places**. (1 mk)
4. State any **two** uses of personal computers in office. (2 mks)
5. State the difference between tracking and kerning as used in Page Maker. (2 mks)
6. (a) Differentiate between soft system and hard system. (2 mks)
- (b) List any **four** characteristics of a system. (2 mks)
7. Explain the meaning of the following terms as used with operating system.
- Multitasking. (1 mk)
  - Single user. (1 mk)
8. Explain the uses of the following keys on the keyboard.
- Backspace Key. (½ mk)
  - Space Bar Key. (½ mk)
  - F1 Key. (½ mk)
  - Insert Key. (½ mk)
9. (a) Explain any **two** types of transcription error. (2 mks)
- (b) Define the term '**Algorithm errors**' as used in object oriented programming. (1 mk)
11. (a) (i) What is meant by the term "**Upload**" as used in the internet?. (1 mk)
- (ii) Explain the term "**hypertext**." (1 mk)
- (b) Give **two** examples of search engines you know. (1 mk)
12. (a) Name any **three** special purpose memories found either inside and outside the microprocessor. (2 mks)
- (b) Distinguish between an accumulator and an address register. (2 mks)
13. (a) Define the term "**mail merging**" as used in Word Processing Application Program. (1 mk)
- (b) List any **two** documents that are involved in mail merging. (2 mks)
14. Explain the **three** components of an expert system. (3 mks)
15. Define the term **Robot** as used in Expert system. (1 mk)
16. Kenya Tea Packers Company pays two different rates for all the tea grades of Tea delivered to her depots. The rates are as follows:- Grade A = Kshs. 20.00 per Kilograms and Grade B = Kshs. 10.00 per kilogram.
- Write an algorithm and pseudo code for the above program. (5 mks)
  - Draw a flow chart for the above program. (5 mks)
  - A school has two sets A and B. Write a structure algorithm to read a set and the points awarded for winning each race in an athlete final terminated by "C". Calculate and print the total points gained by each set appropriately labeled. (5 mks)
17. (a) Define the term field properties as used in Database program. (2 mks)
- (b) (i) What do you understand by the term normalization as used in Ms Access database? (1 mk)
- (ii) What is an input mask in a database? (1 mk)

- (c) (i) What is a query? (2 mks)  
(ii) Differentiate between an action query and select query? (2 mks)  
(d) (i) Differentiate between a Primary key and an Index key. (2 mks)  
(ii) What is the difference between a field name and a Caption? (2 mks)  
(iii) Differentiate between Columnar and Tabular form. (2 mks)
18. (a) (i) Give **one** advantage of a hub on a computer network. (1 mk)  
(ii) Define the VSAT technology. (1 mk)  
(iii) List any **four** examples of network operating systems. (4 mks)  
(iv) State any **three** advantages of coaxial cables in a computer network. (3 mks)  
(v) State any **three** devices used in data communications. (3 mks)  
(vi) Differentiate between a router and a brouter. (2 mks)  
(b) Define the term “ **Protocol**” as used in networking. (1 mk)
19. (a) State the uses of the following MS-DOS commands.  
(i) CD. (1 mk)  
(ii) DIR/P/W (1 mk)  
(iii) Input devices are classified according to how they are used to enter data. Can you list **five** classifications based on this. (5 mks)  
(b) Name and explain **four** types of human computer interfaces. (4 mks)  
(b) (i) Give any **two** control measures you would take avoid unauthorized access to data and information. (2 mks)  
(ii) Give **two** examples of anti-virus software you know. (2 mks)
20. (a) Perform the following conversions appropriately.  
(i) Convert  $91B_{16}$  to Octal. (3 mks)  
(ii)  $376_{10}$  to hexadecimal. (3 mks)  
(b) Perform the following Binary arithmetic.  
(i)  $1110.0111 + 1101001.011$  (3 mks)  
(ii)  $1001011.011 - 111.111$  (3 mks)  
(c) Convert  $298.125_{10}$  to hexadecimal equivalent.

**\*KKE\***

- State **two** reasons why personal computes are so important to small businesses and entrepreneurs
- State **two** characteristics for each of the following;
  - First generation computers
  - Second generation computers
  - Third generation computers
- Give a reason for each of the following hardware considerations when selecting a computer system
  - Processor speed
  - Warranty
  - Upgradeability and compatibility
  - Portability
- (a) What is disk partitioning?  
(b) Give **two** reasons for partitioning a disk
- Explain the following features as used in word processing.
  - Word wraps
  - Thesaurus
- The first column in the table below contains the formula stored in cell C10 of a spreadsheet. Enter the formulae as they would appear when copied to cell F15 of the same spreadsheet

FORMULA IN C10	FORMULA IN F15
=A5*B5	
=4*B\$6	

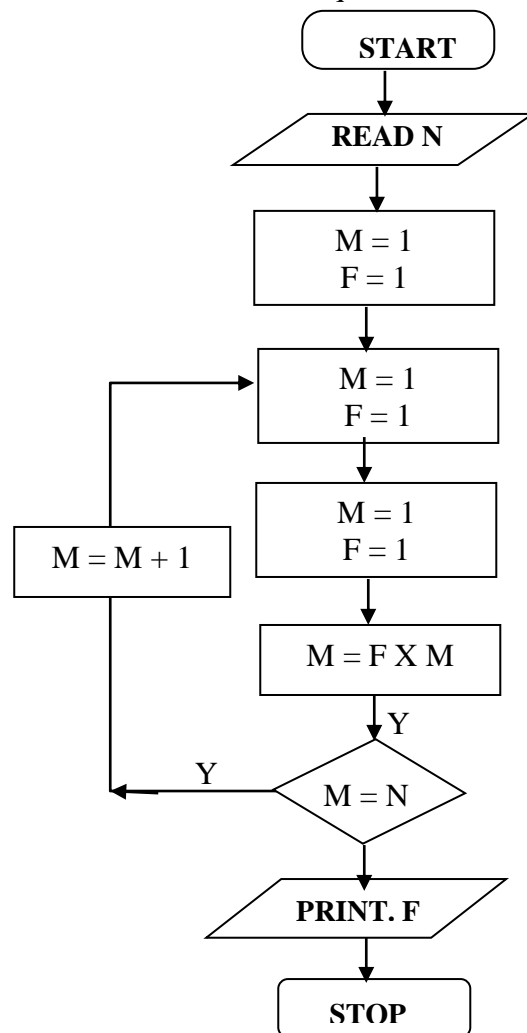
7. State **three** functions of a database management system
8. (a) Differentiate between signing-in and signing –up in relation to the internet  
b) Distinguish between downloading and uploading
9. (a) Define the word expert system?  
(b) List the **three** components that make up an expert system
10. Using the **two** components, perform the following arithmetic operation in 8 bits
11. What is a procedural language?
12. List any **four** resources under the operation system control
13. State **two** advantages of the Winchester disk as compared to other forms of secondary storage media
14. a) List the **two** main type of DTP software  
b) Differentiate between the following terms as used in DTP  
Tracking  
Kerning
15. Explain the function of the following parts of the URL  
<http://www.kakamega.com>
16. (a) Draw a flow chart for a program that can be used to get the sum of mark for 45 computer studies student then get the subject mean  
b) Define the following;  
i) Source program  
ii) Pseudo-code  
iii) Translators  
iv) Flowchart  
v) Algorithm
17. (a) Giving an example for each, differentiate between transcription and computational errors  
(b) Briefly describe the following elements of a computer file;  
(i) Character  
(ii) Field  
(iii) Records  
(c) Explain the functions of;  
i. Master files  
ii. Back up files  
iii. reference files  
(d) Differentiate between  
(i) Real-time processing mode and batch processing  
(ii) Distributed data processing mode and multiprocessing mode
18. a) State the function of;  
i) Web master  
ii) Database administrator  
iii) Computer operator  
iv) Computer technician  
b) Explain how computers have led to the following effects of employment:  
i) job replacement  
ii) Job displacement  
c) State **one** negative impact of computers in our society
19. (a) Describe any **three** physical LAN topologies  
(b) **Define the following terms**  
i) Protocol  
ii) Server  
iii) Gateway  
iv) Repeater  
v) Bandwidth

- (c) Give **two** advantages of networking
- (d) Explain the line of sight principle in wireless communication
- (e) What's the work of the following in networking?
  - (i) Crimping tool
  - (ii) Network interface card
  - iii) Network neighbouring icon
- 20. (a) Differentiate between private data and confidential data
- (b) Describe **three** types of computer virus
- (c) Explain the following terms as used in data security
  - i ) Eavesdropping
  - ii) Surveillance
  - iii) Industrial espionage
- d) Differentiate between hacking and cracking
- e) State **two** laws that govern the protection of information

**\*UGU\***

1. Differentiate between Access Time and Seek Time (2mks)
2. List **four** activities that can be carried out using Windows OS during disk management (4mks)
3. Give **four** reasons why a firm may decide to computerize its operations (4mks)
4. List **three** functions of the Arithmetic and logic unit (3mks)
5. What is the **major** difference between a web page and a web site (2mks)
6. (i) Write down all the digits in base 4 number system (1mk)
- (ii) Calculate the sum of the second and the fourth digits (i) above (1mk)
7. What is the major **difference between a webpage and a web site?** (2mks)
8. Differentiate between physical and logical topologies (2mks)
9. Give the difference between tower and desktop system unit (2mks)
10. Differentiate between computational errors and transcription errors (2mks)
11. Using the place value method, convert  $247_{10}$  into its binary equivalence (4mks)
12. Perform the following binary arithmetic and give your answers in decimal notation (14mks)
- $1010.101 + 11.011$
13. (a) Differentiate between :
  - (i) Primary key and foreign key (1mk)
  - (ii) What is cell referencing (2mks)
14. Define the word blocking as defined in Ms-Word (1mk)
15. (i) What is a server? (1mk)
- (ii) Differentiate between peer to peer and client server (2mks)

16. Study the flow chart below and answer the questions that follow:



- (a) What would the following generate as output if the value of N at input was:
- 6?
  - 1?
- (b) Write a pseudo code that does the same thing as the flow chart above (15mks)
- (c) Text can be select using a mouse processing. How do you select
- Multiple paragraph
  - Vertical text
- (d) Distinguish between:
- A widow and an orphan in word processing
  - Cut and copy commands
- (e) Give **one** purpose of drop caps on a text paragraph
- (f) (i) What is an expert system?
- (ii) **Give two** applications of expert systems
17. A school keeps a spreadsheet of examination results in four subjects. Part of the spread sheet is as shown below:-

	A	B	C	D	E	F	G	H
	Name	Class	Maths	Science	IT	English	Av. Mark	Pass/Fail
1	Allen	11A	33	24	19	44	30	
2	Dyos	11B	41	54	70	31	49	
3	Keg	11A	82	69	57	52	65	
4	Khan	11C	44	21	50	85	50	
5	Kolacz	11A	73	51	73	51	62	
6	Lenski	11B	17	41	40	34	33	
7	Peruza	11C	87	72	64	61	71	

- (i) Which column has been used to sort the data?
  - (ii) What formula has been entered in cell G2 to calculate the Allen's average mark?  
could be done
  - (iii) The IT results need to be sorted so that the highest mark is at the top. Describe how this sort
  - (iv) The formula IF (G5>45, "PASS", "FAIL") is entered in cell H5. What output appears?
  - (v) State the validation check that should be carried out on data entered in cells C2 to F8 to ensure values over 100 are not input (15mks)
18. (a) (i) Explain **three** communication services offered through internet
- (ii) Describe the following internet terms:-
- Links .....
- URL.....

- (b) The following is a spreadsheet relating to a farmer

	A	B	C
1	Crop	Amount	
2	Maize	150	
3	Bean	300	
4	Cashew nuts	850	
5	Cabbages	1036	

- (i) A function = IF(B2<200,"Not Viable"), IF(B2>300, "Moderate"), IF(B2>1000," Variable"))).
  - Give the appropriate result returned in cells C2, C3, C4, and C5
18. (c) Text can easily be selected using a mouse in word processing. How do you select
- (i) Multiple paragraph
  - (ii) Vertical block of text
- (d) (i) **Distinguish between** widow and an orphan processing
- (ii) Cut and copy commands
- (e) Give **one** purpose of drop caps on a text paragraph
- (f) (i) What is an expert system?
- (ii) Give **two** applications of expert systems
19. (a) Explain the advantage of using two's complement over one's complement
- (b) Using two's complement, subtract 4 from 7 and give your answer in decimal notation
- (c) An organization is planning to develop a new information system to manage its operations.
- (i) Explain the following characteristics of a system
    - Holistic thinking
    - System entropy
  - (ii) List **four** tools that could be used in designing the information system during the design stage
  - (d) Explain **any three** threats to data and information
  - (e) Explain the purpose of the following types of program documentation
    - (i) User manual
    - (ii) Reference guide
20. (a) Define feasibility study as used in system
- (b) State **four** devices under direct control of the operating system
  - (c) Briefly describe the following types of computerized errors:
    - (i) Truncated
    - (ii) Transposition
    - (iii) Transcription
  - (d) Explain **three** most commonly used coding schemes
  - (e) Distinguish between online and real time processing
  - (f) State **one advantage** and **two disadvantages** of command line interface

**\*MUM\***

1. State **two** functions of the SHIFT key as used in a word processor.
2. (a) How do registers differ from buffers.  
(b) List **four** examples of registers.
3. Daniel has noticed the following problems in his computer;
  - (i) It is taking a longer time to start up.
  - (ii) It is often hanging
  - (iii) Applications are taking long to load.State **three** possible causes of these problems and how they can be solved.
4. List **three** functions of an anti-virus software.
5. Differentiate between a virus and a logic bomb.
6. The cells **K3** to **K10** of a worksheet contain remarks on students performance such as very good, good, fair and fail depending on the average mark. Write a formula that can be used to count all students that have the remark “very good”.
7. The following information shows the income and expenditure for “Beba yote” matatu for five days. The income from Monday to Friday was Ksh.4,000, 9,000,15,000 and 20,000 respectively while expenditure for some period was Ksh.2000,3000, 7000, 5000 and 6000 respectively.
  - (a) Draw a spreadsheet that would contain the information. Indicate the rows as 1 , 2, 3 and 4 and the column as A,B,C
  - (b) State the expression that would be used to obtain:
    - (i) Monday profit.
    - (ii) Total income
    - (iii) Highest expenditure.
8. Describe the following terms:
  - (a) Software suite
  - (b) Shareware
  - (c) Groupware
  - (d) Integrated software
9. (a) Subtract  $0111_2$  from  $1001_2$   
(b) Using two’s compliment subtract 7 from 40 and give the answer in decimal notation.
10. Distinguish between uploading and downloading.
11. Distinguish between peer-to-peer Networks and client-server networks.
12. List any **two** techniques used to implement information systems in various organizations.
13. Distinguish between a word and word-length as used in data representation.
14. Describe **three** types of maintenance that can be applied on information systems.
15. (a) Study the flowchart extracts below  
(b) State the looping structure demonstrated in  
(c) List any **four** methods of detecting and correcting programming bugs.  
(d) Draw a flowchart for a program that can be used to add any positive integers that can be keyed into the computer through the keyboard. The program should count the positive numbers entered and should be terminated when a zero is keyed in.
16. Below are two table structures of files in a database:

**TABLE 1**

<u>Field</u>	<u>Data type</u>
Employee number	Text
Employee Name	Auto number
D.O.B	Date/time
Address	Test

**TABLE 2**

<u>Field</u>	<u>Data type</u>
Employee number	Number
Data employed	Date/time
Department	Test
Salary	Currency

- (i) Which of the two tables is likely to be the parent table? **\*MUM\***
- (ii) It is advisable to enforce referential integrity when creating a relationship. When creating a relationship, what do you understand by the term **referential integrity**? **\*MUM\***
- (iii) The field “employee No” in Table 2 is likely to be the primary key.  
What is a primary key?

- iv) Which fields in both tables is most appropriate for creating a relationship? **\*MUM\***  
 (v) What will make the relationship between the tables fail to work? **\*MUM\***  
 (b) In databases, the field properties specify finer details related to the fields and the entries expected. State **four** field properties. **\*MUM\***  
 (c) State **three** functions of a database. **\*MUM\***
17. (a) Explain **three** communication services offered through the internet. **\*MUM\***  
 (b) Describe the following internet terms. **\*MUM\***  
 (i) Browsing  
 (ii) Web portal  
 (iii) Home page  
 (iv) Hyperlink  
 (v) Uniform resource locator  
 (c) The following spreadsheet is relating to a farmer.

	A	B	C
1	Crop	Amount	
2	Maize	150	
3	Beans	300	
4	Cashew nuts	850	
5	cabbages	1036	

- (i) A function = IF (B2< 200, “Not viable”, IF(B2>300,”moderate”, IF(B2> 1000, “VIABLE”))).  
 Give the appropriate result returned in cells C2, C3, C4 and C5.  
 (d) List any **three** functions of the control unit.
18. (a) List any **three** differences between an interpreter and a compiler.  
 (b) State **four** characteristics of Random access memory.  
 (c) Describe the following data security measures  
 (i) Log files  
 (ii) Fire walls  
 (iii) Antispyware  
 (iv) Audit trail
19. (a) What is a transmission media?  
 (b) List **two** types of transmission media  
 (c) Distinguish between a Hub and a switch.  
 (d) With help of a well labeled diagram, describe the fibre optic cable  
 (e) What are the functions of the following devices on a network?  
 (i) Repeaters  
 (ii) Network interface card  
 (iii) Router  
 (f) Distinguish between physical topology and logical topology as used in Networking

**\*KSM\***

- Describe **four** electrical safety precaution rules that should be observed in a computer room.
- Distinguish between a compiler and an interpreter. (2mks)
- (a) Describe the term keys to storage system (1mk)  
 (b) Games programs can be purchased from computer stores on CD-ROM. State **two** advantages of CD-ROMS over floppy disks (2mks)
- State **two** outputs device that are found at the point of sales terminal (2mks)
- Outline any **four** editing features of a word processor. (2mks)
- Describe briefly how a laser printer works (2mks)
- (a) Identify the main stage of program development (4mks)  
 (b) Define the terms program documentation (1mk)  
 (c) List program control structures giving examples (3mks)
- Distinguish between high levels and low levels language giving **one** advantage and **one** disadvantages of each of them (2mks)



9. (a) Explain the difference between the following commands as used in MS-DOS (2mks)  
 (i) Dir/p  
 (ii) Dir/w  
 (b) Write **one** command that can be used to format a diskette and copy system files to it (1mk)
10. Differentiate between real time processing and batch processing giving examples where each could be used. (2mks)
11. Differentiate between computer added design and computer aided manufacture (2mks)
12. What is a computer network? (1mk)
13. Describe **three** difference types of computer network (3mks)
14. State **three** symbolic data representation (3mks)
15. State **two** properties that an opening system display about a file (1mk)
16. (a) Distinguish between Algorithm and Pseudo code. (3mks)  
 (b) A company has 5000 CDs, video and books in stock each items has a unique 5 digit code with the first identifying the type of item i.e.  
 1=CD  
 2=DVD  
 3= video  
 4=Book  
 For example, for the code 15642 the 1 identifies that it is a CD, and for the code 30055 the 3 identifies these it is a video  
 Write an algorithm, using pseudocode or otherwise, that  
 -inputs the code for all 5000 items  
 -validates the input code (12mks)
17. (a) List **three** differences in the computer training provided by colleges as opposed to those offered by the universities (3mks)  
 (b) Describe **three** duties of each of the following computer specialists :- (6mks)  
 (i) Database administrator  
 (ii) System analyst  
 (c) Information technology has brought about a lot of concern in people's lives-social effects, list **three** arguments for and against information technology (3mks)  
 (d.) Repetitive strain injury happens when one overuses the computer keyboard or mouse. Causing inflammation or injury on muscles or tendons .Describe **three** measures users can apply to prevent or reduce RSI (3mks)
18. A school computer laboratory is scheduled o undergo major renovations. The lab is schedule to receive new computer whose specifications are given below:-  
 Pentium IV 2.8GHz processor  
 40GB HDD  
 31/2 FDD  
 256 MB RAM  
 568CD ROM  
 17" SVGA TFT monitor  
 The computers are gong to be networked and will be able to browse the internet.  
 (a) Explain what is meant by the terms:- (2mks)  
 (i) FDD  
 (ii) HDD  
 (iii) SVGA  
 (iv)TFT  
 (b) The computer is to be networked, name **one** extra device that should be fitted on every computer to enable this to happen (1mk)
- (c) The computer is to receive internet facilities through the server on a dial; up system. Name and describe the function of a special device that needs to be connected to the server to

- complete the connection (1mk)
- (d) (i) The school has to apply the star topology to link up the computer. List **two** advantages of this type of topology (1mk)
- (ii) Name the central device used to connect the computers in this topology. (1mk)
- (e) List **two** other types of topologies that the school could have opted for (1mk)
- (f) List **four** advantages of using a network (2mks)
- (g) (i) Data transmission via the internet is done using a mode known as packet switching. Describe this data transmission mode (1mk)
- (ii) Name **two** other modes of data transmission (1mk)
- (h) (i) The school's LAN is done using UTP cable. List **two** disadvantages of using this type of cable. (1mk)
- (ii) List **two** advantages of using fibre cable in networking (1mk)
- (j) Data flows in the school's LAN in a duplex manner. Discuss **two** other type of data transmission in network giving examples (2mks)
19. (a) Differentiate between a database and a DBMS (1mk)
- (b) List **four** advantages of using database systems (2mks)
- (c) In a data base system, data integrity ensures the correctness and completeness of the data in the database. Differentiate the following types of integrity constraints:-
- (i) Validity integrity (1mk)
- (ii) Entity integrity (1mk)
- (iii) Referential integrity (1mk)
- (d) Briefly describe the **three** database models :- (3mks)
- (i) Hierarchical model
- (ii) Network model
- (iii) Relation model
- (e) Using diagrams describe the following three types of relationships (3mks)
- (i) One –on- one
- (ii) One –to- many
- (iii) many-to-many
- (f) File organisation refers to the arrangement of records on secondary storage. Briefly describe the following file organization methods:- (3mks)
- (i) Sequential
- (ii) Random /direct
- (iii) Serial
20. (a) State and describe any **two** areas of Artificial intelligence (2mks)
- (b) What is virtual reality? (1mk)
- (c) List **three** component of a virtual reality gear (3mks)
- (d) By giving an example define:-
- (i) A smart terminal (2mks)
- (ii) An embedded computer (2mks)
- (e) State **three** factors to consider when selecting a UPS (3mks)
- (f) Give **two** uses of computer in stock exchanges (2mks)

**\*TQM\***

1. The computer processing cycle involves a **four** step process List them (2mks)
2. The CPU consists of control unit and arithmetic logic unit State the functions of the two units (2mks)
3. Name and explain the **two** types of primary memory. (3mks)
4. State the functions of the following keys in a computer key board
- (i) Pause (1mk)
- (ii) Function keys (1mk)
- (i) Explain the importance of microphones combined with speech recognition device such as voice output. (2mks)
- (ii) State the main disadvantage of the above method of data input. (2mks)
5. The most popular type of electronic data storage currently is magnetic disk storage such as

- hard disk or Winchester disk. **Give reason** as to why they are popular (2mks)
6. **Outline two** advantages of hard disk over floppy disk. (2mks)
7. One stage of system development is system testing. **Outline** the advantages of this stage before implementation. (1mk)
8. (a) **Convert**  $111.011_2$  to a decimal notation. (2mks)
- (b) **State one** advantage of using binary number system in computers. (1mk)
9. **State one function** of each of the following terms (3mks)
- Buffer.....
  - An accumulator.....
  - Cache memory.....
10. **Explain any two** factors that should be put into consideration during output design. (2mks)
11. (i) **Define the term** graphic and give two examples (2mks)
- (ii) **List any two** sources of graphic that can be used in Microsoft word. (1mk)
12. **State the functions** of the following logical functions as used in excel
- If..... (1mk)
  - Sum If ..... (1mk)
  - Count If..... (1mk)
- (i) **Why** would one prefer to use a form for data input rather than entering data directly into a table. (2mks)
- (ii) When using wizard to create a form, **list four** forms layout that you can use. (2mks)
13. **Distinguish between** the following terms as used in DTP (4mks)
- Tracking and kerning
  - Stroke and fill
14. (a) **Define** the following terms
- Structured programming (1mk)
  - Constants (1mk)
  - Variable (1mk)
- (b) **Distinguish between** dummy data and real data as used in system testing (2mks)
- (c) Mr Lugeno borrowed a loan of 200,000 from Ndege chai cooperative society at a rate of 10% payable in 2 years flat rate. **Draw** a flow chart that can be used to develop a computer program that will keep track of monthly repayments (5mks)
15. (a) **Define** the following computer crimes
- Piracy (1mk)
  - Industrial espionage (1mk)
- (b) **Explain two ways** of protecting data and information against unauthorized access (4mks)
- (c) **Explain two functions** of network operating system. (4mks)
- (d) **Differentiate between** a repeater and a router as used in computer networking. (2mks)
- (e) **List down three** duties of a computer trainer (3mks)
16. (a) **Explain any two** types of human computer Interface. (4mks)
- (b) **State four** basic requirements of a standard computer laboratory (4mks)
- (c) **Out line three types** of job opportunities that are available in the computing field (3mks)
- (d)(i) **Differentiate between** video conferencing and telecommuting as used in communicating system (2mks)
- (ii) **Highlight two** advantages of telecommuting (2mks)
17. (a) **Distinguish between** the following
- Sequential and serial file organization methods. (2mks)
  - Random and indexed sequential file organization methods (2mks)
- (b) **Explain the following** types of data processing modes
- Batch processing (2mks)
  - Real time processing (2mks)
- (c) **Define** the following terms
- Undo (1mk)
  - Redo (1mk)

- (d) **State three** breakthrough of Information Communication Technology (ICT) in health care (3mks)
- (e) **List any two** under graduate programs offered in public universities in Kenya (2mks)
18. (a) **Draw** a flowchart showing;
- The WHILE loop (2mks)
  - The REPEAT.....UNTIL loop (2mks)
- (b) **Differentiate between** the following terms
- Information system and system (2mks)
  - Hard system and soft system (2mks)
- (c) **List** the seven stages of System Development Cycle (SDLC) (7mks)

## PAPER TWO

**\*NYR\***

### QUESTION 1

M/s Ann Momanyi, an ICT consultant with Makueni Distributors is in the process of developing a Management Information System (MIS) for the Company. Currently, she is designing sales database using three tables namely: - customers, products and transactions. The details for each table are given below:-

<u>Customers</u>	<u>Products</u>	<u>Transactions</u>
Customer ID	ProductID	TransID
CustomerName	ProductDescription	ClientName
PostalAddress	Packaging	TransacDate
Town	UnitPrice	Product
Phone	Stock	Quantity

### **Questions**

- Create a database named MIS and in it create three relations
- Identify the most appropriate field as the primary key in each table
- Establish relationships among the three tables and enforce the referential integrity
- Create a form for each table. Save the forms as **Customer Form, Product Form and Transaction Form**
- Use the respective forms to enter the following records in each table

#### CUSTOMERS TABLE

<b>CustomerID</b>	<b>Customer Name</b>	<b>Postal Address</b>	<b>Town</b>	<b>Phone</b>
H001	Andrew Mwove	209	Mutituni	200870
H002	Erick Onsongo	68	Nyamira	248567
H003	Brenda Nyabuti	100	Bomet	789678
H004	Lydia Winzaa	250	Mwingi	778009
H005	Jeff Ogero	330	Keroka	666790
H006	Maureen Makuthu	550	Kakeani	780906

#### PRODUCTS TABLE

<b>ProductID</b>	<b>Product Description</b>	<b>Packaging</b>	<b>Unit Price</b>	<b>Stock</b>
AA001	Cooking Oil	20 kg Gal	16000	80
AA003	Rice	50Kg Bags	4500	60
AB004	Detergents	5 Litres	11000	40
AC006	Fertilizer	50Kg bags	4700	30
AA007	Mineral Water	1.5 Litres	8200	400

#### TRANSACTION TABLE

<b>CustomerID</b>	<b>ClientName</b>	<b>TansacDate</b>	<b>Products</b>	<b>Quantity</b>
1001	Andrew Mwove	06/04/2007	Cooking oil	6
1002		26/04/2007	Mineral water	8
1003	Erick Onsongo	23/04/2007	Detergents	10

1004	Maureen Makuthu	14/04/2007	Cooking oil	12
1005		02/05/2007	Rice	4
1006		08/05/2007	Fertilizer	3
1007	Erick Onsongo	16/05/2007	Detergents	25

- (f) Create a query that displays the customer Name, Product Description, Quantity, Unit price and  
a  
calculated field total payable by each customer. Save the query as MISQuery  
(g) Generate a report from MISQuery. Save the report as MISReport  
(h) Print the Customers, Products, Transaction table's design, MISQuery and MISReport

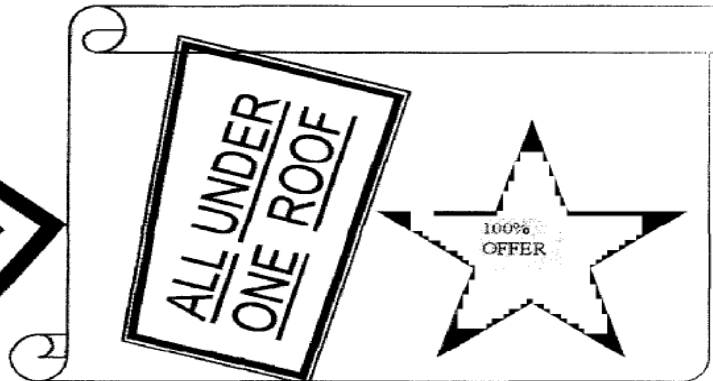
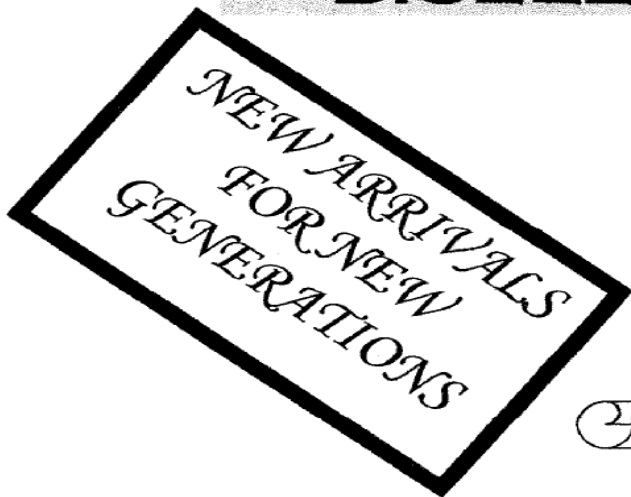
## QUESTION 2

Using **DTP** software design the publication based on the following instructions to appear as it is

- 1) Set the page to have portrait orientation and margins to be as follows;
  - (a) Format the heading: **BISELEX BUSINESS** to bear the following features:-
  - (b) Font type: Copperplate Gothic
  - (c) Font size: 26
  - (d) Background color: grey
  - (f) Alignment: centered
- 2) Format the heading **"New Arrivals for new generations"** to bear the following features:-
  - (a) Font type : Monotype corsiva
  - (b) Font size: 22
  - (c) Alignment: Centered
  - (d) Border style: 6pt
  - (e) Rotate it appropriately
- 3) Format the heading **"All Under One Roof"** to bear the following features:-
  - (a) Underline style: words only
  - (b) Font type: Arial Narrow
  - (c) Font size: 20
  - (d) Alignment: centered
  - (e) Rotate it appropriately
- 4) Format the text below the heading **"Motto : Customer Satisfaction"** to be in three columns and format it as follows:-
  - 1<sup>st</sup> column**
    - i) Drop cap the first character to four lines
    - ii) Line spacing 1.25pt
  - 2<sup>nd</sup> column**
    - i) Underline the title **"Items"** with a broken line
    - ii) Text weight: bold italics
    - iii) Bullet the listed items appropriately
  - 3<sup>rd</sup> column**
- 5) Insert the rounded rectangle and format its heading to :
  - (i) Underline : Double
  - (ii) Font type: Arial Black
- 6) Format the text under the heading **"LOCATION"** as follows:-
  - (i) Font type: Castellar
  - (ii) Font size: 9pts
- 7) Insert the suitable picture as it appears in the publication
- 8) Insert the header to bear **Your Name** and the Footer to bear **Your Index Number**

YOUR NAME

## BISELEX BUSINESS



### MOTTO: CUSTOMER SATISFACTION

**B**iselex Business is a pioneer enterprise which is specializing in house hold goods and furniture at affordable rates to our clients.

#### ITEMS

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**Email : biselex@gmail.co.ke**

Welcome all

YOUR INDEX NUMBER

**\*MAT\***

#### **Question 1**

(a) Wafula is a secretary for all clubs in the school. He has been told to create Club\_DBMS id database management system (DBMS) to help the club maintain record on the clubs' members.

Relation name	Fields	Primary key
---------------	--------	-------------

Student	Admission Number	Admission number
	First Name	
	Last Name	
	Form	
	Stream	
Club_Details	Club Number	Club Number
	Club Name	
	Date established	
Membership	Registration Number	Registration Number
	Club Number	
	Admission Number	
	Date of registration	
	Membership fee	

(a) Perform the following operations just like Wafula would:

(i) Create a database Club\_DBMS with the tables shown above. (12mks)

(ii) Index on last name on the table student (2mks)

(iii) Create a lookup list for the following fields in class student (3mks)

Field	Lookup list	Field	Lookup list
Form	One	Class	East
	Two		North
	Three		West
	Four		South

(iv) Create One-Many relationship between the relations and enforce referential integrity (3mks)

(b) Create user friendly screen inputs with the Add New Record, Find Record, Delete Record and Close Screen Input commands for each of the table, save them using respective table's name (12mks)

(c) Using the input screens, enter the records below: (6mks)

Admn. No.	First Name	Last Name	Form	Stream
3200	Busaule	Mwitani	Two	East
3811	Mawi	Martha	One	South
2844	Nambwaya	Nancy	Four	East
2910	Wafula	Victor	Four	Central
3295	Hassan	Eunice	Three	East
2956	Busolo	Josephat	Three	North
2977	Makhanu	Josephat	Four	South
3216	Mateshe	Jackline	Three	West

Club Number	Club Name	Date established
97/Mat	Mathematics	05/02/1997
02/Sci	Science	08/04/2002
01/Env	Environment	01/09/2001
97/Lan	Debate	08/04/1997

Reg. Number	Admn. No.	Club No.	Reg. Date	Membership Fee
MT/0013	2844	97/Mat	12/03/2007	100
SC/0189	2977	02/Sci	11/03/2007	120
MT/0975	2910	97/Mat	05/05/2007	100
DB/0111	2977	97/Lan	11/03/2007	90
EN/1001	3811	01/Env	01/03/2010	80
SC/0998	3216	02/Sci	09/10/2008	120
SC/1006	2844	02/Sci	12/03/2007	120
DB/0565	3295	97/Lan	10/05/2008	90

- (c) Create a query for each record containing the product of membership fees \$ multiplied by 79.8. Label this column "Amount in shillings". The query should display: Last Name (in ascending order), First Name, Registration Number, Date of Registration, Amount in shillings. For all members whose last name start with M or J and first name start with M save the query as **Query M** (8mks)
- (d) Create a query that Display Admission Number, Last name, first Name, Club Names and Registration date for form four students. Save query as **Members** (3mks)
- (e) Create a tabular report from Query-M that displays Last Name, First Name, Membership Number, Date of Registration, Membership Fees paid in shillings and display the total to the membership fees at the end of the report. Save the report as "**Membership Report**" (5mks)

Admn. No.	First Name	Last Name	Form	Stream
3200	Busaule	Mwitani	Two	East
3811	Mawi	Martha	One	South
2844	Nambwaya	Nancy	Four	East
2910	Wafula	Victor	Four	Central
3295	Hassan	Eunice	Three	East
2956	Busolo	Josephat	Three	North
2977	Makhanu	Josephat	Four	South
3216	Mateshe	Jackline	Three	West

- (f) Create a tabular report from Members query, sort the records by first name and save it as **Club Members**. (4mks)
- (g) On each report, add your name, index number and page number in the format "Page X of Y pages" as footer (4mks)
- (h) Add "Mary Seat of Wisdom Bulimbo Girls' Sec. School" and Report Name as Header on each report (2mks)
- (i) Print membership Report, Club Members, Query-M and Student table (4mks)

## Question two

- (a) Enter the following as it is onto worksheet and save it as the budget (7mks)

A	B	C	D	E	F	G
No.	Item description	Quantity bought	Unit price	Amount	Comments	Cost Rank
1	2Kg Mumias Sugar	4	210			
2	Sony 2HD floppy	3	37			
3	Rapid spring file	10	56			
4	200pg A4 books	9	89			
5	1 litre Quencher	2	256			
6	AIHAO Gelink pen	15	55			
7	Omega dustless chalk	18	105			
8	LG 2GB Flash Disk	4	1055			
	<b>Total</b>					



- (b) Rename worksheet 1 as Budget and Worksheet 2 as My Graph (3mks)
- (c) Insert two rows above labels in the budget 1 worksheet. Enter in the first row, a Word Art “A sample Budget: Back to Business.” (4mks)
- (d) Enter cell B2 and C2, VAT and 18% respectively (1mk)
- (e) Calculate ;
- (i) Using name referencing calculate the amount for each item (amount = quantity \*price) (4mks)
- (ii) Total quantity, price and amount using formulae (3mks)
- (iii) Display “Thank for shopping” for amount above 500, “Almost in a draw” for amount between 250 and 499, otherwise “Buy More” (4mks)
- (f) Using column E, rank the items with the most costly ranked as the last (4mks)
- (g) Format all values on the worksheet to two decimal places aligned right of cell and in pounds (£) (3mks)
- (h) Copy the information on Budget1 worksheet to workshet3. Rename corksheets3 as copied (2mk)
- (i) Save the workbook as Budget2 (1mk)
- (j) Change respective quantities of items on budget 1 worksheet (1mk)
- |                 |    |
|-----------------|----|
| Sony 2HD floppy | 18 |
| 200pg A4 books  | 12 |
- (k) Using item name and taxes on Budget1 worksheet, create a line chart of item description and amount on worksheet My Graph (8mks)
- (l) Save the workbook as Final Budget and print the chart (2mks)

**\*MUM\***

### **WORD PROCESSOR**

1. (a) Type the following passage exactly as it appears into a word-processor, spell check and format it accordingly. Use typeface Times New Romans, font size 12.  
Format your document to fit exactly on one page. Save it as A: NET 1 (26marks)

### **NETWORKS MODELS**

Networks can be organized into three basic models client/server, peer to peer and centralized computing. Client/Server and peer-to-peer are used with PC networks. While centralized computing models are used with mid-range and mainframe computers usually running a UNIX-based operating system. The peer-to-peer model is the simplest to implement and assemble. Client/server is the most popular configuration, because of its versatility and power drawing mainly from the vast variety and higher performance of specialized server hardware.

#### **Central computing networks**

The host is the core of the centralized computing model. Host computers typically run the UNIX operating system and can process multiple jobs simultaneously and in a very efficient manner. Jobs are initiated by the Terminal, which has no processing capability on its own and simply provides input/output for the host. The user logs into the host computer to process the user's job; when the job is finished, the host computer sends the results of the job back to the terminal.

The main advantage of centralized computing is that they are the highest performance networks today. Its major disadvantages are:

- They are costly
- They are dependent on custom written software
- They are more complicated than PC servers

#### **Client/Server Networks**

The client/server network is the workhorse of the network world and consists of at least one server with shared resources and one or more clients which users do their work on. The server, often called the back end, stores and secures users' files. It provides the single point of administration for network users, files, and applications. In a client/server network, the function of the server is to provide services, whereas the function of the client is to provide the actual

processing. Most client/server networks are built round a domain structure, where all servers within a given domain share a common administration scheme.

### **Peer-to-peer Networks**

A peer-to-peer network is simply a group of computers that function as both servers and clients (share and access resources). In this type of network, a user works on a workstation and actually shares that workstation's resources with other workstations.

### **Disadvantages**

- It may be slow
- Lack of a central security administration
- Decentralized administration might be a nightmare.

- (b) (i) Bold face and italicize all the occurrences of the words client/server  
(ii) Justify and set the left and right indents of the second paragraph at 1 inch.  
(ii) Save the document as **A: NET 2** (6mks)
- (c) (i) Copy **NET 1** passage to a new document  
(ii) Present the document into two columns with a line between the columns. Introduce a column break on the sub heading "Client/Server Networks" so that your second column begins exactly with that header.  
(iii) Save the new document as **A:NET 3** (6mks)
- (d) (i) Introduce double space in the last paragraph of **NET 2**  
(ii) Search and replace the word "host" with "main" in the whole passage.  
(iii) Save the document as **A:NET 4** (6mks)
- (e) (i) Animate the title of the passage of document **NI-T4** to have a blinking background.  
(ii) Convert the paper orientation to landscape and format your document to fit on one page.  
(iii) Save the passage as **A: NET5** (5mks)
- (f) Print2. A stationery store keeps a record of all items sold in the store. The details are given in table 3 table 3 below.

Item code	Description	Quantity	Supplier
005	HBI pencils (doz)	200	Shah
001	Stapler	100	Shah
009	Photocopy paper (reams)	200	Chania
007	Staples (packets)	300	Vipingo
010	120 pages (ex. Books)	200	Vipingo
006	Spring files	200	Shah
002	Diskettes	300	Chania
003	HB2 pencils (doz)	500	Shah
008	Foolscaps (reams)	300	Vipingo
004	Chalk	350	chania

- (a) Create a database structure containing the fields:  
Item code  
Description  
Quantity  
Supplier
- (b) Enter the records as shown in table 3 into your database and save it as Stat 1. (12mks)
- (c) Modify Stat 1 to include the field for date received and save as Stat 2. (3mks)
- (d) Items with cods 001, 007, 009 and 010 were received on 10/05/200 1. Items with codes 002, 005, and 008 were received on 12/05/2001 and the rest were received on 15/05/2001. Enter this information on the date received field. (5mks)
- (e) Sort Stat 2 on item code field in descending order and save it as Stat3. (6mks)
- (f) Create a query to extract all items delivered by Shah on 15/05/200 1 and save as query 1.
- (g) Using Stat 1, generate a tabular report titled "Stationery store items" and containing the following fields in the order shown.

**Supplier                      Description                      Quantity**

**\*TNW\***

Q1. (a) Type the passage below as it appears using a word processing package and save it as A:\Bono1.  
(Settings: Font Arial, font size 12 for all text, margins; top 0.5", bottom 0.6", left 1", right 0.5",  
1<sup>st</sup> Heading Size 20, 2<sup>nd</sup> & 3<sup>rd</sup> Size 14 ). 36mks

**WE MUST STRIVE FOR GREAT THINGS IN LIFE**

**Apart from being famous**

one should leave legacy that speaks for years. Paul Hewson was in Nairobi recently. That won't mean much to you, until I explain that I was referring to Bono, the world – famous lead singer of rock band U2 and campaigner against global poverty. Bono didn't really make much noise while in Kenya. He attended the [Nation Media] group's Pan Africa Media Conference, took H<sub>2</sub>O, talked to a couple of journalists and left.

He didn't do the other things that visiting celebrities of his stature do when in Africa: adopt a cheetah or a baby hippo, start a school for orphans, shoot the breeze pointlessly with Emilio and Tinga, utter banalities about the girl child. Bono reserves his energy for other things.

***Popular Media***

Bono is not famous just for being a singer. For the past couple of decades he has been one of the most visible humanitarian activists, using his fame to enlist powerful allies from:

- Government
- Religious institutions
- Philanthropic groups
- Popular media and
- The business world.

He has personally spearheaded the campaign for debt relief for the world's poorest countries, and has been a vocal champion for Africa. Not everyone agrees with these efforts. Author Paul Theroux savaged Bono, Bob Geldof and other celebrity humanitarians, saying that creating "the impression that Africa is fatally troubled and can be saved only by outside help – not to mention celebrities and charity concerts – is a destructive and misleading conceit."

I happen to agree with that view and have propagated it in writing for many years. I don't think Africa's salvation will come from outsiders,

and it certainly won't come from endless handouts and a crippling dependency culture.

***On Trivia***

**AID FROM EUROPE**



What about you? How big is your life? Are you allowing your time on earth to be frittered away on trivia, or are you going to make a net positive impact on the planet? Are you doing something, anything bigger than yourself? Are you raising a child to be a better person than you are? Are running a business or conducting a profession that sets a standard in good practice? ***Or are you content to be a small person imprisoned in a small life?***

- b) i. Copy the paragraph that begins with “He has personally.....” to page 2. (1mk)
- ii. Set the paragraph to hanging indent. (1mk)
- iii. Change the line spacing of the entire paragraph to double and convert it to landscape.(4mks)
- c). Insert your name and index number as the header left aligned. (1mk)
- d). Carry out word count on the document and write on the paper provided the number of:
  - Words
  - Characters (with spaces)
  - Characters (no spaces) (3mks)
- e). Paginate the document using page x of y at the top center. (2mks)
- f). Save the entire document as A:\Bono2 (1mk)
- g). Print document A:\Bono2. (1mk)

Q2. The information in the following two tables relates to a vehicle buying and selling business.

Table 1: Seller details

Seller No	Seller Name	Address	Town
8215	Samcon	23454	Nakuru
8242	CMC	654	Eldoret
8430	DCM motors	3554	Nairobi
8620	Farmers Garage	7645	Kitale
8845	KCI	8643	Kisumu

Table 2: Vehicle details

Reg No	Make	Type	Price	Seller No
KAJ 543Q	Nissan	Matatu	1,200,000	8242
KAQ 952R	Mercedes	Saloon	4,000,000	8242
KAX 534S	Peugeot	Pickup	960,400	8620
KAZ 454C	Mazda	Saloon	550,000	8215
KBA 386A	Toyota	Pickup	750,000	8620
KBB 917A	Toyota	Saloon	800,000	8430
KBE 875T	Isuzu	Lorry	1,800,650	8430
KBG 805G	Scania	Bus	10,500,000	8845
KBJ 324D	Isuzu	Bus	9,200,000	8845
KZL 931	Toyota	Matatu	1,400,000	8620

- a). Create a database file named A:\Business. (2mks)
- b). Create the two tables above and save them using their respective names. Determine the appropriate primary keys. (10mks)
- c). Create a form based on each table. Insert form titles as seller details form and vehicle details form respectively. (5mks)
- d). Use the forms to enter the records in the two tables as shown above. (15mks)
- e). Create a query containing the following fields(Reg no, Make, price and Seller name). It should display only those vehicles whose prices are above 1000,000. Save as Sales1. (6mks)
- f). Remove the criteria set in sales1 query. Include a calculated field in the sales query to

- derive new prices if the current prices went up by 5%. Save as sales2. (5mks)
- g). Create a tabular report based on sales2 query. The report should show the total amount collected from selling the vehicles if they were sold at their new prices. Save as report. (4mks)
- h) Print the seller details table, vehicle details table and the report. (3mks)

**\*KKC\***

### QUESTION 1

- (a) Type the following letter as it appears in a word processor. Use the mail merge feature to produce copies of the same letter to the persons whose details are given below:- (12 mks)

MWANGAZA HIGH SCHOOL  
P.O. BOX 4800  
ELDORET  
8<sup>TH</sup> JULY, 2010

<NAME> <ADMNO>  
<ADDRESS>  
<TOWN>  
Dear <Name>

RE: 2009 KCSE RESULTS

I AM Happy to inform you that NOKDEC Examinations are out. Kindly arrange to visit our school on <<Date to visit > at 9.00 a.m. In order to know the details. Remember to carry your original K.C.P.E certificate and Examination register card bearing the index number.

Yours truly,

Headteacher

Data source (List of candidates)

Name	Adm. No.	Address	Town	Date of visit
Mark Otieno	8071	P.O Box 24	Sondu	10/08/2010
Kevin Kirui	8089	P.O. Box 172	Kericho	11/08/2010
Benard Soi	8065	P.O. Box 84	Bomet	24/08/2010

**Required:-**

- i) **Save** main document as Main Doc (1 mk)
  - ii) **Save** data source as Data source (1 m)
  - iii) Change addresses and reference font size to 14 points. (1 ½ mk)
  - iv) **Underline** the reference. (½ mk)
  - v) **Merge** the letter onto main document so as to produce copies for all the candidates and save it as Results 2009 (6 mks)
  - vi) **Print** the letter, main Doc, Data source, Results 2009 (3 mks)
- b) Type the following text in a word processing software. (22 mks)
- INTRODUCTION TO COMPUTERS & OPERATING SYSTEMS.**
- A computer is a machine or an electronic device that can solve problems by accepting data, performing certain operations on that data (processing) and presenting the results of those operations (information)
- Basic characteristics that distinguish a computer from other information processing devices:-
- (i) A computer is electronic – That is, all its processing operations are carried out with electrical signal.

- (ii) A computer can store information for future reference. This is done on temporary basis with memory circuits and permanently with storage devices such as magnetic disks and tape.
- (iii) Computer is programmable – unlike other devices built to perform a single function, a computer can be instructed or programmed to perform a variety of tasks.

### HOW A COMPUTER WORKS.

Connecting the data (raw facts) into information (organized, usable form) is called data processing. Data get into system by means of an input device e.g. keyboard then the computer performs the necessary calculations or manipulations on the data and finally the organized information is displayed by an output device e.g. a monitor.

### FUNCTIONS PERFORMED BY A COMPUTER.

Although computers have many applications, they can perform only three basic tasks

- (i) Arithmetic functions on numeric data (Adding, subtracting, multiplying and dividing).
- (ii) Test relationship between data items (by comparing values).
- (iii) Store and retrieve data.

These skills are really no more than people can do, but the computer can accomplish the task more;

- Faster
- Accurately
- Reliably

### Required:-

- (a) Align the title to the centre and underline it. (1 mk)
- (b) Add boarder to the title. (2 mks)
- (c) Replace all the Roman Numbers with bullets. (2 mks)
- (d) (i) Insert the footer “Computer Assessment Test 2010.” (1 mk)
- (ii) Insert the header “Your Name and the Index No.” (1 mk)
- (e) Set the spacing to exactly 1.5 (4 mks)
- f) Insert Word Art “COMPUTER” and set it to appear behind the text. (5 mks)
- (g) Search for words “computer” and replace all with “PC.” (2 mks)
- (h) Move paragraph with heading “How a computer operates” to the end of the document.
- (i) Set the front style of the document to Aerial black. (3 mks)
- (j) Save your work as “computer literacy.” (1 mk)
- (k) Print your document. (2 mks)

2. (a) Create a new workbook and name it as form 4 computer exams. (1 mk)

NAME	CLAS S	Adm No.	CAT 1	CAT 2	CAT 3	TOT AL	AVERA GE	CLASS POSITI ON	REMAR KS
Maina Joan	E	7984	80	70	59				
Ken Korir	W	7896	75	55	72				
Benard K.	E	8092	86	59	75				
John Soi	E	7460	80	79	70				
Kipsang Bett	W	7892	76	75	80				
Mitei E.	E	7800	38	48	25				
Mark J.	W	8490	37	51	29				
Koech Ben	W	8184	30	86	75				

James W.	E	8082	25	27	20				
Abuya Ken	E	8083	30	25	25				
Leonard B.	W	8047	39	24	25				

- (b) **Enter** the following data in sheet 1. (20 mks)
- (c) **Rename** the sheet as Term One Results. (1 mk)
- (d) Find:
- (i) Totals (2 mks)
  - (ii) Average (2 mks)
- (e) Use IF function to award remarks as follow:
- A student whose average is above or equals to 65 gets “Excellent.”
  - An average of 55 or above but less than 65 gets “Average.”
  - An average of less than 55 award “Below Average.”
- (f) (i) Award positions to students basing on the average score. (3 mks)
- (ii) On the last rows enter formulas to count students from both classes. (2 mks)
- (g) **Sort** the student list by class position in ascending order. (2 mks)
- (h) (i) **Insert** a bar graph to display the information below:-
- The three CATS
  - Names
  - Title as “TERM ONE COMPUTER RESULTS”
- ii) Place the legend at the bottom of the graph. (1 mk)
- iii) **Save** the chart on a new sheet and name it graphical analysis. (1 mk)
- (i) **Print:**
- i) The filtered lower group. (1 mk)
  - ii) The chart. (1 mk)
  - iii) Term one results sheet. (1 mk)

**\*UGU\***

1. (a) Using a word processing package, type the passage below as it appears and save it as A:/STRESSDOC1 (27mks)

**1**

*A parent who appreciates by saying, “Well done’ or I’m proud of you’ can leave an indelible mark.*

There is much more to facing stress in life than the right diet and physical exercises. Indeed, it could be that the attitude on which your life is founded is the most vital part of the picture.

**Take charge of your life**

Keeping stress at bay involves treating yourself as someone with a right to life. That will involve a degree of assertiveness and confrontation. Those very words can conjure up images of a shoot-out at the OK Corral. It does not have to be that way. There is a world of difference between being assertive and being aggressive. Sadly, many who need to break out from being always submissive to the expectation and demands of others can only imagine that the alternative is to be aggressive.

***You are submissive when:***

- you are not willing or not able to express your feelings, needs, values and personal concerns
- you let others invade personal space and trample on your rights.

***You are aggressive when:***

- you tend to stomp over other people

- you inflict and impose your views and values on others, expressing your feelings at their expense.

***You are assertive when:***

- you say what you want, without overwhelming or abusing other people
- you are clear about your own position and let other people know
- you can accept that others may have views different from your own and may wish to negotiate their position accordingly.

Assertiveness involves much more than defending your rights. It equally concerns your being prepared to expect that your own needs be recognized and met. In particular, two key statements typify the maturity of character that lies behind assertive. These are the conviction that:

- (a) *I have the right to decide for myself whether or not I am responsible for finding a solution to someone else's problem and they have the same right when faced with mine.*
- (b) *I have the right to deal with people without having to make them like me and they have the same right concerning me.*

Few people find that assertiveness comes easily. But the hard work involved in monitoring your personal style together with some training through a local evening class or appropriate reading pays dividends. This is because mastering assertiveness leads to:

- better and more honest communication
- giving others greater dignity and respect
- learning to relax and reduce anxiety
- getting more of your needs accepted
- closer interpersonal relationships
- taking responsibility of what happens in your life
- feeling better about yourself
- protection from being taken advantage of by others

- (b) (i) Spell check the passage (2mks)
- (ii) Indent the first line of the paragraph starting with "Keeping stress at bay....." (2mks)  
By 1.2cm (or 0.47")
- (iii) Select the paragraph starting with "Assertiveness involves much more....." and set the left and the right margins to 2cm (or 0.79") and fully justify. Save the changes as A:/STRESSDOC2. (6mks)
- (iv) Insert page numbering at the bottom center of each page (2mks)
- (c) (i) Retrieve A:/STRESSDOC1 and covert all the text from the paragraph starting with "There is much more..." into two columns of the same width and height. (5mks)
- (ii) Change the line spacing for the entire paragraph starting with "There is more to facing stress...." to 1.5. (2mks)
- (iii) Save the changes as A:/STRESSDOC3 (1mk)
- (d) Print the documents; A:/STRESSDOC2 A:/STRESSDOC3 (3mks)

- Use the information in the table below to design a database. Name the table as "EmpT and store the database file as Company (20mks)

Name	Date of birth	Sex	ID No.	Dept	Salary paid (Kshs.)
Peter	20-07-71	Male	1377841	Accounts	3000
James	30-5-78	Male	1235542	Sales	4000
Gregory	30-06-79	Male	1244745	Account s	5600
Job	14-04-77	Male	2213540	Marketing	4500



Sarah	14-07-79	Female	1124681	Sales	3000
Paul	12-04-80	Male	1455367	Accounts	3500
Onyango	25-04-08	Male	0147535	Sales	7000
Jessica	01-01-79	Male	5664124	Sales	3500

- (a) Create a form named EmpF and add two more records using the form (5mks)
- (b) Create three reports to print the information below: (6mks)
- (i) Employees listed by Department types (EmpR1)
  - (ii) Alphabetical listings of all employees (EmpR2)
  - (iii) All employees in the sales department get a 2% commission on sales. Create a report to show the commission paid to all the sales people, if the basic salary for the sales people is Kshs.3000 (EmpR3) (8mks)
- (c) Create a query (EmpQ) to show who will be retiring at the end of the year, if the retirement age is 55.

**\*KSM\***

1. You are an accountant in affirm that provides mobile phone services. You wish to work out the pay details for a new employee and present a report.

NAME	YEARS WORKED	BASIC PAY	DEPARTMENT	SALES (KSH)	HOUR OF OVERTIME	MILEAGE (KM)
Eric	9	14000	sales	16000	10	120000
Stephen	23	18000	admin	25000	11	130000
Fred	5	7000	sales	22000	12	112000
John	17	18000	marketing	12000	15	134200
Julius	18	16000	sales	11000	22	123000
Daniel	3	25000	admin	30000	12	10200
Martin	11	19000	sales	35000	33	132000
Stanley	15	15000	marketing	14000	14	112000
Evans	11	23000	admin	25000	0	12000
Gideon	8	17000	accounts	14000	7	154000

- (a) Using the information above, design an appropriate spreadsheet and enter the given data, give it a suitable title and save it as A: Tel 1 (14mks)
- (b) (i) calculate the total sales and total mileage and labels them accordingly (4mks)
- (ii) Write on the paper provided the formula used for total mileage (1mk)
- (iii) Save the spreadsheet now as A: Tel 2 (1mk)
- (c) (i) The employees sales commission is calculated as 11% of the employees sales. Input this commission rat in cell C20 and label it appropriately. (3mks)
- (ii) Insert a new column labeled 'sales commission' between 'sales' and 'hours of overtime'
- (iii) Create a formula to give the amount f sales commission by making reference to sales commission cell. (4mks)
- (iv) On the paper provided write the formula created. (1mk)
- (v) Copy the formula to get the sales commission for all the other employees and save the worksheet as A: Tel 3 (3mks)
- (d) (i) staff who work in admin and work overtime are given a bonus of shs.3600 but no overtime pay, while staff who work in other departments are paid overtime pay at a rate of shs.200 per hour. Create a new labeled 'overtime and use a function to fill the value into the column appropriately. (6mks)
- (ii) On the paper provided write the function you have used (2mks)
- (iii) Save the spreadsheet now as A: Tel 4(1mk)
- (e) (i) Create a column for the sales/mileage ratio and label it 'sales/mileage'. Use a function to calculate the ratio and copy it down the column to fill the value for all employees.
- (ii) Use the IF function to put the remarks 'GOOD' in a new labeled REMARK for only these

- employees whose sales/mileage ratio is greater than 2 (4mks)
- (iii) Save the spreadsheet now as A: Tel 5 (1mk)
- (iv) Print files Tel 1, .Tel 2, Tel 3, and Tel4and Tel 5 (2mks)

2. Compulynx is a company with numerous branches in east Africa. in order to monitor the performance of the branches and that of the cities in which the branches are located, a database to organize the information is required:-

- (a) Create a database file and name it company (2mks)
- (b) (i) create a table containing the following fields (4mks)

Field name	Field type
STORE-NO	Number/numeric
BRANCH	Text/character
CITY	Text/character
STAFF-SIZE	Number/numeric

- (ii) Make the field STORE-NO the primary key and save the tables as STORES. (2mks)
- (c) (i) Create a form from the STORE able and save it as STORE-FORM (5mks)
- (ii) Use the form to enter the records below (5mks)

STORE-NO	BRANCH	CITY	STAFF SIZE
1	Tudor	Mombasa	15
2	Bongo	Dar-es-salam	14
3	Sunset	Nairobi	21
4	lake view	Kampala	15
5	king'orani	Mombasa	9
6	Beach town	kisumu	16
7	ABC	Nairobi	89
8	crane Ltd	kampala	7
9	wheat land	nakuru	12
10	ocean view	Dar-es-salam	6

- (d) (i) Modify the Store table to include and additional field with the heading SALES(SHS) (3mks)

- (ii) Enter the information below for each of the stores (2mks)

STORES-NO	SALES
1	789,300
2	685,400
3	376,958
4	355,420
5	457,800
6	682,458
7	541,000
8	235,420
9	352,415
10	433,443

- (iii) In the STORES table, swap the fields CITY with BRANCH (2mks)
- (e) (i) Create a query from the STORE tales to display the field BRANCH,CITY,STAFF-SIZE and SALES(SHS) for stores whose sales are less than 400,00 (3mks)
- (ii) Sort the records in the query above in alphabetical order of BRANCH field and save it as

## POOR PERFORMERS

(2mks)

- (f) (i) create a tabular report with landscape orientation from STORE tables to display the field in the following order

**STORE-NO    BRANCH    SALES (SHS)**

4mks)

- (ii) Sort records in the report in alphabetic order of the BRANCH field (1mk)

- (iii) Compute the total sales and place it below the SALES (shs) column and change its font size to 13 (5mks)

- (iv) Place two straight lines cutting across the page, one above and one below the sales total

- (g) (i) Insert a header COMPULYNX PERFOEMANCE in the report having font size 19 and centre it across the page (3mks)

- (ii) Remove the report pagination and insert your name and index number in its place and save the report as PERFORMANCE (2mks)

- (h) Print STORES table, POOR PERFORMER query and performance report

### \*KKE\*

- 1 a) Create anew workbook and name it as form 2 computer exams (1mk)

Name	class	Adm.No:	CAT1	CAT2	CAT3	total	average	Class position	Remark
Maina john	E	7984	80	70	59				
Ken Korir	W	7896	75	55	72				
Bernard K	E	8092	86	59	75				
John Soi	E	7460	80	79	70				
Kipsang Bett	W	7892	76	75	80				
Mitei E	E	7800	38	48	25				
Mark J	W	8490	37	51	29				
Koech Ben	W	8184	30	86	75				
James W	E	8082	25	27	20				
Abuya ken	E	8083	30	25	25				
Leonard	W	8047	39	24	25				

- b) Enter the following data in sheet 1 (15mks)

- c) Rename the sheet as term one result (1mk)

- d) Find:

i) totals

ii) Average (2mks)

- e) Use the subtotals function to find the average of each class (5mks)

- f) Use the IF function to award marks as follows

- A student whose average is above or equal 65 is given “excellent”
- An average of 55 or above but less than 65 award “average work”
- An average less than 55 award “work below average”

i) Award position to students basing on the average scored (3mks)

ii) On the last rows, enter formulas to count students from both classes (2mks)

- g) Sort the student list by class position in ascending order (2mks)

- h) i) copy the entire worksheet onto sheet 2 and rename it “lower group”(2mks)

ii) filter “lower group” sheet to display students from “E” class and whose average score is below 50

- i) Draw a bar graph to display the following information (3mks)

-the three cats

-names

-Title as “TERM ONE COMPUTER RESULTS”

- i) Place the legend at the bottom of the graph (1mk)
- ii) Save the chart on a new sheet and name it graphical analysis (1mk)
- j) Print
  - i) The filtered lower group (1mk)
  - ii) The chart (1mk)
  - iii) Term one results sheet (1mk)

2 a) Create a database called ELIMU (2mks)

b) Create three tables EXAMINATION, DOS and BOARDING with the field as shown below

c) Create a relationship between the three tables and enforce integrity (6mks)

d) Enter the data items in the given three tables (15mks)

	EXAMINATIONS			
Admission number	mathematics	English	Kiswahili	Biology
1	45	67	90	23
10	45	89	90	20
2	45	70	80	45
3	89	90	90	20
4	78	9	90	50
5	67	89	60	90
6	67	90	7	80
7	34	78	70	90
8	23	50	38	90
9	23	15	67	20

		DOS		
Admission number	S name	Other names	KCPE Mark	Year of KCPE
1	Peter	Barasa	327	2007
10	Johnson	Suk	250	2001
2	Alex	Ojwang'	340	1998
3	Chepkuto	Esther	250	2008
4	Wekesa	Raymond	450	2007
5	Alex	Wamwana	410	2003
6	Jane	Kilonzo	400	2000
7	Mathew	Kariuki	450	1999
8	Nasimiyu	Catheen	290	2003
9	Kimathi	John	300	2001

	BOARDING		
Admission number	uniform	tool	Tool name
1	No	12	JEMBE
10	Yes	20	JEMBE
2	No	11	PANGA
3	Yes	1	SLASHER
4	Yes	111	JEMBER
5	No	15	RAKE
6	Yes	22	BASIN
7	Yes	11	BROOMS
8	Yes	90	RAKE
9	yes	23	BUCKET

e) Design query that would display the following fields as shown below and write down the formulae for getting the total score and criteria for extracting the records below (10marks)

	Admin						
--	-------	--	--	--	--	--	--

Admission number	uniform	S Name	KCPE Mark	maths	English	Kiswahili	TOTAL SCORE
1	Yes	chepkuto	250	89	90	90	269
10	Yes	wekesa	450	78	9	90	177
2	Yes	Jane	400	67	90	7	164

- f) Design a report that would sort the following in ascending order of the following fields, total score, and KCPE score, name the admission number and the report should display all the fields. Save the report as administration (5mks)
- g) Print, administration and admin (2mks)

**\*RCH\***

**Question 1.**

**Ms – Access Database**

- (a) Create a database file called **VIDEOS** and use it to enter the details that follow. (3 mks)
- (b) Create a table called Customer using the following structure. (4 mks)

Field Name	Data type	Size	Description	Caption
Customer ID	Number	3	3 – digit unique number	Customer ID
Last Name	Text	25	Enter the Last Name	Last Name
First Name	Text	15	Enter First Name	First Name
Address	Text	50	Address	Address
Birth Date	data/time		Enter yyyy/mm/dd	Date of birth
Home Tel	Text	14	Home Tel.	Home Tel.
Work Tel	Text	14	Work Tel.	Work Tel.
Email	Text	40	Email Address	Email Address
Gender Place	Text	1	M or F	Gender
Work Place	Text	40	Place of employment	Place of employment

- (i) Make the Customer ID Field the primary key. (1 mk)
- (ii) Format the Last Name and First Name fields to convert characters to upper case by using >. (1 mk)
- (iii) Enter Yes in the required property of the Last Name, First Name and Gender fields. (1 mk)
- (iv) Format the Birth Date field yyyy.mm.dd to input the birth dates ,year, month abd day.(1 mk)
- (v) Use the input mask for the Home Telephone and work Telephone fields. The input mask should be (999) 999 – 999. (1 mk)
- (vi) Format the Gender field to convert the character to upper case using >. (1 mk)
- (vii) Enter the M or F for the Validation rule field of the gender Field. (1 mk)
- (viii) Enter the Only **valid entries are M or F in the validation Text** of the Gender Field.(1 mk)
- (ix) Enter Yes in the required property of the gender field. (1 mk)
- (x) Save the tables as Customer. (1 mk)

Custo mer	Last	First	Address	Birth	Home Tel.	Wor k	Email	Gende	Work place
--------------	------	-------	---------	-------	--------------	----------	-------	-------	---------------

ID	Name	Name		Date		Tel.		r	
201	JOHNSON	MICHELLE	RUBY PARK, ST PHILIP	1969/02/15	(245) 431-2916	(246) _ 2196	<a href="mailto:Michele@bclub.com">Michele@bclub.com</a>	F	Bankers Night Club
202	CHANDLER	TRYONE	BANK HALL, ST. MICHAEL	1969/03/05	(246) 431-8971	(246) ) 422-1119		M	GE Electronics
203	BANFIELD	SHIRLEY	71 LONG BAY DEVELOPMENT	1970/10/26	(246) 5441		<a href="mailto:sheba@email.com">sheba@email.com</a>	F	
204	ISIDORE	EYSTER	4MT STANDFAST, ST. JAMES	1968/11/10	(246) 433 – 9172	(246) ) 422 – 1999		F	Queen Elizabeth Hospital
205	CONNELL	WINSTON	CANE GARDEN, ST. THOMAS	1971/12/10	(246) 433 – 9172	(246) ) 417-4177	<a href="mailto:connel@hotmail.com">connel@hotmail.com</a>	M	Transport Board
206	KELLMAN	ARLENE	ST. PATRICKS, CHRIST CHURCH	1974/06/10	(246) 421 – 2031	(246) ) 426 – 2979	<a href="mailto:sypher@hotmail.com">sypher@hotmail.com</a>	F	KMGP
207	PAYNE	REBA	FOSTER, HALL, ST. GEORGE	1967/01/03	(246) 423-6823	(246) ) 423 – 9741	<a href="mailto:rebapay@sunbeach.com">rebapay@sunbeach.com</a>	F	Core Crystal Hotel
208	GRANT	FREDERICH	GRAPEHALL, ST. LUCY	1962/09/09	(246) 417 – 2280			M	
209	SMITH	IRENE	ASHTON HALL, ST. PETER	1945/07/07	(246) 433-3302		<a href="mailto:storm@hotmail.com">storm@hotmail.com</a>	F	
210	THOMAS	WICKMAN	BOSCOBELLE, ST. ANDREW	1943/04/06	(246) 429 – 2916	(246) ) 422 – 1231		M	JG Retirement home
211	CATWELL	PAULINE	BRAGGS HILL, ST. JOSEPH	1970/02/02	(246) 433 – 87 91		<a href="mailto:catpur@yahoo.com">catpur@yahoo.com</a>	F	Caribbean Union
212	GREAVES	LINDA	TOHMPSON ROAD, ST. THOMAS	1970/09/10	(246) 417 - 4177	(246) ) 417-4177		F	Shoppers Retail Store

c) Enter the following data into the customer table.

(10 mks)

- (d) Save the table as Customer.
- (e) Some new data become available and a few changes have to be made to existing table. These tasks are listed below.
- (i) Enter the new address for Shirley Banfields as 7 Bayfield Development. (1 mk)
  - (ii) Delete record 12.
- (f) Index in ascending order the customer table on the last name and first name fields in the design view. The index is called Name. (5 mks)
- (g) Perform a select query and print the last name, first name, address, home and work telephone numbers for each customer. He would like the information printed with the last names in alphabetical order. Save the query as Customer List. (5 mks)
- (h) (i) Create a query to display all customers who live in St. Michael or St. Thomas. Save the query as Saint. (2 mks)
- (ii) Display all customers whose last names begin with "B" save it as B. (2 mks)
- (i) Create a Customer data entry form from the customer table. The title of the form should be "Customer Data Entry Form" (4 mks)
- (j) Print customer table, Customer List, Saint and B. (2 mks)

## Question 2.

### Spreadsheet Microsoft Excel

You are employed as a sales clerk at JOY TO THE WORLD Mobile Shopping Center. Make a Spreadsheet, which keeps track of 2001 Xmas Orders. Enter the data below, using a format of \$ and 2 decimal places for the Cost.

	A	B	C	D	E
1	CLIENT #	ORDER 1	ORDER 2	ORDER 3	COST
2	A-039	393	567	452	59.00
3	M-539	239	189	102	41.00
4	A-725	257	200		35.00
5	R-341	775	348	183	53.00
6	M-910	158	358	455	89.90
7	P-394	981	208		47.25
8	M-032	319	186	128	38.75
9	M-333	456	235	185	62.00

- (a) Type the following data in a spreadsheet program and save it as SHOPPING. (5 mks)
- (b) Calculate the NET ORDER (i.e. the total number of orders for each client). (3 mks)
- (c) Calculate the SUBTOTAL for each client. (3 mks)
- (d) Sale tax is 6%. Handling cost is \$8.00. Write them in appropriate cells in the spreadsheet. (2 mks)
- Calculate the TAX AND HANDLING charge for each client. (5 mks)
- (Subtotal\* sales tax) + handling cost.
- (f) Calculate the TOTAL CHARGE for each. (5 mks)
- (g) Format ALL results from the above calculations as \$ and zero decimal places. (3 mks)
- (h) Show the lowest, highest and average figures for each order. (5 mks)
- (i) Center, underline the name of the company at the top of the spreadsheet. (2 mks)
- (j) Save the spreadsheet as ORDERS 1. (1 mk)
- (k) Change the sales tax to 7% handling charges to \$9.50 and the cost for client # M-910 to \$45.78.

- (l) Delete the record of client # P-394. (2 mks)  
 (m) Sort the records so that the client numbers appear in descending order. (3 mks)  
 (n) Save as ORDERS 2. (1 mk)  
 (o) To the right of \$9.95, enter the alternative handling charge as \$11.95. (1 mk)  
 (p) Using ORDERS 2 to analyze the sales of order 1 only, delete the columns for ORDERS2, ORDERS S3 and the NET ORDER. Recalculate the SUB-TOTAL for each client. (5 mks)  
 (q) Using ORDERS 2. If a customer buys 319 items or less, the handling charge will be \$ 9.95. If the order is 320 or more then the handling will be \$ 11.95.

Recalculate the TAX and the HANDLING charge for each customer where TAX AND HANDLING = (Subtotal\* sales tax) + handling cost.

Enter the new formula in the TAX AND HANDLING column. (3 mks)

(r) Make a bar graph in a new sheet called COMPARISON which shows the total charge for each client. The graph should also reflect how much of this is tax and handling and show how much is subtotal.

(2 mks)

(s) Save it and print all the files.

(2 mks)

**\*TZM\***

### QUESTION ONE (50 MARKS)

A), using an appropriate word processing, type the following passage and save it in diskette as **DATA SECURITY**

(10marks)

Data security and control

External threats

- i. Fire, floods, earthquakes and other natural disasters. These are the potential threats but are not the most common external problems,
- ii. Theft of equipment-theft of pc's laser printers and even memorychips after a **Break into a building are very** common,
- iii. Espionage (intelligence)-information in the wrong hands can do a lot of damage. Example access to a payroll or accounting information is restricted so Such information should be shielded away from external and internal spies.

Internal threats

**Internal threat** would include

- i. Hacking
- ii. Fraud
- iii. Hardware failure
- iv. Corruption of databases

Viruses load and run without the user requesting them to run; and cause considerable damage e.g.

- i. Modifying other program
- ii. Hiding inside other programs with an aim of spreading to other machine
- iii. Destroying data and programs.

It is a computer code which usually designed to carry out two tasks:

- i. To replicate itself from one computer system to another.
- ii. To locate itself within a computer system in such a way as to make it possible for it to amend or destroy programs and data files, by interfering with the normal processes of the operating, system.

### Questions

i) Copy the original document (data security) to the next page

(2marks)

ii) Format the headings as follows:

(6marks)

	Font size	Font type	underline	bold
--	-----------	-----------	-----------	------



Data security and control	14	Times new Roman	Yes	Yes
External threats	14	Monotype corsiva	None	Yes
Internal threats	14	Default	Yes	No

iii) Change the numbering to bullets; as follows:

(2 marks)

Headings	bullet
i. External threats	>
ii. internal	•

iv) Strike through the word internal threats

(2marks)

C). i) **Insert** the ANY clipart at the bottom center of the document.

(3marks)

ii). **Create** word art as indicated by the symbol.

(2marks)

# DATA SECURITY

iii) Using auto shape, design a logo as indicated by the symbol.

(2marks)



D) Save the document as **SECURITY**

(2marks)

E).i. Copy the original document (data security) to the next page

(2marks)

ii. Drop cap the first letter of the document (D) to cover two lines

(1mark)

iii. Spell check the whole document.

(2marks)

iv. Double space and italics the first paragraph

(3marks)

v. Insert a header "computer threat" to appear in every page

(2marks)

vi. Number the pages using the format 1, 2, 3.....

F) Save the document as **COMPUTER THREAT**

(2marks)

G) Print the document

i. Data security

(1mark)

ii. Security

(1mark)

iii. Computer threat

(1mark)

## **QUESTION TWO (50 marks)**

The following is a worksheet extracted from business Join vendors.. They have come together to do a business of selling computer accessories.

Names	Cost	Sales	Gross profit	Expenditure	Reserves	Net profit	Remarks
Benson	700	350		450			
Betwel	400	700		50			
Kimwat	200	900		200			
Amos	300	1000		300			
Tembur	100	500		100			
Korir	400	600		40			
Towett	600	850		55			
Maritim	500	350		70			

Kerich	200	350		45			
Bency	500	1000		40			
Danson	600	900		170			
Kones	900	1000		20			
Koech	100	800		130			

#### Additional Information.

- Gross profit = Sales-Cost
- Net profit = gross profit - (expenditure+ reserves)
- Reserves = 10% gross profit
- Remarks are: "very good vendor", "good vendor", "domain vendor", "burden vendor". "Quite vendor".

#### **REQUIREMENT**

- Create the workbook and enter the details, save as vendor.ex (15marks)
- Keep the title of the workbook to be JOIN VENDORS and format it to be bold, font size 14 and align at 20° (4marks)
  - Format the figures in sale column to 2 decimal places (2marks)
  - Insert two rows between Tembur and Korir and enter the records below: (5marks)
    - Name Bii, cost 100, sales 500 and expenditure 10.
    - Name Mutai, cost 800, sales 2000 and expenditure 80.
- Use sum function to calculate gross profit for each member (3marks)
- Use product function to calculate reserves for each member (3marks)
- Use "IF function" and net profit to analyses the vendors, taking the following remarks: (6marks)
  - If net profit  $\geq 500$ , then "very good vendor"
  - If net profit  $> 400$ , then "good vendor"
  - If net profit  $\leq 300$ , then "domain vendor"
- Use names of the vendor and cost to insert a line graph, keep the title of the graph to be PRODUCTIVE ANALYSIS, format it and place it in a separate sheet. (5marks)
  - Save the changes as productive analysis (2marks)
  - Print the "**Join vendor**" and "**productive analysis**" including gridlines 4marks)

#### **QUESTION 3 (50 MARKS)**

- You have been asked by the school administration to design school advert to inform school members about form four farewell party. Your advert should look like the design below.

## Answers paper one

**\*NYR\***

1. *Identify programming language used in the following generations:-*

**\*NYR\***

- (i) First generations – machine language*
- (ii) Second generation – assembly language*

2. *Give importance of having the following in computer laboratory:-*

**\*NYR\***

*(i) Standard furniture in the laboratory*

- *To avoid poor posture during machine use this may lead to strain injury and limb fatigue*

*(ii) Antiglare screen/monitor*

- *To avoid eye strain and fatigue caused by over bright cathode ray tube monitors (CRT)*

*(iii) UPS*

- *Temporarily supply to the computer to allow the user to save the work (power backup)*
- *Stabilizes power (clean unstable power supplied from the main source to clean stable voltage)*

3. *(a) Explain the following terms as used in booting:-*

*(i) BIOS:- it's the basic input output system. it's special firmware program that Post to take place*

*(ii) POST:- Power on self test. It checks on existing drives, basic input/output devices and communicates in case of a problem.*

*(b) Differentiate between:-*

*(i) Backspace and delete keys on the keyboard*

- *Backspace and delete keys on the keyboard – erases character from the right while delete keys key erases from the left of the cursor.*

*(ii) Insert and type over mode*

- *Insert and type over mode- in the insert mode when the text is inserted between words or character it pushes the existing text away without replacing it while in the type over mode when text is type between words or characters the new text automatically replaces the existing text by de letting it.*

4. *Explain the functions of the following central processing unit components*

*(i) ALU*

- *To carry out all the arithmetic and logical operations (i.e mathematic computations and comparison of values)*

*(ii) Control unit*

- *Coordinating all processing activities in the CPU as well as input,storage and output operations.*

*(iii) Primary memory*

- *Provides storage location for data and instructions accessed by the control unit*

5. *(a) Differentiate between static RAM and Dynamic RAM*

- *Static RAM is a very fast memory and holds its contents as long as there is power*
- *Dynamic RAM holds the contents for a short while even if when the power is on.*

*(b) Distinguish between compilers and interpreters*

- *Compilers – translates the entire source program into object code.*
- *Interpreters- translates the source code line by line*

6. *(a) List two softcopy output devices*

*Speakers*

- *Monitors*

*(b) Distinguish between impact and non-impact printers citing one example in each*

**\*NYR\***

- *Impact printers – these printers print using striking mechanism i.e they strike the paper*

- in order to form an imprint on it. e.g dot matrix, daisy wheel, drum, chain and golf ball*
- *Non impact printer :- they print using ink, thermal or laser mechanisms e.g laser, thermal, ink jet, electrostatic*
7. *State two merits of using the following input devices:*
- (i) *Speech recognition*
- *NO keyboard is necessary*
  - *Useful in instruction where hand/eyes are too busy handling documents*
  - *Can be used in remote locations via the phone.*
- (ii) *Touch screen*
- *Faster in data entr.*
  - *Can be used with non-computer literates.*
  - *It's applicable to people with disabilities.*
8. *Differentiate between freeware and open source as end-user –license softwares.*
- Freeware- software whose source code hidden from the users. Modifications only made by the manufacturer*
- *Open source software whose source code is free made to the users. The users are encouraged to use ,modify and distribute the product.*
9. (a) *List four types of system software*
- Operating Systems*
- *Firmware.*
  - *Utility Software*
  - *Networking Software.*
- (b) *Explain the following functions of the operating system:-*
- \*NYR\**
- (i) *Job scheduling:- the OS prepares, schedules, controls and monitors task submitted for execution, to ensure the most efficient processing.*
- (ii) *Interrupt handling:- the processor stops executing the current process to attend to a break from the normal sequential processing of instruction in program.*
10. *Explain the following disk management tools:-*
- (i) *Disk formatting*
- *It prepares a new disk for use by imprinting empty sectors and tracks on the surface of the disk so that the OS can recognize and make it accessible.*
- (ii) *Disk defragmentation*
- *Arranging scattered files or folders on folders on a storage media for easy access of files and folders.*
11. *Differentiate between the following terms as applied in operating system:-*
- \*NYR\**
- (i) *Multi-user – OS allow more than one user to interactively use a computer.*
- (ii) *Multi-tasking- when the OS allows the CPU to executes more than one application program at the same time*
12. *Explain the following terms as applied in word processor*
- \*NYR\**
- (i) *Text wrap:- this feature allows a text to surround an object inserted*
- (ii) *Word wrap:- the cursor move automatically to the next line after reaching the end of the line.*
13. (a) *Distinguish between first line and hanging indentation*
- \*NYR\**
- *First line indent – the first line is indent while other are left along the margin*
  - *Hanging indent- the whole paragraph is indent except the first line*
- (b) *differentiate between auto complete and auto correct features.*
- *Auto complete feature displays a word when the user types the first few characters of the word*

- While autocorrect feature automatically detects wrongly spelt or capitalized words and replaces them with the correct word
14. (a) Differentiate between the following combinations of terms:-  
\*NYR\*
- (i) Filtering and sorting:-
- Filtering:- This is displaying entities that meet a certain set criteria
  - Sorting:- This is arranging data in predefined order i.e ascending or descending
- (ii) Relative and absolute cell referencing
- Relative reference – cell references keep on changing automatically depending on their position in the worksheet. e.g when formula = B2 + C2 in cell D2 is copied to D3 it automatically changes to B2 + C3
  - Absolute reference – the copied formula in different cells does not adjust references. It is identified by adding a dollar sign before the parts of cell that do not change.
15. Identify the elements of a function  
\*NYR\*
- Equal sign (=) function name and arguments
16. A class teacher of form 3E in Nzambani secondary school requested a programmer to design a program that would help do the following:-  
\*NYR\*
- (a) Enter the names of students and marks obtained in 8 subjects; maths, English, Kiswahili, Biology, Chemistry, Business Studies, History and Computer Studies.
- (b) After entering each subject mark the program should calculate for each student
- (c) Depending on the average mark obtained, the program should assign the grades as
- Between 80 and 100 = A  
Between 70 and 79 = B  
Between 60 and 69 = C  
Between 50 and 59 = D  
Below 50 = E
- (d) The program should display each student's name, total marks and the average grade.
- Using flow chart, show the design of the program
17. (a) Define the following terms in reference to the internet:-
- (i) Protocol:- set of rules that govern transmission of data or information over a network
- (ii) Website:- it's collection of related web pages where individual or organization documents are placed for easy access by external world by using their address.
- (iii) Search engine:- it's a program that searches documents for specific keywords and returns a list of the documents where the keywords were found.
- (iv) Spam mail:- it's a feature in e-mail which inhibits receiving mails from unknown sources.
- (b) List three examples of search engines
- Google
  - Yahoo
  - Hotmail
  - Gmail
- (c) Identify the functions of the following devices in data communication:-  
\*NYR\*
- (i) Modem:- it's a special digital to analog interface card that changes data from digital to analog so as to be transmitted on telephone lines and on the receiving end the data is changed from analog to digital for computer to understand.
- (ii) Network interface card:- it's a circuit board that fits inside an expansion slot of a workstation and acts as a physical between the computer and the transmission media.
- (iii) Router: collection of routers in network.
- (d) Describe bounded and unbounded forms of communication giving two examples in each case  
\*NYR\*

**Bounded media – it is physical connection of communication devices mainly by use of cables e.g coaxial cables twisted pair , two wire cables and fibre optic cable.**

**(e) Outline four advantages of using fibre optic cables**

- **Low attention**
- **High bandwidth**
- **Immune to electromagnetic interference**
- **Very secure because they are untappable.**

**18. (a) Define the following terms as used in data representation**

**\*NYR\***

**(i) Amplitude:- the maximum value a wave can attain**

**(ii) Frequency:- the number of cycles made by a wave in one second**

**(iii) Nibble:- half a byte (4 bits)**

**(iv) Byte:- a group of 8 bits**

**(b) Perform the following  $11111.1111_2 + 100001.1010_2 - 1111.00111_2$**

**\*NYR\***

$$\begin{array}{r} 11111.1111 \\ + 10001.1010 \\ \hline \text{Answer } 110001.1001 \\ - 1111.0011 \end{array}$$

$$\text{Answer} = 100010.01011_2$$

**(c) Using two's complement subtract 73 from 115 and convert the answer to decimal notation\*NYR\***

$$115 - 73 = 115 + (-73)$$

**Convert 115 to binary =  $1110011_2$**

**Convert 73 to binary =  $1001001_2$**

**Convert 73 to 8-bits =  $1001001_2$**

**Convert the 8-bit above to ones complement =  $10110110$**

**Convert to two complement by adding 1 to ones complement above =  $1100111101_2$**

**Answer =  $110011101_2$**

**(d) Identify the duties of the following ICT specialists**

**\*NYR\***

**(i) Software engineer**

- **Developing system and application software.**
- **Developing user and technical documentation for a new software.**
- **Maintain and update the software to meet day to day requirements**

**(ii) System analyst**

- **Design new and recommend change to existing one.**
- **Co-ordinate training for users of a new system.**
- **Repair system specifications**
- **Co-ordinate the implementation of the new system**
- **Prepare instruction manual**

**(e) List two types of opportunities available in the field of computer hardware**

**\*NYR\***

- **Computer technicians**
- **Computer engineers**

**19. (a) Describe the following computer files**

**(i) Logical and physical files**

**Logical files:- It's viewed in terms of what data items it contains and detail of what processing operation may be performed.**

**Physical files:- its viewed on how data is stored on a storage media.**

**(ii) Master and backup files**

**Master file – contains relatively permanent record about particular items or entities and**

*backup files*

*Backup files- it holds copies of others existing files.*

*(b) Explain the following computational errors*

*(i) truncation:- it occurs as a result of having a real numbers that have long fractional part can not fit in the allocated memory space*

*(ii) Overflow:- occurs as a result of having too long answer after calculation that can not fit in the allocated memory space*

*(iii) Rounding errors:- Results from raising or lowering a digit in a real number to the required rounded number*

*(c) Define data integrity and state three ways of minimizing threats to data integrity*

- *Data entry- it's the accuracy and competences of data entered in a computer or received from an information system*

*Ways of minimizing data threats are*

- *backing up data*
- *using devices that capture data directly from the source*
- *designing user interfaces that minimizes invalid data reality*
- *using error detection and application areas of virtual reality*

*(d) Define virtual reality and state three ways of minimizing threats to data integrity*

*Virtual reality – a condition in which a person becomes psychologically immersed in artificial environment generated by a computer system.*

*Areas of application*

- *Aircrafts*
- *Military training*
- *Simulation*
- *Design evaluation*
- *Education*

*(e) Discuss how computers are used in reservation systems*

- *Hotels booking – booking of rooms online*
- *Airline booking – clients can book for a seat online*

20. *(a) Explain the main activity carried out in each of the following system development stages*

*(i) Problem recognition :- identifying whether a problem exists.*

*(ii) Coding: - writing a program using a programming language.*

*(iii) Implementation: - file conversion, staff training and changeover strategies*

*(b) Explain the following changeover methods:-*

\*

*(i) Direct:- the old system is discarded and the new system starts immediately.*

*(ii) Parallel:- both old and new systems are run parallel to each other for some time till the users have confident with the new system then the old system is phased out.*

*(iii) Phased:-the new system is implemented in phases or stages.*

*(c) Explain two advantages of modular programming*

- *Easy to debug*
- *Easy to develop*
- *Its flexible*
- *Easy to read and modify*

*(d) Explain how the use ICT may affect the society*

- *Environment pollution due to poor dispose of computer parts*
- *Cultural effects*
- *Affecting user's health*
- *Effects on employment*
- *Automated production*

*(e) Explain the four main areas of artificial intelligence*

- *Expert systems- soft that stores then knowledge of human experts and then used as consultant in a particular filed.*
- *Natural language processor – ability of a computer to understand human language and translate it to instruction upon which the computer can understand.*
- *Voice recognition-systems that allow voice input a microphone.*
- *Voice synthesis – machine able to create human voice or talk.*
- *Computer vision – computers to be able to process and interpret light waves like human being.*
- *Robotics – it's a computer controlled device that emulate beings in carrying o ut tasks.*

**\*KKC\***

**1. - ROM (read Only Memory) it is used to store programmed instruction and a data permanently or semi permanently.**

- *Data and instruction stored in Rom are those require to remain uncharged for long period of time*
- *RAM (Random Access Memory) its content can be read directly regardless of the sequence in which it is stored.*
- *Its contents is held temporarily and it content lost is lost once the computer is turned off.*

<i>Place Value</i>	$8^3(512)$	$8^2(64)$	$8^1(8)$	$8^0(1)$
<i>Octal digit</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>

**2.a) Working out**

$$N_{10} = (1 \times 8^3) + (1 \times 8^2) + (1 \times 8^1) + (1 \times 8^0)$$

$$= 512 + 64 + 8 + 1$$

$$N_{10} = 585$$

$$\therefore 1111_8 = 585_{10}$$

**b) Solution**

**Weight  
Binary  
digit value  
in bare 10**

<i>2</i>	<i>2</i>	<i>.</i>	$2^{-1}$	$2^{-2}$	$2^{-3}$
<i>1</i>	<i>1</i>	<i>.</i>	<i>0</i>	<i>1</i>	<i>1</i>
<i>2</i>	<i>1</i>	<i>.</i>	<i>0</i>	<i>0.25</i>	<i>0.25</i>

**Integral part**

$$(2^1 \times 1) + (1 \times 1^0) =$$

$$2.000 + 1.000$$

$$= 3.000_{10}$$

$$3.000_{10} + 0.375_{10} = 3.375$$

$$\text{Thus } 11.011_2 = 3.375_{10}$$

**Fraction part**

$$0.50 \times 0 = 0.000$$

$$0.25 \times 1 = 0.250$$

$$0.125 \times 1 = + \underline{0.125}$$

$$0.375_{10}$$

**3. i) Cracking refers to the use of guesswork over and over again by a person until he/she finally discovers a weakness in the security policies or codes of a software.**

**ii) Hacking is breaking codes and password to gain unauthorized entry to computer system data and information files.**

- b) - Data not to be transferred to other coutities without the owners permission**
- *Data and information should be kept secure against loss and exposure.*
  - *Data and information should be accurate and up to date*
  - *Data informatuor be collected used and kept for specified lawful purposes*



4. - *Job scheduling can only handle one task at a time therefore, the operating system has to determine which task will be processed first and makes sure that the one that is currently being processed is closely monitored to avoid wasting time in the processor.*
  - *Job sequence - the operating system keeps a list of jobs or tasks currently being run and clocks them in and out of processor.*
5. - *Avoid smoking or exposing computer to dust.*
  - *Avoid carrying food and beverage to computer soon*
  - *Avoid unnecessary movements because you may accidentally knock down peripheral devices.*
  - *At all times following the current procedure for starting and shutting down the computer to avoid loss of data damage to computer programs.*
  - *Do not open the metallic covers of computers or peripherals devices without permission and particularly when the computer power is still on.*
6. a) *Web page is the major page containing data i.e Text pictures clips etc while a website is a collection of web pages.*
  - b) - *Flat file*
    - *Network*
    - *Hierarchical*
    - *Relational*
7. - *Computer operator is a person who enters data in a computer and keeps upto date records of all information processing activities.*
  - *Computer technician is a person who troubleshoot computer hardware and software, assemble and upgrades computer components such as storage device and motherboards.*
8. *Mail Merge is the process of generating letter or documents by combining a main document.*
9. a) *advantage*
  - *Utilizes the powerful like speed, accuracy to enable the user quickly accomplish tasks.*
  - *Offers a large storage space on computer storage device to save and retrieve document.*
  - *The user produces neat work due to lack of pencil pen work.*
  - *Have better document formatting capabilities.*
  - *Inbuilt formula that enables the user to quickly manipulate data.*
- b) *Cell referencing identifies a cell or range of cells on the worksheet and shows the cells where to look for the values or data needed to use in a formula.*
10. *Graphical based e.g adobe photoshop*
  - *Coreldraw*
  - *Harvard graphic*
  - *Layout based.*
11. - *Data communications media – Optic fiber*
  - *Communication devices e.g hub routers*
  - *Networking software e.g network operating system.*
12. - *Financial system –payroll, accounting and banking*
  - *Retail system – stock control, electronic point of sale.*
  - *Reservation system*
  - *Education system – computer aided instruction, aided learning.*
  - *E – learning & computer simulation.*

**13 a) CD'S, CD- ROM, CD RW,CD –R  
DVD  
LS – 120 SUPER DISK  
OPTICAL CARD  
OPTICAL TAPE**

**b) Magnetic Disk, Floppy disks, Zip disks, Jaz disks**

**15. a) master file main file that contain permanent records of a particular entry.**

**b) Sequential organization**

**Index –sequential organization.**

**SECTION b (60MARKS)**

**16. a i) While – do structure**

**ii) Repeat –until**

**b) i) Assembler – translate assembly source program into object code.**

**ii)Compiler – translate entire source program into object code**

**iii)Interpreter – translates source program line –by line allowing the CPU to execute one line before translating the next.**

**b) 1. Check the loop used**

**The pseudocode can use two looping structure**

**a .If – then – else**

**b. Case structure**

**2. Confirm that loops used can be able to give out the desired results.**

**3. See that the candidate has used appropriate amount and discount.**

**17. i) employee because it has employee information**

**ii)To ensure all records entered in the related table exists in the primary table.**

**iii)Is a unique identity of a record**

**iv)Employee number**

**v)The data is not similar**

**b) 1. Input mark**

**2. validation rule**

**3.Required**

**4. Indexed**

**c) 1. To enhance security of data**

**2. To share file between department**

**3. To reduce redundancy**

**4. To enable updating and deleting of data.**

**5. In faster searching of data.**

**18. a) i) A - free/hierarchical topology**

**B -Ring topology**

**C -Mesh topology**

**ii) Point 1 and 2**

**Terminator**

**iii) Mesh topology**

**iv) - Modifying the topology**

**- Troubleshooting is difficult**

**- One device breakdown affects the whole system.**

**v) Identify the device labeled X in topology A – HUB.**

**b) a. Network protocol**

**b. Network Operating System**

**c) i) Repeaters – A device that receives signals from one send it to another segment.**

**ii) Network hub – A device that connects computer onto network.**

- iii) *Fiber optic cables – transmission medium that transmits data by using light.*
- iv) *Network interface (NIC) - A device inside the system box for linking them onto transmission medium.*

**19. Feasibility study – is the process of going out of the filed to identify information that is related to an organization.**

- b) 1. *Main memory*
- 2. *Input/output devices*
- 3. *Processor*
- 4. *Secondary storage.*

- c) i) *Truncated – Errors that results from having real numbers that have a long fractional part.*
- ii) *Transposition – Errors that result from incorrect reading of source document.*
- iii) *Transcription – errors that occur during data entry.*

- d) 1. *ASCII(American Standard Code for Information Interchange )*
- 2. *EBCDIC (Extended Binary Coded Decimal Interchange Code)*
- 3. *BCD (Binary Coded Decimal)*

- e) *Online - data processed immediately it is received*
- Real time – the incoming data is processed as soon as it occurs.*

- f) i) **Advantages**  
*It is fast in processing commands as compared to GUI and means driven interface.*  
**Disadvantage.**
  - *It is difficult to the users because they need to memorize command*
  - *Single tasking and can not support more than one task.*

- 20. a) i) - *Chatting*
- *E-mails*
- *Video conferencing*

- ii) *Links – A text or picture that when chicked causes other web pages to be opened.*  
*URL – A special internet address made up of organization name and an extension explaining to type of organization and country.*

b)

	<b>A</b>	<b>B</b>	<b>C</b>
<b>1</b>	<b>Crop</b>	<b>Amount</b>	<b>Not Viable</b>
<b>2</b>	<b>Maize</b>	<b>150</b>	<b>Not Viable</b>
<b>3</b>	<b>Bean</b>	<b>300</b>	<b>Not Viable</b>
<b>4</b>	<b>Cashew Nuts</b>	<b>850</b>	<b>Moderate</b>
<b>5</b>	<b>Cabbages</b>	<b>1036</b>	<b>Viable</b>

- c) i) *Triple click*
- ii) *Hold down ctrl as you drag the mouse pointer.*
- d) i) *A window is a rectangular feature where an application is running and bears close, minimize and restore button while orphan is body without heading.*
- ii) *Cut and copy command.*

*Cut – more or transfer text of file from the original location to another without leaving a copy*

.

*Copy – duplication of text or files i.e a file retains its original location and appears in another location.*

- e) - *To emphasize the beginning letter enlarge on a paragraph.*

- f) i) *Expert system – is a system developed and installed in an office using the intelligence of human being.*

- ii) - *Hospital*
- *Education*
- *Other scientific department.*

**\*MUM\***

1. State two functions of the **SHIFT** key as used in a word processor. \*
  - Activating from upper case to lower case and vice versa
  - Enable one to type extra characters on the key board like ?, !, & e.t.c.
2. a) How do registers differ from buffers. \*

They store more than one piece of data and they have a bigger memory capacity

(b) List four examples of registers. \*

  - Program counter
  - Stack pointer
  - Instruction register
  - Index register
3. Daniel has noticed the following problems in his computer; \*
  - (i) It is taking a longer time to start up.
  - (ii) It is often hanging
  - (iii) Applications are taking long to load.
  - (iv) State three possible causes of these problems and how they can be solved.
  - Virus attacks
  - Processor over heating
  - Small capacity of RAM
4. List three functions of an anti-virus software.
  - Detecting viruses in a computer
  - Cleaning computer viruses
5. Differentiate between a virus and a logic bomb. \*
  - A virus attacks both the hardware and software while a logic bomb attacks hardware at a specific time it has been programmed to.
6. The cells K3 to K10 of a worksheet contain remarks on students performance such as very good, good, fair and fail depending on the average mark. Write a formula that can be used to count all students that have the remark “very good”.
  - Count if (K11, “Very good”)
7. The following information shows the income and expenditure for “Beba yote” matatu for five days.

The income from Monday to Friday was Ksh.4,000, 9,000,15,000 and 20,000 respectively while expenditure for some period was Ksh.2000,3000, 7000, 5000 and 6000 respectively.

(b)

- a) Draw a spreadsheet that would contain the information. Indicate the rows as 1, 2, 3 and 4 and the column as A,B,C

	A	B	C	D	E	F
		MON	TUE	WED	THUR	FRI
1	Income	4000	9000	15000	20000	
2	Expenditure	2000	3000	7000	5000	6000
3						

- b) State the expression that would be used to obtain:
- (i) Monday profit. = B1 – B2
  - (ii) Total income = Sum (B1 : F1)
  - (iii) Highest expenditure. = Max (B2 : F2)
8. Describe the following terms:
- (a) Software suite :- A group of programmes that are sold together e.g. MS office which contains MS word, MS excel, MS access e.t.c.
  - (b) Shareware:- Is copyrighted software that is distributed free of charge but requires users

to make a monetary contribution in order to continue using it

(c) Groupware:- Online software that allows several people to collaborate on the same project

(d) Integrated software:- A software that combines features of different programs as a whole

9. (a) Subtract  $0111_2$  from  $1001_2$

$1001_2$

$0111_2$

$010_2$

(b) Using two's complement subtract 7 from 40 and give the answer in decimal notation.

10. Distinguish between uploading and downloading. \*

- Uploading – sending information from a local computer to a remote computer on the internet
- Downloading – transferring information from a remote computer on the internet to a local computer

11. Distinguish between peer-to-peer Networks and client-server networks. \*

- Peer to peer networks are equal in a network while client server networks contain a computer called a server that serves other computers called clients

12. List any two techniques used to implement information systems in various organizations.

- Direct
- Parallel
- Pilot
- Phased

13. Distinguish between a word and word-length as used in data representation.

- Word is a general term that can mean a single character or a group of characters while a word length is a measure of the NO. of bits in a word.

14. Describe three types of maintenance that can be applied on information systems. \*

- Perfective maintenance
- Preventive maintenance
- Adaptive maintenance

15. (a) Study the flowchart extracts below \*

(b) State the looping structure demonstrated in \*

(c) List any four methods of detecting and correcting programming bugs.

(d) Draw a flowchart for a program that can be used to add any positive integers that can be keyed into the computer through the keyboard. The program should count the positive numbers entered and should be terminated when a zero is keyed in.

15. a) Study the flowchart extracts below

i) While .. Do

ii) Repeat... Until

b) State the looping structure demonstrated in

- Debugging utilities
- Dry running
- Using test data
- Using translator programs

c) List any four methods of detecting and correcting programming bugs.

16. Below are two table structures of files in a database:

TABLE 1

<u>Field</u>	<u>Data type</u>
Employee number	Text
Employee Name	Auto number
D.O.B	Date/time
Address	Test

TABLE 2

<u>Field</u>	<u>Data type</u>
Employee number	Number
Data employed	Date/time
Department	Test
Salary	Currency

(i) Which of the two tables is likely to be the parent table?

- *table 1*

(ii) *It is advisable to enforce referential integrity when creating a relationship. When creating a relationship, what do you understand by the term referential integrity?*

- *Is a feature that ensures that a record in a child table exists in a parent table*

(iii) *The field “employee No” in Table 2 is likely to be the primary key.*

*What is a primary key?*

- *Is a special index that uniquely identifies a record to avoid duplication of data*

iv) *Which fields in both tables is most appropriate for creating a relationship?*

- *Employee number*

(v) *What will make the relationship between the tables fail to work?*

- *Linking fields have different data types*

(b) *In databases, the field properties specify finer details related to the fields and the entries expected. State four field properties.*

*Caption*

- *Input mask*

- *Field size*

- *Required*

- *Validation rule*

- *Validation text*

(c) *State three functions of a database.*

- *-Storing records*
- *Arranging records for easy retrieval*
- *Updating and modifying records*

17. (a) *Explain three communication services offered through the internet.*

- *Electronic mail*
- *Internet radio*
- *Voip (voice over internet protocol)*

(b) *Describe the following internet terms.*

(i) *Browsing:- Moving around and between web pages*

(ii) *Web portal:- Website that contains several features like searching, e mail, advertisements, e.t.c.*

(iii) *Home page:-First page displayed when a browser is started*

(iv) *Hyperlink :-Text or graph when clicked links one to another web page or links*

(v) *Uniform resource locator:- An address of a web page*

(c) *The following spreadsheet is relating to a farmer.*

	<i>A</i>	<i>B</i>	<i>C</i>
	<i>CROP</i>	<i>Amount</i>	
<i>1</i>	<i>Maize</i>	<i>150</i>	<i>Not viable</i>
<i>2</i>	<i>Beans</i>	<i>300</i>	
<i>3</i>	<i>Cashew nuts</i>	<i>850</i>	<i>Moderate</i>
<i>4</i>	<i>Cabbages</i>	<i>1036</i>	<i>Moderate</i>

(i) *A function = IF (B2< 200, “Not viable”, IF(B2>300,”moderate”, IF(B2> 1000, “VIABLE”))). Give the appropriate result returned in cells C2, C3, C4 and C5.*

(d) *List any three functions of the control unit.*

- *Executing tasks*
- *Controlling all devices within the CPU*
- *Monitoring activities within the CPU*

18. (a) *List any three differences between an interpreter and a compiler.*

\*

<i>Interpreter</i>	<i>Compiler</i>
<ol style="list-style-type: none"> <li><i>1. translates source program one statement at a time</i></li> <li><i>2. Translates the program each time it is run hence slower than compiling</i></li> </ol>	<ol style="list-style-type: none"> <li><i>1. translates entire source code all at once</i></li> <li><i>2. translated object code requires more memory space</i></li> <li><i>3. compiled program can be stored in a storage media and run as required hence executes faster than interpreted programs</i></li> </ol>

*(b) State four characteristics of Random access memory.*

- is volatile*
- contents are user defined*
- one can perform both read and write operations*
- has high access speed*

*(c) Describe the following data security measures*

- Log files:- Special computer files that keep a record of computer users and actions they have done within that particular computer*
- Fire walls:- Is software or hardware that filters information coming from the internet to your computer system*
- Antispyware :- A soft ware that blocks spy ware programs from accessing your computer system to collect information*
- Audit trial:- Careful study of an information system to determine weakness in order to collect them*

**19. (a) What is a transmission media?**

- Channel that transmits data from one point to another. May be physical or non-physical*

*(b) List two types of transmission media*

- Physical e.g. coaxial cable, fibre optic e.t.c.*
- Non physical e.g. radio waves, infrared e.t.c.*

*(c) Distinguish between a Hub and a switch.*

*\**

- A hub broadcasts data packets to all computers in a network and the recipient computer receives the packet while the others discard it while a switch directs a data packet to its intended destination computer*

*(d) With help of a well labeled diagram, describe the fibre optic cable*

*\**

- Core – is the light transmission element at the centre of the optical fibre*
- Buffer – used to shield the core and cladding from damage*
- Strengthening material- surrounds the buffer, prevents the fibre cable from being stretched*
- Cladding – Acts as a mirror by reflecting light back.*

*(e) What are the functions of the following devices on a network?*

*\**

- (i) Repeaters :- They amplify or regenerate signals that have been affected by attenuation*
- (ii) Network interface card :- Is an interface that links a computer to a communication channel*
- (iii) Router :- Is a network device that connects different networks to enable communication*
- (f) Distinguish between physical topology and logical topology as used in Networking*
- Physical topology is the physical layout of computers in a network e.g. star, bus e.t.c. while logical topology is the way computers communicate on the network e.g. token ring, Ethernet*



**\*KSM\***

1. Describe four electrical safety precaution rules that should be observed in a computer room. 4 mks
  - *Open/Bare cables should be insulated using tape cover or replaced.*
  - *Avoid overloading of sockets with several connection units.*
  - *Correct appliance power rating should be checked before plugging it on power source*
  - *Fire extinguisher should be in place containing Carbon dioxide*
  - *There should be NO water spillage in the room*
  - *Buy/replace with proper cables with correct/standard ratings*
  
2. Distinguish between a compiler and an interpreter 2 mks
  - *A compiler translates the entire source code at once before execution whereas An interpreter translates the source program one statement at a time.*
  - *Compiled programs require more memory as the object file are larger whereas Interpreted Object code takes less memory compared to compiled programs.*
  - *Compiled (Object code) can be saved on a storage media and run as required, hence executes faster while Interpreters translates the program each time its run hence slower than compiling.*
  
3. a) Describe the term key to storage systems? 1 mk
  - *These are systems that uses a keyboard and a visual display unit (VDU) for data input. Once data is keyed in, its stored on tape or disk.*  
b) Games programs can be purchased from computer stores on CD-ROM. State two advantages of CD-ROMS over floppy disks. 2 mks
  - *Mass storage compared to Floppy disks*
  - *Most computers have CD-ROM drives and not Floppy Disk Drives*
  - *CD-ROMs are not bulky compared to Floppy Disks due to their No. for a program installation.*
  
4. State two output devices that are found at the point of sale terminal. 2 mks
  - *Bar Code Reader*
  - *Thermal printers*
  - *VDU/TFT*

5. Outline any four editing features of a word processor. 2 mks
- *Spelling and Grammar Checker* – Its an inbuilt tool that helps the user to correct spelling errors and Incorrect grammar structure.
  - *Thesaurus* – Its an editing tool that helps the user to find words or phrases with similar meaning (synonyms) or opposite (Antonyms) to the one selected.
  - *Find and Replace* – Used when you need to search for a word or phrase in a large document and replace incase you wish all at once.
  - *Undo and Redo* – Reverses the most recently executed command while Redo reverses back to the cancelled action.
6. Describe briefly how a laser printer works. 2 mks
- *Operate by shining a laser beam to create an image on a rotating drum. As the beam hits the drum, it ionizes some regions which attract ink toner particles. The toner is then fused onto a piece of paper through heating.*
7. a) Identify the main stages of program development. 4 mks
- *Problem recognition*
  - *Problem definition*
  - *Program design*
  - *Program coding*
  - *Program testing and debugging*
  - *Implementation and maintenance*
- b) Define the term program documentation. 1 mk
- *Refers to the writing of formal support materials explaining how the program was developed, can be used by users, installed by operation and modified by other programmers.*
- c) List three program control structures giving examples. 3 mks
- *Selection e.g IF....THEN, IF.....THEN....ELSE etc*
  - *Sequence e.g START – Statement 1, Statement 2, END*
  - *Iteration (Loop) e.g WHILE loop, FOR loop, REPEAT....UNTIL loop*
8. Distinguish between high level and low level languages giving one advantage and one disadvantage of each of them. 2 mks

**Advantages:**

**Low Level Languages**

- CPU understands machine language directly without translation
- They are stable and hardly crash or breakdown once
- Processor executes them faster as complex instructions are already broken down into smaller ones

**High Level Languages**

- They are portable i.e easily transferred from one computer to a nother
- They are user friendly & easy to use and learn
- More flexible hence they enhance creativity & increase productivity.

### Disadvantages

#### Low Level Languages

- More difficult & cumbersome to use and learn
- Require highly trained experts both to develop & maintain
- Debugging is difficult

#### High Level Languages

- Require large computer memory to run it
- Have to be interpreted or compiled to machine readable form before execution
- Their nature encourages use of many instructions in a word statement hence complexity of these instructions causes slower program processing.

9. a) Explain the difference between the following commands as used in MS-DOS. 2 mks

i) Dir/p

- Displays the directory contents i.e files, directories in a paused form should the contents be more than can be displayed all.

ii) Dir/w

- Displays directories and files in a wide format thus eliminating display of properties e.g date/time and file size etc

b) Write one command that can be used to format a diskette and copy system files to it. 1 mk

- Format/S (press enter key)

10. Differentiate between Real Time processing and Batch processing giving examples where each could be used. 2 mks

Real Time	Batch Processing
- Computer processes the incoming data as soon as it occurs, updates the transaction file and gives an immediate response that would affect the events as they happen e.g <b>Airline seats reservation</b>	- Data is accumulated as a group (batch) over a period of specified time e.d daily, weekly pr monthly then processed at once e.g <b>Payroll processing system.</b>

11. Differentiate between Computer Aided Design and Computer Aided Manufacture. 2 mks

- Computer Aided Design refers to an integrated system that allows products to be designed using design application softwares **WHEREAS**
- Computer Aided Manufacture are systems that allows products designed using design applications to be transmitted into an automated manufacturing systems for the product to be manufactured as per the computer model.

12. What is a computer network? 1 mk

- Refers to a collection of computers linked together using transmission media for the purpose of communication and resource sharing.

13. Describe three different types of computer network. 3 mks

- LAN – Computer Network that spans a relatively small geographical area like one building or school. Its usually owned by one organization however one LAN can be connected to other local area networks over any distance via data transmission lines of wireless media.

- *MAN – Network that covers a metropolitan area like a town or a city. The metropolitan area network size covers a radius of 5 – 50 km. Its infrastructure may be owned by a single company that has offices across a metropolitan area*
- *WAN – It's larger than MAN and covers a large geographical area e.g a country, continent or whole world. It consists of LANs and MANs connected together to form one large network e.g Internet.*

14. State three symbolic data representation.

3 mks

- *BCD (Binary Coded Decimal)*
- *EBCDIC (Extended Binary Coded Decimal Interchange Code)*
- *ASCII (American Standard Code for Information Interchange)*

15. State two properties that an operating system displays about a file.

1 mk

- *Size of the file in KB/MB*
- *Date and Time of creation/Modification*

### **SECTION II (60 MARKS)**

*Answer question 16 (Compulsory) and any other three questions from this section.*

16. a) Distinguish between Algorithm and Pseudo code.

3 mks

- *Algorithm refers to a set of instructions whereas a Pseudo code refers to a mixture of English and Programming language.*

b) A company has 5000 CDs, DVDs, Video and books in stock. Each item has a unique 5 digit code with the first digit identifying the type of item i.e

1 = CD

2 = DVD

3 = Video

4 = Book

For example, for the code 15642 the 1 identifies that it is a CD, and for the code 30055 the 3 identifies that it is a video.

Write an algorithm, using pseudocode or otherwise, that

- Inputs the codes for all 5000 items
- Validates the input code
- Calculates how many CDs, DVDs, Videos and Books are in stock
- Outputs the four total

12 mks

```

Set count=0
C,d,v,b=0
Repeat
    input code
    x=code/10,000

    y=INT(x)
    if y=1 then c+1
    else if y=2 then d+1
        else if y=3 then v+1
            else if y=4 then b+1
                else print 'error'
            endif
        endif
    endif
    count=count+1
until count=5000
print c,d,v,b

```

17. a) List 3 differences in the computer training provided by colleges as opposed to those offered by the Universities. 3 mks

Colleges	Universities
- They are approved to offer certificate, diploma and craft courses but some may not be approved.	- They are authorized to offer approved diploma, undergraduate & postgraduate programmes.
- They may be operating illegally thus offering low quality courses	- They are registered & accredited by the Commission of Higher Education or any other quality assurance body recognized worldwide.
- They may never be accepted i.e qualifications	- Accreditations leads to public acceptance.

- b) Describe three duties of each of the following computer specialists:

6 mks

i) Database administrator

- Designs and develops applications for the organization.
- Setting up security measures needed to control access to data and information
- Keeping the database up-to-date by adding new records, modifying or deleting unnecessary records.

ii) System Analyst

- Co-ordinating training for users of the New System
- Working with programmers to construct and test the system
- Reviewing the current or manual or redundant information system and making recommendations on how to replace it with more efficient ones

- c) Information technology has brought about a lot of concern in peoples lives - Social effects, list three arguments for and against Information Technology. 3 mks

**Advantages:**

- *Has led to creation of jobs*
- *Facilitated faster means of communication e.g mobiles & Internet thus reducing cost*
- *Has led to efficient & faster production e.g use of CAM & CAD*
- *Has led to widening of interaction level of people through social sites in the internet*
- *Been used as a campaign platform against AIDS and drug abuse*

**Disadvantages:**

- *Displacement of people in jobs due to lack of operational skills*
- *Widespread and promotion of promiscuity through web dating and other social sites*
- *Widespread of bad literature and pornographic materials through internet disposition*
- *Computer related crime e.g hacking, piracy, eavesdropping are on the increase*
- *Compromised moral integrity e.g in the case of one cheating by forging certificates/passports and other documents*
- *Has changed the way we talk, our privacy and our human rights and integrity e.g. exposure to flaming i.e writing online using derogatory/obscene or of dirty language*

- d) Repetitive Strain Injury happens when one overuses the computer keyboard or mouse, causing inflammation or injury on muscles or tendons. Describe three measures users can apply to prevent or reduce RSI. 3 mks

- *Have enough rest*
- *Sitting in a relaxed position*
- *Changing typing techniques*

18. A school computer laboratory is scheduled to undergo major renovations. The lab is scheduled to receive new computer whose specifications are given below:-

Pentium IV 2.8 GHz processor

40 GB HDD

3<sup>1</sup>/<sub>2</sub> FDD

256 MB RAM

56 x CD ROM

17" SVGA TFT monitor

The computers are going to be networked and will be able to browse the Internet.

- a) Explain what is meant by the terms:

2 mks

i) FDD

- *An acronym for Floppy Disk Drive which the computer possesses for 3<sup>1</sup>/<sub>2</sub> Size disks*

ii) HDD

- *An acronym for Hard Disk Drive which the computer possesses and its storage size is 40GB*

iii) SVGA

- *An acronym for Super Video Graphics Arrays*

iv) TFT

- *An acronym for Thin Film Transistor monitor type*

b) The computers are to be networked, name one extra device that should be fitted on every computer to enable this to happen. 1 mk

- *NIC (Network Interface Card)*

c) The computers are to receive Internet facilities through the server on a dial up system. Name and describe the function of a special device that needs to be connected to the server to complete the connection. 1 mk

- *A MODEM*

d) i) The school has chosen to apply the Star topology to link up the computers. List two advantages of this type of topology. 1 mk

- *Easy to configure*
- *Allows centralization of key networking resources like concentrators and servers*
- *Gives network administration focal point for Network*

ii) Name the central device used to connect the computers in this topology. 1 mk

- *Hub*

e) List two other types of topologies that the school could have opted for. 1 mk

- *Bus topology*
- *Ring topology*
- *Mesh topology*
- *Tree/ hierarchical topology*

f) List four advantages of using a network. 2 mks

- *Improves reliability e.g incase one computer breaks down, users can still access data and information from other computers on network.*
- *Resource sharing i.e data/information, files, printers, modems, programs etc can be attached to the network for access by all users.*
- *Distributed processing facilities*
- *Remote communication i.e transfer of data signals between two communication devices located differently*
- *Cost effectiveness. Although initial cost of laying down the network components may be expensive, the savings experienced and the value added to service delivery make them a ready choice for enterprising managers.*

g) i) Data transmission via the Internet is done using a mode known as Packet Switching.

Describe this data transmission mode. 1 mk

- *Refers to the process over the network of breaking down into discrete systematic steps the data transmission process and at each step a certain action takes place.*

ii) Name two other modes of data transmission. 1 mk

- *Simplex Mode*
- *Half Duplex & Full Duplex*

h) The school's LAN is done using UTP cable. List two disadvantages of using this type of cable. 1 mk

- *Don't have a shield that prevents EMI/electric noise*
- *Cables are susceptible to noise and signal interference*
- *Not suitable for environment that are electrically "noisy"*

i) List two disadvantages of using fibre optic cable in networking. 1 mk

- *A broken cable is difficult and expensive to repair*
- *Relatively complex to configure*
- *Installation is difficult because the cable must be carefully handled*
- *Connectivity devices and the media are expensive.*

j) Data flows in the school's LAN in a duplex manner. Discuss two other types of data transmission in networking giving examples. 2 mks

- *Half Duplex – communication is enabled in both directions within the network but one direction at a time*
- *Full Duplex – Communication occurs in both directions simultaneously within the computers that are sending and receiving data on a network.*

19. a) Differentiate between a Database and a DBMS. 1 mk

- *A database refers to a collection of structured and related data items organized so as to provide a consistent and controlled access to the items WHILE a DBMS is a software that facilitates the creation, organization and maintenance of databases.*

b) List four advantages of using database systems. 2 mks

- *Keep statistics of data items in a database*
- *Allows the user to add or delete records*
- *Updates or modify existing records*
- *Organize data for easy access, retrieval and manipulation of records*
- *Ensures security for the data in the database by safeguarding it against unauthorized access and corruption.*

c) In a database system, data integrity ensures the correctness and completeness of the data in the database. Differentiate the following types of integrity constraints:-

i) Validity Integrity 1 mk

- *Refers to the acceptable range of values an attribute can have. It ensures that No field takes on a value outside the range of valid entries.*

ii) Entity Integrity 1 mk

- *Rules that govern the composition of a primary key which cannot contain a null value and must be unique. Null values are empty spaces in a field that have No data.*

iii) Referential Integrity 1 mk

- *They govern the nature of records in a one-to-many relationships between tables in the database. All foreign keys in the child table must have a matching record in the parent table.*



d) Briefly describe the three database models.

3 mks

i) Hierarchical Model

- *Data items are arranged in a tree form. To access level 2 items, you have to first access level 1 data items. And a specific path leads to each item at a lower level.*

ii) Network Model

- *In this organization, links are created to express the relationship between the different data items forming a network of items. Access to one item can be through multiple paths and from any item.*

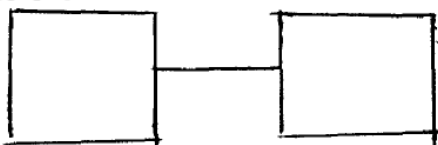
iii) Relation Model

- *In this organization, related data items are stored together in structures called relations or table. Relationship can be created between table such that a record or records from one table relates to another or other records in another table.*

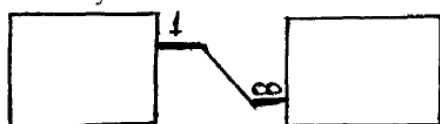
e) Using diagrams describe the following three types of relationships:-

3 mks

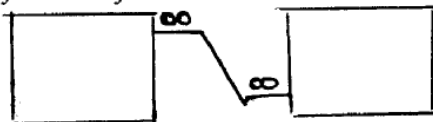
i) One-to-one



ii) One-to-many



iii) Many-to-many



f) File organization refers to the arrangement of records on secondary storage. Briefly describe the following file organization methods.

3 mks

- *Sequential – In this file organization, records are stored and accessed in a particular order sorted using a key field. Retrieval requires searching sequentially through the entire file record by record from the beginning to the end.*
- *Random/Direct file- In this file organization, records are stored randomly but accessed directly on a storage medium. To access a file stored randomly, a record key is used to determine where a record is stored on the storage media.*
- *Serial- In this organization, records in a file are stored and accessed one after another on a storage medium. The records are not sorted in any way on the storage medium.*
- *Indexed-sequential- Its similar to sequential only that an index is used to enable the computer to locate individual records on the storage media and each is signed an index that can be used to access it directly.*

20. a) State and describe any two areas of Artificial Intelligence. 2 mks
- *Simulation of a house before the actual building is physically set up. A client can be allowed to virtually move through the house, pull drawers and touch objects all in a computerized environment.*
  - *Industrial simulation e.g car or plane crash test simulation that enables manufacturers to identify the weaknesses of the real situation or object hence put the correct reinforcement to their designs.*
  - *Training in Medicine e.g a surgical operation through the use of expert system that help medical professionals diagnose illnesses more accurately in the absence of human experts.*
  - *Military training e.g piloting and missiles launching*
  - *Assistance to the handicapped thro computers being used to control devices that help them*
- b) What is Virtual reality? 1 mk
- *Refers to a condition in which a person becomes psychologically immersed in an artificial environment generated by a computer system.*
- c) List three components of a Virtual reality gear. 3 mks
- *Head mounted display / head gear*
  - *Gloves*
  - *Body suit*
  - *Virtual reality software*
- e) State three factors to consider when selecting a UPS. 3 mks
- *Its voltage rating and the period of time it can provide backup*
  - *Type of hardware and the applications being run*
  - *The number of terminals it can connect*
  - *Its durability and Warranty it comes backed up with*
  - *Its price that determines its genuineness.*
- f) Give two uses of computers in stock exchange. 2 mks
- *Calculation of exchange rates*
  - *Analysis of stock exchange performance*
  - *Drawing of performance in stock exchange in graphs*

## **\*\*PAPER TWO**

**\*NYR\***

The question tested the candidates' ability to do the following in a database

- (a) award full marks for a created database with three tables bearing all the fields (3x4=12mks)
- (b) Award 1mk for each identified primary key fields in each table (1x3=3mks)
- (c) Award 2mks for each established relationship between the three tables (2x3=6mks)
- (d) Award 3mks for the records in each table (3x3=9mks)
- (e) Award 1mk for each identified field in the query i.e customer Name, Product Description, Quantity, Unit price and calculated field total payable by each customer and 1mk for saving with appropriate name.(1x6=6mks)
- (f) Award 5mks for a clearly generated report (5mks)
- (g) Award 1mk for the printed customers, products, transaction tables designs, query and the report

**\*MUM\***

1. a) text typed as indicated (26 mks)
  - b)
    - Bolditacing (1 mk)
    - Italics (2 mks)
    - Justification (2 mks)
  - c) i) Columns (6 mks)
  - d)
    - i) Double spacing (2 mks)
    - ii) Searching and replacing (2 mks)
    - iii) saving the document as A: NET 4 (2 mks)
  - e)
    - i) Animated title (2 mks)
    - ii) Landscape orientation (3 mks)
  - f) Printing NET 1, NET 3 and NETS (3 mks)
2. a) Availability of database with all fields (8 mks)
  - b) Availability of all records (12 mks)
  - c) Addition of data field (3 mks)
  - d) Information entered as indicated (5 mks)
  - e) Start 2 sorted in descending order (6 mks)
  - f) Query indicating items delivered by Shah on 15/5/2001 (8 mks)
  - g) Tabular report (4 mks)
  - h) Print outs: start 1, start 3, query 1 and report 1 (4 mks)

**\*TNW\***

Index No:			Index No:		
Item	Max score	score		Max score	score
<b>Page Setup</b>			A. - database file created	1	
Font-Arial	1		- File saved as Business	1	
Font size 12 for text	1		B. - Two tables created	1	
Left margin 1"	1/2		- 4 Correct fields for table 1	4	
Right margin 0.5"	1/2		- 5 Correct fields for table 1	5	
Top 0.5"	1/2		<b>C. Seller details form</b>		
Bottom 0.6"	1/2		- 4 fields @ 1/2 mk	2	
<b>Headings</b>			<b>Vehicle details form</b>		
H1			- At least 4 fields @ 1/2mk	2	
Bold	1		<b>Forms titles</b>		

Centered	1			- Seller details form	1/2	
Font size - 20	1			- Vehicle details form	1/2	
<b>1st Paragraph</b>				<b>D. Table 1</b>		
Two columns	1			- 5 correct records @ 1mk	5	
Word art	1			<b>Table 2</b>		
Words complete	1			- 10 correct records @ 1mk	10	
Word art diagonal	1			<b>E. Query</b>		
Two symbols @ 1/2mk	1			4 correct fields @ 1/2mk	2	
Subscript	1			- Correct criteria	1	
<b>2nd Paragraph</b>				- 6 records @ 1/2mk	3	
Complete text	1					
Drop cap	1			F. - 10 correct values for new prices @ 1/2mk	5	
In margin	1			<b>Report</b>		
3 lines drop	1			G. - 5 fields @ 1/2 mk	2 1/2mks	
<b>3rd paragraph</b>				- Correct total amount	1	
<b>H2</b>				- saved as report	1/2	
Bold and size 14	2			<b>H. Printing</b>		
Italic	1			- Seller details table	1	
4 bullets @ 1/2	2			- Vehicle details table	1	
Italicized text	1			- Report	1	
<b>4th Paragraph</b>				<b>TOTAL</b>		
3 columns	1					
Clip art	2					
Word art	2					
Clip art/Word art psn	1					
<b>5th paragraph</b>						
<b>H3</b>						
Bold and size 14	2					
Italics	1					
Drop cap	1					
3 lines drop	1					
Bold text	1					
Italicized text	1					
B. i) Paragraph copied	1					
ii).Hanging indent	1					
iii).- Double space	2					
- Landscape	2					
C. - Name	1/2					
- Index	1/2					
<b>D. Word count</b>						

- Words(376+/- 2)	1					
- Characters(With spaces)21,660 +/- 2	1					
- Characters(no spaces)1,800 +/- 2	1					
E. - Paginated doc x of y	1					
- Top	1/2					
- Center	1/2					
F. Doc saved as Bono2	1					
G. Printing Bono2	1					
<b>TOTAL</b>						

## WE MUST STRIVE FOR GREAT THINGS IN LIFE

**Apart from being famous**

one should leave legacy that speaks for years. Paul Hewson was in Nairobi recently. That won't mean much to you, until I explain that I was referring to Bono, the world – famous lead singer of rock band U2 and campaigner against global poverty. Bono didn't really make much noise while in Kenya. He attended the [Nation Media] group's Pan Africa Media Conference, took H<sub>2</sub>O, talked to a couple of journalists and left.

He didn't do the other things that visiting celebrities of his stature do when in Africa: adopt a cheetah or a baby hippo, start a school for orphans, shoot the breeze pointlessly with Emilio and Tinga, utter banalities about the girl child. Bono reserves his energy for other things.

### **Popular Media**

Bono is not famous just for being a singer. For the past couple of decades he has been one of the most visible humanitarian activists, using his fame to enlist powerful allies from:

- Government
- Religious institutions
- Philanthropic groups

- Popular media and
- The business world.

He has personally spearheaded the campaign for debt relief for the world's poorest countries, and has been a vocal champion for Africa. Not everyone agrees with these efforts. Author Paul Theroux savaged Bono, Bob Geldof and other celebrity humanitarians, saying that creating "the impression that Africa is fatally troubled and can be saved only by outside help – not to mention celebrities and charity concerts – is a destructive and misleading conceit."

I happen to agree with that view and have propagated it in writing for many years. I don't think Africa's salvation will come from outsiders,

 and it  
**AID FROM EUROPE**  
certainly won't come from endless handouts and a crippling dependency culture.

## On Trivia

What about you? How big is your life? Are you allowing your time on earth to be frittered away on trivia, or are you going to make a net positive impact on the planet? Are you doing something, anything bigger than yourself? Are you raising a child to be a better person than you are? Are running a business or conducting a profession that sets a standard in good practice? ***Or are you content to be a small person imprisoned in a small life?***

He has personally spearheaded the campaign for debt relief for the world's poorest countries, and has been a vocal champion for Africa. Not everyone agrees with these efforts. Author Paul Theroux savaged Bono, Bob Geldof and other celebrity humanitarians, saying that creating "the impression that Africa is fatally troubled and can be saved only by outside help – not to mention celebrities and charity concerts – is a destructive and misleading conceit."

\*KKC\*

### Question One.

- A. 1. (A) Complete typed letter 7mks  
Single error ½ mk  
More than 6 errors 5mks
- i) Saving main document 1mk  
Using correct name ½ mk  
Using any other name
- ii) Saving data source list 1mk  
Using correct name ½ mk  
Using any other name
- iii) Changing the Font Size, address and reference to 14 pts ½ mk  
Changing each address ½ mk  
Changing reference ½ mk
- iv) Underlying reference ½ mk
- v) Merging Data source to the main document ½ mk  
- Each filed at the right position. ½ mk  
- Each filed at any other position.
- vi) Print the letters 3mks  
Each (1X3)
- B**
- a) –Aligning title to the centre ½ mk  
underlining title
- b) – Adding border to the title ½ mk
- c) - Replacing all remain number with bullets -½ mk  
- Not replacing one  
- Not replacing more than 3 (0mks)
- d) i) Inserting the correct footer 2mks Any other footer 1mk  
ii) Inserting the correct header. 2mks  
Any other header 1mk
- e) - Line spacing of 1.5  
-Line spacing other than Single
- f) Inserting word Art "computer" and not placing at the behind of text. 2 mks
- g) - Replacing "computer" with "PC" 2 mks  
- Replacing but not all words "computer" ½ mk

h) Moving whole paragraph to end of document.	2 mks
i) Font style set to Aerial Black.	3mks
j) Saving with correct name other than document N mk Using document N	0mk
k) Printing the document currently Printing off page	2mks ½ mk

## Question 2

a) Saving the workbook with correct name	1mk
- Using a different name	
- Using default name book n no mark	½ mk
b) All data entered correctly	20 mks
- Every wrong entry	½ mk
- More than 6 wrong entries	-8mks
c) Renaming the sheet to “term one result”	
- Default name sheet, No mark	
d) i) Correct totals and formula	2mks
ii) Correct averages and formula	2mks
- Manual calculation no mark	
e) Correct use of IF function to attain 3 conditions	(1X3) 3mks
f) i) Correct formula and ranking	
ii) Correct use of the “count IF” function	(1X2)2mks
g) – Sorting list of class position in ascending order	2mks
- Sorting list by classes position in descending order	1mk
-No sorting, no mark	
h) i) Copying to new worksheet and renaming the new worksheet	2mks
ii)Filtering the “lower group”	
- Display students from “E” class	
- Students with average less than 50	4mks
- Filter shows a all students from E class	
- Filter shows all students with average less than 50	2mks
i) i) – The chart is	
- A bar graph	
- Show 3 cats	
- Shows names of students	
- Title is TERM ONE COMPUTER RESULTS	3mks
- Missing a point	-½ mk
ii) Legend placed at the bottom of chart.	1mk
iii) Saving chart on a new sheet and renaming the sheet graphical analysis.	(½ X2) 1mk
- Saving chart as an object on the worksheet.	½ mk
j) Printing	
i)The lower group from “E” class	1mk
ii)The chart	1mk
iii)Term one results sheet	1mk