

Paper 1
(Theory)
Oct. Nov 2006
2 ½ Hours

MARKING SCHEME

Section a (40 marks)

1. What is meant by:

(a) Analogue data: Data that is based on physical variations such as loudness and pitch, electoral voltages etc

(b) Digital Data- Data, which use the computer's binary number systems 0 and 1

2. Distinguish between transcription and transportation types of errors and give an example of each

- A transcription error is a specific type of data entry error that is commonly made by human operators or by optical character recognition (OCR) programs
E.g. Name: Stamley (wrong) instead of Stanley (Correct)
- A transposition error is an error caused by reversing two or more digits of an amount while posting transactions. These are almost always human in origin
An Example is ZIP code: 57429 (wrong) instead of 54729 (correct)

3. (a) What are peripheral devices? (1mks)

- Any device connected externally to the CPU

(b) Give two examples of peripheral devices (1mk)

- Mouse, Monitor, Keyboard, printer etc

4. (a) What is meant by the term user – friendly as used in software development?

- Software that is easier to use or work with (1mk)

(b) Distinguish between the terms single- tasking and multi- user as used in operating systems (1mks)

Single tasking – the O/S allows one program to be processed at a time

Multi – user an O/S that allows several tasks/ programs to be simultaneously

5. What actions should be taken in case of a fire outbreak in the computer laboratory? (4mks)

- Switch off main electrical supply
- Vacate the room
- Inform master in charge
- Call for help
- Try to extinguish using the appropriate fire extinguisher (not water)

6. (a) What is an internet service provider?

- A company that provides internet services. Connects users to the internet

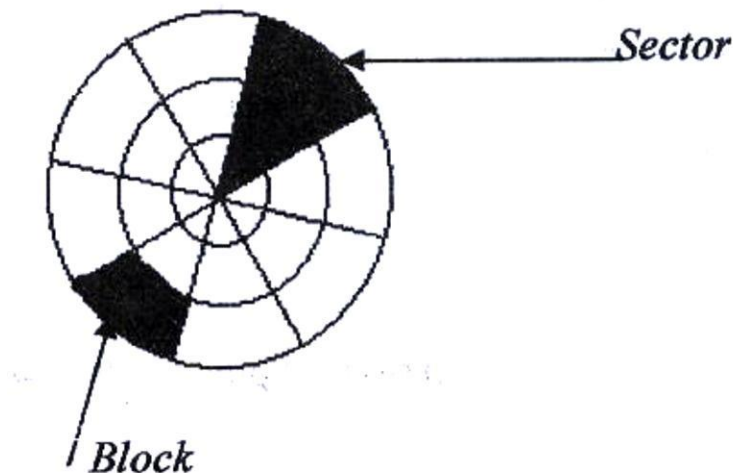


- (b) An employee in a business company is charged with the responsibility of putting the company advertisement on the internet
- (i) **State the professional title of the employee** (1 mk)
- Web administrator, web designer
- (ii) **Give an example of software used by this employee to carry out the above task** (1 mk)
- HTML, Dream weaver, MS Front Page
7. **Differentiate between COM ports and LTP ports**
- COM port also known as a serial port transmits data bit by bit
- LTP port also known as a parallel port transmits multiple bits simultaneously at a time.
8. **Explain two ways in which ICT can enhance commerce**
- Through better advertisement on the internet
- Through better services in retail shops via point of sale terminals
- Through electronic funds transfer
9. **Explain the following software terms**
- (a) **Portability** (1mk)
- Ability of a software to work/ function in several computer hardware and O/S platforms (
- (b) **Modularity**
- Ability of software to be broken down into several sections for easier understanding and maintenance.
10. (a) **State two applications areas of desktop publishing software. (2mks)**
- Posters
- Book publishing
- Card design
- (b) **Explain the following graphic terms**
- Rotate- to turn an image through an angle (1mk)
- Crop – to trim the edges of an angle (1mk)
11. **Distinguish between margins and borders as used in word processing** (2mks)

A border is a decorative frame that surrounds a page or elements on a page. The border can be a simple rule line or an elaborate set of lines and curves. A border can be composed of repeating graphic elements. Borders can be used to set apart, draw attention or unify disparate elements.
- Margin The blank space that surrounds the text on a page or the boundary line or the area immediately inside the boundary or the blank space that surrounds the text on a page.
12. (a) **List two arithmetic operations that can be performed on a row of numeric data in a word processing table**
+, -, x, /



- b) In each case of (a) above, write the expression used (2mks)
= Function name (left) or = function name (right) e.g. = sum (left) (2mks)
13. List two methods of gathering information during system developments process. (2mks)
- Observations
 - Interviews
 - Automatic data capture
 - Studying reports
14. Name three types of optical disks (3 mks)
- CD- ROM
 - CD- RW
 - CD- R
 - CD – W
15. The diagram below shows a formatted plate surface of a storage disk



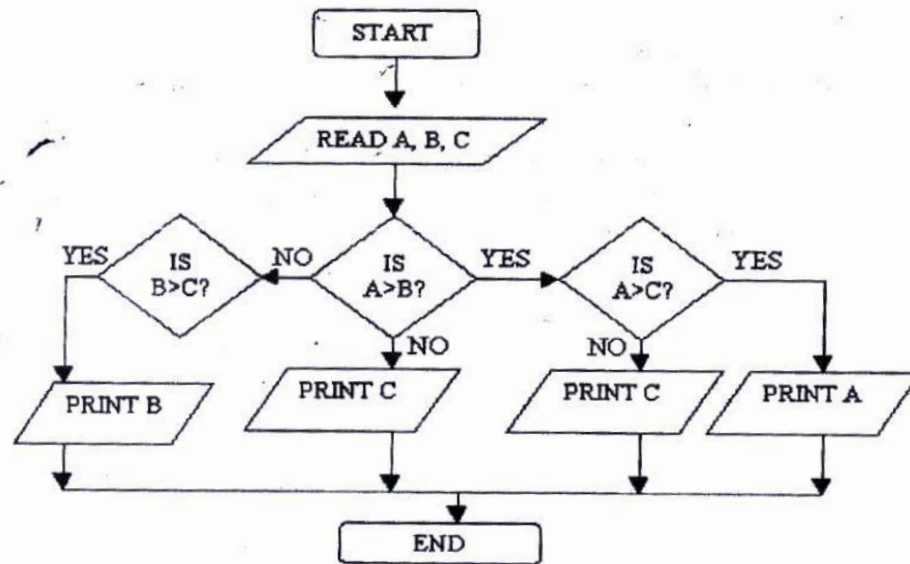
Shade and label:

- (a) One sector (1 mk)
(b) One block (1 mk)



SECTION B (60 MARKS)

16. (a) **List two examples of:** (2mks)
 (i) Third generation languages
 Pascal, basic, c
 (ii) **Object oriented languages** (2mks)
 VB, Small talk, C++
- (b) **Draw a flowchart to compare three non- equal numeric values A,B,C and print the largest of the three** (1mk)



17. (a) **One of the functions of an operating system is job scheduling. Explain what is meant by job- scheduling** (1mks)
 - Running of a particular job/ task under a system of priority, computer resource availability, time allocated to user etc.
- (b) List and explain three types of user interfaces
 - Command driven- Command language dialogues are those in which the user types instructions to the computer in a formally defined language
 - Menu driven- These allow the user to issue commands by selecting choices from a menu of displayed alternatives
 - Graphical User interface- These are those in which the user manipulates, though button pushes and movements of pointing devise such as a house, a graphic or iconic representation of the underlying data.
- (c) **Describe the following categories of software**
 (i) **Firmware**
 - Soft ware that is burnt in computer ROM chips, usually system software
 (ii) **Proprietary Software**



- Any software as opposed to freeware, which is available freely
 - (d) **A new company XYZ intends to go into the business of desktop publishing. Advise the company on three computer hardware system specification features to consider as a measure of enhancing performance. (1mks)**
 - Consider RAM capacity
 - Consider speed of computer
 - Consider hard disk capacity
18. (a) **Distinguish between the following sets of terms as used in spreadsheets**
- (i) **Worksheet and workbook**
Worksheet – The working area in an electronic spreadsheet on which a user enters the spreadsheet data.
Workbook – A spreadsheet file. A workbook can contain several worksheets
- (ii) **Filtering and sorting**
Data filtering is a way of organizing spreadsheet data for ease of analysis. Often spreadsheet filters are used to “hide” rows of data that do not meet certain specified criteria. This allows you to analyze (e.g. count, observe etc) only certain “Filtering” groups of data.
Data sorting: Is a way of arranging record according to one of the fields in either ascending or descending order.
- (b) **State one way in which a user may reverse the last action taken in a spreadsheet package (1 mks)**
- Use the undo command (ctrl + z)
- (c) **The following is a sample of a payroll. The worksheet row and column headings are marked 1, 2, 3, and A, B, C respectively**

	A	B	C	D	E	F	G	H
1	NAME	HOURS WORKED	PAY PER HOUR	BASIC PAY	ALLOWANCES	GROSS PAY	TAX DEDUCTIONS	NET PAY
2	KORIR	12	1500					
3	ATIENO	28	650					
4	MUTISO	26	450					
5	ASHA	30	900					
6	MAINA	18	350					
7	WANJIKU	22.5	500					
8	WANYAMA	24.5	250					
9	OLESAN E	17	180					
10	MOSETI	33	700					
	TOTALS							



Use the following expressions to answer the questions that follow

- Basic pay- Hours worked x pay per hour
- Allowances are allowed at 10% of basic pay
- Gross pay- Basic pay + allowances
- Tax deductions are calculated at 20% of gross pay
- Net pay= gross pay – tax deductions

Write formulae using cell references for the following cells

- (i) $D2 = B2 * C2$
- (ii) $E4 = 10\% * D4$ or $10\% * (B4 * C4)$
- (iii) $F10 = D10 + E10$
- (iv) $G7 = 20\% * F7$
- (v) $H5 = H5 - G5$

(d) (i) State three ways of moving round the page in desktop publishing window (3 mks)

- Use cursor keys
- use mouse scroller
- Use scroll buttons (horizontal and vertical)

(ii) State two ways on how information & communication technology (ICT) can be used to reduce the spread of HIV/ AIDS (2 mks)

- Through advertisements on the Internet
- Through creation of posters
- Through discussion groups on the internet

19. (a) Describe the following terms with reference to security of data:

(i) **Log files**

- A file that lists actions that have occurred. For example, web servers maintain log files listings every request made to the server. With log file analysis tools, its possible to get a good idea of where visitors are coming from, how often they return and how they navigate through a site.

ii) **Firewalls.**

(1mark)

- A **firewall** is an information technology (IT) security device which is configured to permit, deny or proxy data connections set and configured by the organization's security policy. Firewalls can either be hardware and/or software based.

A firewall's basic task is to control traffic between compeer networks with different zones of trust. Typical examples are the Internet which is a zone with no trust and an internal network which is (and should be) a zone with high trust The ultimate goal is to provide controlled interfaces between zones of differing trust levels through the enforcement of a security policy and connectivity model based on the least privilege principle and separation of duties

- b) A students' database comprises of students¹ details table and fees received table as shown below:



Students' details table

Surname
Middle Name
First Name
Admission Number
Course

Fees Received table

Date
Amount
Receipt Number

(i) **State the primary key field for each table.**

Student table- Admission Number

Fees Received table - Receipt Number

ii) **State the field, which should serve as the linking field for the two tables.**

Admission number

(Note: Make Admission Number a foreign key in the fees table)

c) Describe the following terms with respect to computer security:

i) **Logic bombs**

(2 Marks)

- A computer virus that is activated after a series of event/commands/date

ii) **Physical security**

(2 Marks)

Threats that threaten the physical nature of computer equipment e.g. Fire, Lightening water, building access etc

iii) **Tapping.**

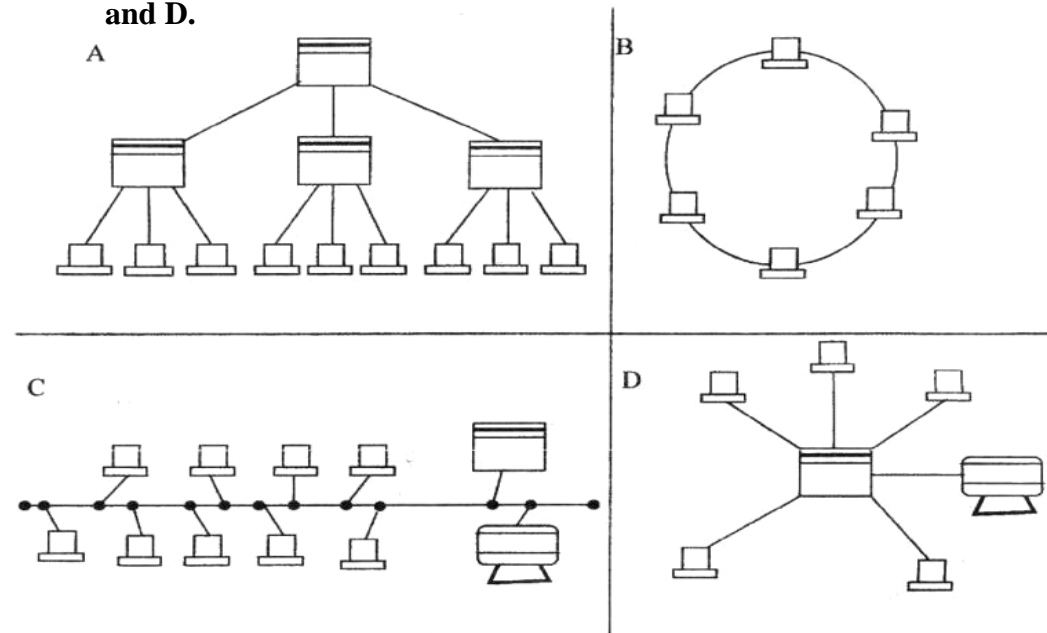
(2 Marks)

Telephone tapping (or wire tapping/wiretapping) is the monitoring of telephone and Internet conversations by a third party, often by covert means. The telephone tap or wire tap received its name because historically, the monitoring connection was applied to the wires of the telephone line of the person who was being monitored and drew off or tapped a small amount of the electrical signal carrying the conversation

(d) **List three functions of antivirus software.**

- Identify a virus/Warn
- Heal/Clean a virus
- Prevent/Protect infection
- Quarantine infected files

20 (a) **The diagram below shows four common network topologies A, B, C and D.**



- i) **Name the network topologies labeled A, B, C and** (4 marks)
A *Tree/Hierarchy*
B *Ring*
C *Bus/Multi drop*
D *Star*
- ii) **Explain what happens if server X in topology A fails. (1 Mark)**
- *The terminal connected to X will be affected/stop communicating with the rest of the network*
- iii) **List two problems associated with network topology B. (2 Marks)**
- *Difficult to trouble shoot - Failure of one terminal results in network breakdown*
- *Extra cost of extra NIC card.*
- iv) **List two disadvantages associated with network topology D. (2 Marks)**
- *Failure of central device/server results in total collapse of network*
- *Extra cost of cabling as each terminal must be cabled separately to the hub.*
- b) **Differentiate between Internet and World Wide Web. (2 Marks)**
The Internet is a massive network of networks, a networking infrastructure. It connects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet. Information that travels over the Internet does so via a variety of languages known as protocols.
The World Wide Web, or simply Web, is a way of accessing information over the medium of the Internet. It is an information-sharing model that is built on top of the Internet. The Web uses the HTTP protocol, only one of the languages spoken over the Internet, to transmit data. Web services, which use HTTP to allow applications to communicate in order to exchange business logic, use the Web to share information. The Web also utilizes browsers, such as Internet Explorer or Netscape, to access Web documents called Web pages that are linked to each other via hyperlinks. Web documents also contain graphics, sounds, text and video.
- c) **Describe the following network services and identify their applications. (2 Marks)**
- i) **Voice mail (2 Marks)**
Voicemail (or *voice mail, voicemail or VMS*, sometimes called **message bank**) is a centralized system of managing telephone messages for a large group of people. In its simplest form it mimics the functions of an answering machine, uses a standard telephone handset for the user interface, and uses a centralized, computerized system rather than equipment at the individual telephone.
Voicemail systems are much more sophisticated than answering machines in that they can:
- *Answer many phones at the same time*
- *Store incoming voice messages in personalized mailboxes associated with the user's phone number*



- Enable users to forward received messages to another voice mailbox
- send messages to one or more other user voice mailboxes
- Add a voice introduction to a forwarded message
- Store voice messages for future delivery
- Make calls to a telephone or paging service to notify the user a message has arrived in his/her mailbox
- Transfer callers to another phone number for personal assistance
- Play different message greetings to different callers.

ii) **Video conferencing.**

(2 Marks)

*A **videoconference** (also known as a video teleconference) is a set of interactive telecommunication technologies which allow two or more locations to interact via two-way video and audio transmissions simultaneously. It has also been called **visual collaboration** and is a type of groupware.*



COMPUTER STUDIES

PAPER 1

(THEORY)

OCT./NOV. 2007

2 ½ HOURS

SECTION A (40 MARKS)

1. Describe the computer booting process (2mks)
 - The internal power supply turns on and initializes.
 - The BIOS performs the power-on self test (POST). If there are any fatal errors, the boot process stops
 - The BIOS looks for other devices' ROMS to see if any of them have BIOSes. Normally, the IDE/Ata hard disk BIOS will be found and executed. If any other device BIOSes are found, they are executed as well
 - The BIOS begins the search for a drive to boot from
 - Having identified its target boot drive, the BIOS looks for boot information to start the operating system boot process
2. State the functions of the following keys on the computer keyboard (2 mks)
 - c) Backspace – to delete a character to the left of the cursor
 - d) Insert (ins) – when the key is depressed editing is in overtype mode. Any new text typed in the middle of a line is inserted between existing text while the existing text disappears/is deleted.
3. Jane has noticed the following problems in her computer:
 - It is taking longer time to start up;
 - It is often hanging
 - Applications are taking longer to load.State three possible causes of these problems and how they can be solved (3mks)
 - a) **Disk is fragmented** - Defragment the disk by running the defragment utility. "
 - b) **Virus/bug infection** - run the antivirus utility
 - c) **Capacity of RAM is small**- Increase the size by replacing the existing chip with a higher capacity RAM chip.
 - d) **Processor speed is low** - Replace processor with a high speed processor.
4.
 - a) Define authenticity as used in software selection (1 mark)
 - This refers to the genuineness/originality/licensed software. Software that is not pirated.
 - b) List **four** ways of acquiring software in an organization (2 marks)
 - a) **Buy Off-the-shelf package** - This can be sold through retail outlets without any direct contact between the software developer and the customer.
 - b) **Customized software applications** - The software developer builds an application that meets the needs of the customer as defined in a specification.
 - c) Lease or Rent software.
 - d) **Freeware/Shareware**



5. Some of the storage disks available are: Zip disks, $3\frac{1}{2}$ inch floppy disks, DVDs and $5\frac{1}{4}$ inch floppy disks. Arrange these devices in ascending order of storage capacity. (2 marks)
 $5\frac{1}{4}$ inch floppy disks, $3\frac{1}{2}$ inch floppy disks, Zip disks DVDs.
6. You have been asked to change your computer password. State a precaution you need to take in order to avoid each of the following:
 a) Forgetting the password (1 mark)
- Compose password from a hintable phrase.
 b) Hacking (1 mark)
- Use both alphabets and numerical in the password
7. State **four** benefits of using a computer in a school library (2 marks)
 a) Record keeping made easier e.g. easy to track borrowers and books
 b) Easy to search for library materials.
 c) Books and other materials can be held electronically hence allowing multimedia usage.
 d) Library materials can be electronically marked thus minimizing losses and theft.
8. Using six bits, find the two's complement of -23_{10} . (4 marks)
 $23 \div 2 = 11R1$
 $11 \div 2 = 5R1$
 $5 \div 2 = 2R1$
 $2 \div 2 = 1R0$
 $1 \div 2 = 0R1$
 $23_{10} = 010111_2$
Twos complement = 101000
 $\begin{array}{r} + 1 \\ \hline 101001_2 \end{array}$
9. Explain data series, axis and legends as used in spreadsheet charts. (3 marks)
Data Series
 The selected **range** in a worksheet that EXCEL converts into a graphic and displays as a chart (in spreadsheet applications)
Axis
 A reference line from which distances or angles are measured in a coordinate system, such as the X-axis and y-axis in the Cartesian coordinate system
Legend
 Brief description accompanying an illustration (chart) also known as a caption
10. a) Describe the term data integrity. (2 marks)
 The quality of correctness, completeness, wholeness, soundness and compliance with the intention of the creators of the data
- b) State **four** situations in which data may lose integrity (2marks)
 - Accidental insertion/alteration/modification/destruction
 - Deliberate insertion/alteration/modification/destruction
 - Transfer errors
 - Lack of input validations
11. State the function of each of the following:
 a) **Network interface card** (1 mark)
 - It provides connectivity between the PC and the network's physical medium, the copper or fiber-optic cable.



-also handle important data-conversion function..

- supplies the basic addressing **system** that can be used to get data from one computer to another on the network

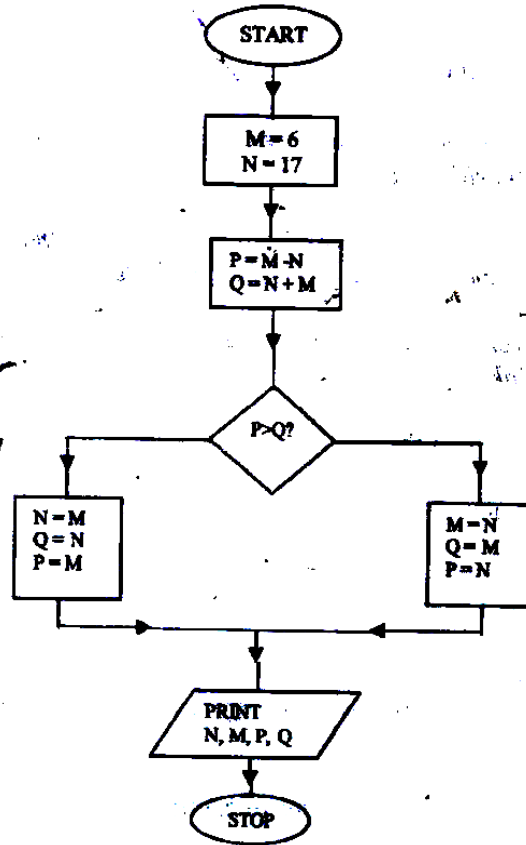
- b) **Network protocol** (1 mark)
A common set of rules (usually defined by the International Standards body the IEEE) and signals (usually electrical, but may be laser light, infra red radio waves.) that computers connected to a network use in order to communicate on that network medium.
- c) **Hub** (1 mark)
The hub or concentrator manages and controls all functions of the network. It also acts as a repeater for the dataflow.
12. List **four** types of publications that can be designed by using desktop publishing software. (2 marks)
- Posters
 - Banners
 - Newsletters
 - Cards
 - Magazines
13. Differentiate between the following pair of terms as used in database design:
- a) **Input mask and design** (2 marks)
An input mask often refers to a string expression that a developer defines which governs what is allowed to be entered into a typical edit/input box.
- b) **Table and query** (2 marks)
Table - the basic unit of storing data in database
Query - a view created from table(s) that returns specific records based on a criterion.
14. List four factors to be considered when purchasing an operating system. (2 marks)
- a) Does the operating system guarantee the security of your computer, the application software and the data you are handling?
- b) The second crucial question, related with the issue of security, is the question of the type of network you work with. Is your computer a home computer for simple application such as word application or a corporate or business computer in which you handle high-tech data, confidential information and financial transactions which require high level security?
- c) A third question you should answer when going for an operating system is the **memory of your computer**. Most current operating systems do not load onto less than 128MB of memory and therefore, for a computer with less memory, old school operating system such as DOS and windows 98 might suffice.
- d) The cost
Expandability/upgradeability
15. Write an algorithm to compute the area of triangle. (2marks)
(Assume a right angled)
Read the length and height of triangle.
Calculate Area as $0.5 * \text{length} * \text{height}$.
Output Area.



SECTION B (60 MARKS)

Answer question **16** and any other **THREE** questions from this section ill the spaces provide*

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



i) Name the control structures used in the flowchart.

- Selection
- Sequencing

ii) Determine the values of M, N, P and Q.

M.....17.....N.....17.....

P.....17.....Q.....17.....

iii) Write the pseudo code for the flowchart

<i>START</i>	<i>Q=N</i>
<i>Initialize M=6, N=17</i>	<i>P=M</i>
<i>P=M-N</i>	<i>ELSE</i>
<i>Q=N+M</i>	<i>M=N</i>
<i>IF P>Q THEN DO</i>	<i>Q=M</i>
<i>N=M</i>	<i>P=N</i>
	<i>PRINT N, M, P, Q</i>
	<i>STOP</i>



- b) List **four** functions of an assembler. (2 marks)
- a) Translate assembly language to machine code.
- b) Execute assembly language statements.
- c) Create executable files (.exe) from the assembly language statements.
- d) Allocate memory for machine code.
- e) Debug for errors
17. a) **Define the following web related terms:**
- i) **Web browser** (1 mark)
A browser is an application program that provides a way to look at and interact with all the information on the World Wide Web.
- ii) **Hyperlink** (1 mark)
This is the clickable link in text or graphics on a Web page that takes you to another place on the same page, another page, or whole other site.
- iii) **Hypertext document** (1 mark)
A document usually web document (file) where the user interacts with the whole document using hyperlinks
- b) **List six activities performed on the web** (3 marks)
- Browsing for information
 - Communication via email and chat groups
 - Electronic commerce.
 - Advertising of goods and services.
 - Transfer of information thro' FTP
- c) An institution has ten stand alone computers.
- i) **Suggest with reasons the most appropriate topology required to inter-connect the computers.** (3 marks)
- a) Bus
Reason: Easy to set up, Low cost in terms of cabling QR
- b) Star
Reason:
Speed of data transmission is high, Easy to troubleshoot via central hub or switch
- ii) State the necessary steps required to connect the computers to the Internet. (4 marks)
- Connect server to modem (router) and telephone/or use satellite dish/or radio
 - Get an ISP to configure the Internet protocol
 - Configure the rest of the computers to Internet access through a peer-to-peer configuration or a client-server configuration.
- d) **Below is an email address:**
ggitau @moest. edu.ke
Name the parts labeled:
- i) The local-part of the address/username
- ii) host name domain-part
- iii) generic (organizational) top level domain
- iv) country code top level domain

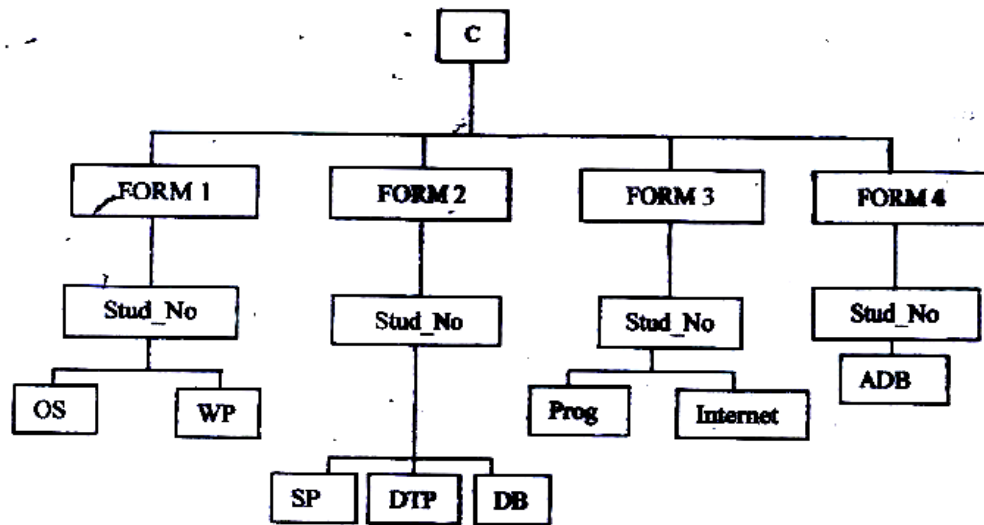


18. A computer C directory has folders for Form 1, Form 2, Form 3 and Form 4. Each class has student's folders labeled according to their number. The students create their own folder for the are studying based on the table shown below.

a) Assuming there is one student per class, draw the corresponding directory

Form 1	Form2	Form 3	Form 4
OS	SP	Prog.	ADB
WP	DTP DB	Internet	

a) Assuming there is one student per class, draw the corresponding directory tree structure. (6 marks)



- c) i) A form four student wants to create a folder to store to project State the path for flat project folder. (2 marks)
C:\FORM4\STUDNO\ADB\PROJECT
- ii) Suggest how the student can ensure that: - work is not lost in case the hard disk fails. (1 mark)
 - Keep backup copies of the project on offline secondary storage media.
 - The project is not copied by other students. (1 mark)
 - Use passwords for opening and modifying the project
- d) Other than I/O devices, list other three devices under the control of the operating
 - Main memory
 - CPU/Processor
 - Secondary storage
 - Communication device
- ii) Explain any one of the devices named in c(i) above. (1mrk)
- e) Define the term trouble shooting
 Systematic approach to locating the cause of a fault in an electronic circuit or system



19. A manager wishes to replace the current manual system with a computerized one
- Describe **three** main areas that must be evaluated to justify the replacement. (6 marks)
 - Technical feasibility: Does the current technology (hardware & software) allow.
 - Economic feasibility: Are funds available?
 - Social feasibility: How will the new system impact on the organization/society?
 - List the **three** areas that would be considered in the requirements specifications. (3 marks)
 - Users specifications
 - Software specifications
 - Hardware Specifications
 - Organizational integration specifications
 - State and explain three ways that can be followed to replace the current system. (6 marks)
 - Running in parallel: New system runs along side the old one until the old one is discarded -
 - Cut-over: New system replaces the old one instantly.
 - Phased: New system is implemented in phases.
 - Pilot sites: New system is tested on pilot sites then whole organization.
20. A head teacher keeps the following student details in a database: Name, Address, Town, Date of Birth, Marks scored, Fees paid.
- Name the most appropriate primary key. Give a reason. (2 marks)

Name

- Name alone is not unique though it is very rare that two or more students will share the same name.
 - For each item in the student's details above, indicate its most appropriate data type as used in the database. (3 marks)

Name	Text
Address	Text
Town	Text
Date of Birth	Date/Time
Mark Scored	Numeric
Fees Paid	Numeric/Currency
 - Explain why input screens are better data entry designs than entering data directly to a table. (2 marks)
 - Most forms are bound to one or more tables and query in the database hence a user can design input fields linked to several tables/queries.
 - Forms are also appealing to the eye. They have GUI features unlike a table.
 - List two career opportunities associated with databases. (2 marks)

Database Administrator
Data Administrator System Analyst
Database Developer



c) **Distinguish between:**

i) **A table in word-processing application and a table in a database application. (2 marks)**

- *A table in a database application is a data entry/storage object, while a table in a word processor is made up of rows and columns of cells that one can fill with text and graphics. Tables in word processors are often used to organize and present information*
- *In a database one defines the data type for a table in design stage/view but not the case in a word processor.*

ii) **Mouse pointer and insertion point. (2 marks)**

- ***Mouse pointer** refers to an indicator on the screen, which responds to the movement of the mouse*
- ***Insertion point** is the place, in a full-screen editor or drawing program, where characters will appear if you start typing. The insertion point, which is different from the mouse pointer, looks like a thin vertical bar or, in some contexts, a tall, thin letter "I"; it is relocated by clicking at the desired position.*

d) **Outline the steps to be followed in order to merge cells in a word processing table. (2 marks)**

- i) *Select/Highlight cells to be merged.*
- ii) *Prom the menu bar clicks on table.*
- iii) *Click on merge cells under the menu items.*



COMPUTER 2009

SECTION A (40 MARKS)

Answer ALL the questions in this section in the spaces provided

1. Give a reason for each of the following

(a) Changing a password regularly (1 mk)

(b) Typing and re- typing a new password when changing it (1 mk)

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

3. A computer accessories vendor needs to order supplies. A spreadsheet is used to calculate the order part of which is shown below.

	A	B	C	D
1.	Item	Price per unit	Number ordered	Cost (Kshs)
2.	56 K modem	8,565.00	60	
3.	128 MB Ram	4, 950.00	40	
4.	Pentium IV Processor	13,525.00	55	
5.			Total	



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

(i) D2 (1 mk)

(ii) D5 (1 mk)

(b) If a value added tax (VAT) of 16% was charged on each item and the number ordered was decreased by 10%, write a new formula that can be used in D2 (2 mks)

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

5. Explain the following terms as used in desktop publishing (2 mks)

(a) Embedded object

(b) Auto flow

6. (a) Name four approaches that may be used to replace a computerized

Information system (2 mks)

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

1. Explain the following operating systems functions

(a) Job scheduling (1 mk)



- (b) Interrupt handling (1 mk)
2. Name four toggle keys on a standard computer keyboard (2 mks)
3. A computer user typed the name Kajiado as Kajiado and 8726 as 8126
- (a) State the type of each error (1 mk)
- (b) Explain how such errors can be controlled (2 mks)
4. Describe third generation languages and name two examples (2 mks)
5. (a) (i) What is an internet Protocol (IP) address? (1 mk)
- (ii) Why is an IP address necessary? (1 mk)
- (b) What is the purpose of the following internet domains? (1 mk)
- (i) .org
- (ii) .gov
6. (a) name two types of buses found on the computer motherboard (2 mks)



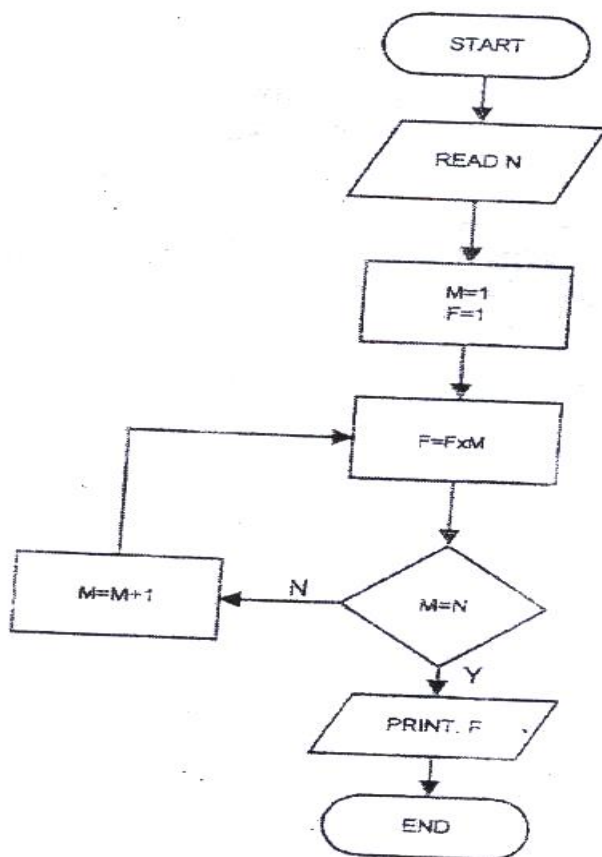
- (b) State the purpose of each of the types of buses named in (a) above (2 mks)
7. (a) Name the two files commonly used in mail merge (1 mk)
- (b) Name and explain the two types of drop caps (2 mks)
8. Give three ways in which horticultural farmers can benefit from the use of information and communication Technology (ICT) (3 mks)
9. Arrange the following job titles in the order of their seniority
- Database administrator, ICT manager, systems analyst (1 mk)



SECTION B (60 MARKS)

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

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



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

(i) 6? (2 mks)

(ii) 1? (2 mks)



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

(7 mks)

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

(4 mks)

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

(a) write an expression you would use to compute the year of birth of a student using this year as the current year

(2 mks)

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

(3 mks)

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

(i) The number of students in the database?

(2 mks)

(ii) The mean age of the students in the database?

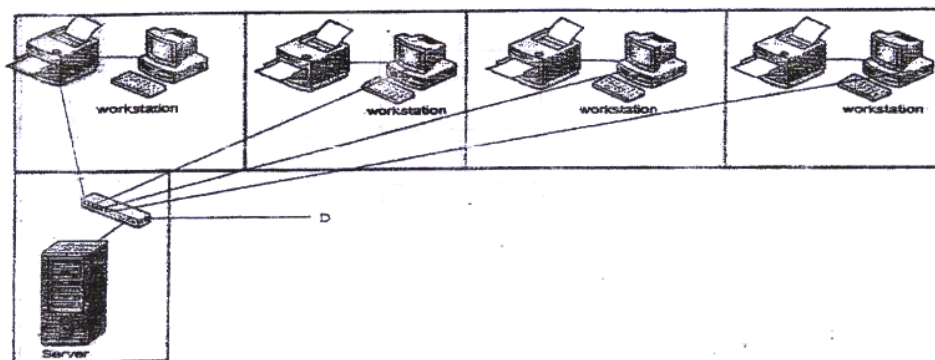
(2 mks)

(d) Name and describe any two types of database models

(6 mks)

12. (a) The diagram below shows a layout of a computer network used by a law firm.

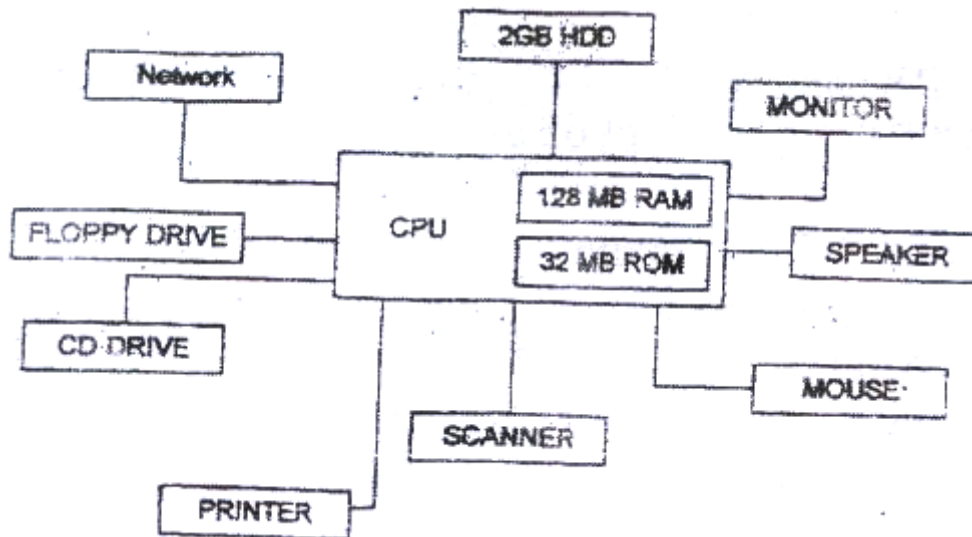
A workstation and a printer are located in every consulting room



- (i) Name the network topology depicted in the diagram (1 mk)
- (ii) Name the device labeled D (1 mk)
- (iii) State four functions of the device labeled 'server' (4 mks)
- (iv) Give two advantages and one disadvantage of the above network design (3 mks)
- (v) If the firm intends to open extra offices in two different towns, name any three hardware devices that would be required (3 mks)
- (vi) State any two security problems that might arise by linking the offices in different towns (2 mks)
- (b) What is spyware? (1 mk)

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





From the diagram:

- (i) Name two devices that are used for long term storage (2 mks)
- (ii) Name three peripherals shown on the diagram that are used for input (3 mks)
- (iii) Name two other devices that a computer Aided Design (CAD) user might wish to add to the set- up above (2 mks)
- (b) A customer wishes to purchase a computer system. The customer can buy a word processor, spreadsheet, database and a drawing package separately or as an integrated package. State three advantages why many computer users prefer integrated packages to separate packages.
- (c) (i) An anti- virus software installed in a computer is loaded into the main memory each time the computer is switched on



Explain three ways in which computer virus are spread from one computer to another

(3 mks)

(ii) Give two reasons why an anti virus package should be updated regularly

(2 mks)

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

(i) $1010.101 + 11.011$ (3 mks)

(ii) $1010.011 - 11.011$ (3 mks)

(b) Covert the following numbers into their binary equivalents

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

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

(c) Using four – bit twos compliment, perform the following arithmetic

1. Design a newspaper publication to appear as indicated in the next page using the following instruction.



(a) Launch the DTP package and set the preference measurements to centimeters and the document margins to 2 cm on all sides (2 mks)

(b) The headings “digital Bulletin” to have the following styles (4 mks)

- Centered across the page
- Font face: Arial
- Font size: 45
- Background colour: grey

(c) The other two headings in the publication to have the styles

- Font face: Ariel narrow
- Font size: 20
- Text weight: Bold
- Character spacing: 150%
- Alignment: centered across the page (5 mks)

(d) The text under the heading “Basic Networking and Connectivity” to be in three columns and having the following styles (22 mks)

- Font size: 14
- First character of the paragraph to have a 3 lines drop cap
- Hyphenation: disabled
- Fully justified

(e) The text under the heading ‘Antivirus Information Corner’ to be in a single column (3 mks)

(f) Design the Mercury Digishop advertisement in the position shown



(10 mks)

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

(3 mks)

(h) Print the publication

(1 mk)



DIGITAL BULLETIN

Basic Networking and Connectivity

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

A network is defined as two or more computers linked together for the purpose of communicating and sharing

information and other resources. Most networks are constructed around cable connection that link computers. This connection permits the computers to talk (and listen) through a wire. More recently, a number of wireless solutions have become available. Infrared Ports,

Bluetooth, radio links and other protocols allow a variety of new devices to link with PCs. In order for the network to function, three basic requirements must be met:

- The network must provide connections, communication and services
- Connections include the hardware (physical components) required to hook up



- a computer to the network.
 - Communication establishes the rules concerning how computers talk and understand each other. Computers often run different software and therefore they must speak a shared language
- A service defines those things a computer shares with the rest of the network. For example, a computer can share a printer or specific directories or files. Unless computers on the network are capable

SPECIAL OFFER

SPECIAL OFFER

Pentium IV

Duo 1.8 Ghz Intel,

120Gb HDD, 512 Mb

Memory, keyboard, full

multimedia

35,000/=

Antivirus Information Corner

Viruses are small programs that hide themselves on your disk (diskettes and hard disks).

Unless you use virus detection software the first time that you know that you have a virus is when it is active. Different viruses are activated in different ways, for instance, the famous



Friday the 13th virus will activate only when it is both a Friday and the 13th of the month.

Be aware, virus can destroy all your data.

2. The central bank of Kenya (CBK) exchange rates on a certain day for foreign currencies against the Kenya shillings (Kshs) were as follows

Currency	CBK Mean Rate (Kshs)
1 US Dollar	67.0222
1 sterling pound	137.7984
1 Euro	96.6552
1 S.A Rand	10.3100
1 Sweddish Kroner	10.4509

Kariuki, Hamisi, Mumbua, Otieno and Nekesa trade in buying and selling of foreign currencies. On that day they bought the following foreign currencies from CBK.

Name	U.S Dollars	Sterling Pounds	Euros	S.A Rands	Swedish Kroner
Kariuki	400	200	340	1200	290
Hamisi	500	400	400	2000	3000
Mumbua	200	600	300	4000	5000
Otieno	600	200	200	1000	3000
Nekesa	400	200	600	2000	1000



They then sold their foreigners currencies at the following rates

Name	U.S Dollars	Sterling Pounds	Euros	S.A Rands	Swedish Kroner
Kariuki	70.5	139.0	96.7910	10.4213	10.6725
Hamisi	69.0	138.5	96.79	10.5712	10.2676
Mumbua	70.0	141.5	96.76	10.3974	10.7432
Otieno	69.55	139.0	96.80	10.6371	10.5942
Nekesa	69.5	138.5	96.40	10.7218	10.6155

(a) Using a spreadsheet package, represent the above information in one worksheet and save it as FOREX (13 mks)

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

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

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

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

(f) Format the first table as follows:

- Set the direction of the labels to 45° (2 mks)
- Centre vertically all the records (1 mk)

(g) Print the worksheet and the graph (2 mks)





