INTRODUCTION TO COMPUTER

A COMPUTER

DEF:

It‟s an electronic device used to store input, retrieve and output information and operate under set of instruction.

OR

It‟s an electronic device or set of devices that work under the control of stored programs accepting data from outside itself processing it to produce information.

Input – to key-in or to type data into the computer
Store – to make data permanent in the computer memory
Retrieve – making data that was stored accessible on the screen
Output – get/obtain a print out or a softcopy (screen) of the information fed into the computer
Data – term used to describe basic facts about the activities of a business. Any information that can be typed in the computer. It can be in numbers or text.

QUALITIES OF A COMPUTER

(i) **It's automatic**- i.e. can work with minimum human intervention once supplied with data and instructions.
(ii) **It's a data processor**- Processing raw facts and figures to produce information.
(iii) **It's a storage device**- Store information for later reference.
(iv) **It's electrical**- Require some form of power to drive it.

ADVANTAGES OF USING A COMUPTER

1. **Speed**: Computers work at very high speed processing information compared to manual work.
2. **Volume**: it can handle very large volume of data simultaneously without becoming tired as long as it is properly programmed.
3. **Complexity**: It can handle very complex arithmetic calculation within very short time
4. **Accuracy**: Computers are very accurate so long as the person controlling it gives proper instructions.
5. **Versatility**: It can do the same thing over and over again without getting worn out.
6. **Secrecy**: Information can be protected from unauthorized personnel.
7. **Efficient**: Creates an all round saving on space and time.
8. **Communication and Resourceful**: In case of internet (Emails)It helps you find useful information using Internet.
9. **Entertainments**: Computer games, Music movies etc
10. **Multitasking**: Computer can handle a variety tasks even at the same time.
11. **Consistency**- Gives the same results given the same data and instruction.
12. **Flexibility**- Computer is always ready to work.

DISADVANTAGES OF USING A COMPUTER

1. Cost/Price : Computers are very expensive and cannot be afforded by many companies and individuals

2. Computer breakdown like any other machines computers breakdown forcing the user to turn to manual methods that are slow hence wasting
3. Health hazard : Cause great risks especially to eyesight, which is affected due to prolonged use and the screen is not properly regulated
4. Reduction of labour force: Computer leading to unemployment has displaced many people.
5. Moral degradation /decay: This through downloading dirty (phonographic) movies from the internet and that affects people virtues.
6. Computer has no intelligence hence cannot make any decision.
7. Loss of information if not well managed.

ELEMENTS/REQUIREMENTS OF A COMPUTER SYSTEM

1. HARDWARE

These are the physical and touchable components of a computer which are necessary to make the computer function. They include keyboard. System until monitor, printer and mouse.

2. SOFTWARE

This is a set of instruction which are designed to perform a specific work/task without these instructions the computer cannot work because it depends entirely on software instructions.

3. USER/PEOPLE/HUMANWARE/ORGWARE

These make up the most important requirement of a computer system. Their work is to operate and to respond to the computer where necessary. We have three types of computer experts.

- Computer operators: these are the people who have done some computer software packages and know how to operate the computer but not in detail.
- Computer programmers: these people write computer programs and test them on the computer to see how best they can work.
- Computer Analyst/System Designer: they perform the same work as the programmers expect their jobs are more detailed and includes also the installations of software.

SWITCHING ON COMPUTER

The act of putting on a computer is termed as booting. We boot a computer that is fully connected (that is all the components are intact). There are two types of booting:

1. Cold booting

The following are steps followed when cold booting a computer:

(i) Switch on the main switch (wall switch)
(ii) Switch the power button on the system-unit
(iii) Then switch the power button on the monitor/screen
(iv) Follow the commands from the computer.

2. Warm booting

This is the term used to mean restarting or resetting your computer. And it is done by either using the reset button on the system-unit or by the use of a combination of Ctrl + Alt+Del keys from the keyboard.

SWITCHING OFF A COMPUTER

The following are the steps followed whiles shutting down the computer.

a. Start by closing down any open window/program
b. Then click the start button
c. Click shut down
d. On the window that appears select shut down and click ok.
e. Then wait until the computer tells you "it"s now safe to turn off your computer"
f. After that switch off the power button on the screen/monitor
g. Switch off the power button on the system-unit
h. Lastly switch off the main power button (wall switch)

PERIPHERALS

These are devices for input storage and output

COMPONENTS/PARTS OF A COMPUTER

INPUT COMPONETNS:

These are components used for entering or keying in data and instructions to a computer. They include the following: -

1. MOUSE

This is hand driven which is an alternative to the keyboard but cannot be used for typing but only for opening files with windows based programs

2. KEYBOARD

This is a typewriter like; where typing of data is done and then displayed on the screen basically the following keys are found on the keyboard.

(a) Function Keys: these keys rang from F1 to F12 and have different function in different programs as far as a computer is programmed"
(b) Numerical Keys: these keys are used for typing numbers. They range from zero to nine.
(c) Typical keys: they range from A to Zero and are used for typing text.
(d) Space bar keys: it"s the longest key found on the keyboard. Used to put spaces between words or characters.
(e) Tab keys: used for moving the cursor more than one position.
(f) Special keys: they include control key, shift key and alternation key. These are used with a combination of their keys to activate a command, e.g. ctrl + alt + del
(g) Additional keys: these include pate-up, page down, delete, home, end key and are important when it comes to editing and formatting of text.
(h) Arrow keys: these are used to move one step towards the direction of the arrows.
(i) Caps lock key: used when one wants to type in capital letter.
(j) Backspace key: used for removing characters and entering to the next sentence
(k) Delete key: used for removing characters to the rig cursor
(l) Enter key: used for activating commands and entering to the next sentence

Others input components include: scanners, Joysticks, Optical character reader"s Magnetic ink character reader, microphones, cameras etc.

OUTPUT COMPONENTS:

These are components that displays the processed data (information) in human readable form. They include the following.

1. **SCREEN/MONITOR/VDU (Visual Display Unit.)**

It‟s television like and it works together with a video card to display text and images in soft copy form.

2. PRINTERS

Printer produces paper copy of what is displayed on the screen. The following are the factors to consider when selecting a printer.

- Cost
- Printer speed
- Printer resolution
- Printer colour i.e. black and white

There are four types of printers. They include

(a) Dot Matrix

- These types of printers are very noisy when printing
- They are also very slow
- They are very cheap
- Their printout quality is not clear
- They cannon produce pictures

(b) Daisy wheel

- These types of printers are noisy but not as the dot matrix
- They are slightly expensive than dot matrix
- Printout quality better than dot matrix
- They are slow in printing

(c) Inkjet / DeskJet

- They are fast in printing but not as the laser
- Printout quality is good though not as the laser
- They are expensive
- They print in colour
- They produce less noise.

(d) Laser Printer

- They are the fastest and can be compared to the photocopier machine.
- They are the most expensive printers
- They make minimal noise
- Has the best printout

Others output components include: voice data outputs like speakers etc.

1. SYSTME UNIT

This is referred to as the brain and the heart of the computer and it is where the processing of data is done. It‟s also the place where diskettes are inserted. It constitutes the memory, control unit and ALU (Arithmetic and Logic Unit).

The processing of data takes place in the system unit. It‟s done by the CPU (central processing unit). The CPU has four elements.

(a) Register

This is a temporary storage location of data in the CPU. Its main purpose is to quickly accept data.

(b) MICRO – PROCESSOR
It is made up of silicon and chip. Its work is to speed up the processing of data that might be slow.

(c) CENTRAL UNIT
This is integrated circuit that is capable of performing arithmetic calculations. It can also be referred to as ALU (arithmetic and logic unit).

(d) CONTROL UNIT
This is the main center of the circulatory system that respond co-ordinates all action that takes place in the computer system.

STORAGE COMPONENTS

MAIN MEMORY:
This holds up current data and instructions. There are two types of main memories viz
(i) RAM (Random Access Memory): This type of storage is not permanent. It is volatile for data can be lost easily if power goes off. This is the computer‟s working area and it holds data and instruction that are currently in use. It is referred to as the primary storage.
(ii) ROM (Read only Memory): This type is permanent form if the power is off you can retrieve the data. It‟s non-volatile. It holds some system files necessary for the boot process. It is referred to as the secondary storage or firmware

2. The hard disk is mainly mounted inside the system-unit. It contains rigid, disk-shaped platters usually made of aluminium or glass. These platters can not bed hence them term hard disk.

Advantages of using the hard disk over floppy diskette

i. **Security**: A hard disk is secure where as a diskette can be spoilt incase it falls into water or fire.
ii. **Volume**: A hard disk stores more data compared to a diskette.
iii. **Speed**: To retrieve data in a hard disk is faster because a hard disk rotates at a higher speed

3. THE FLOPPY DISKETTES
This is a thin plastic made of miller used to store data. They are the principle storage media in micro-computers. We have three basic types of diskettes.

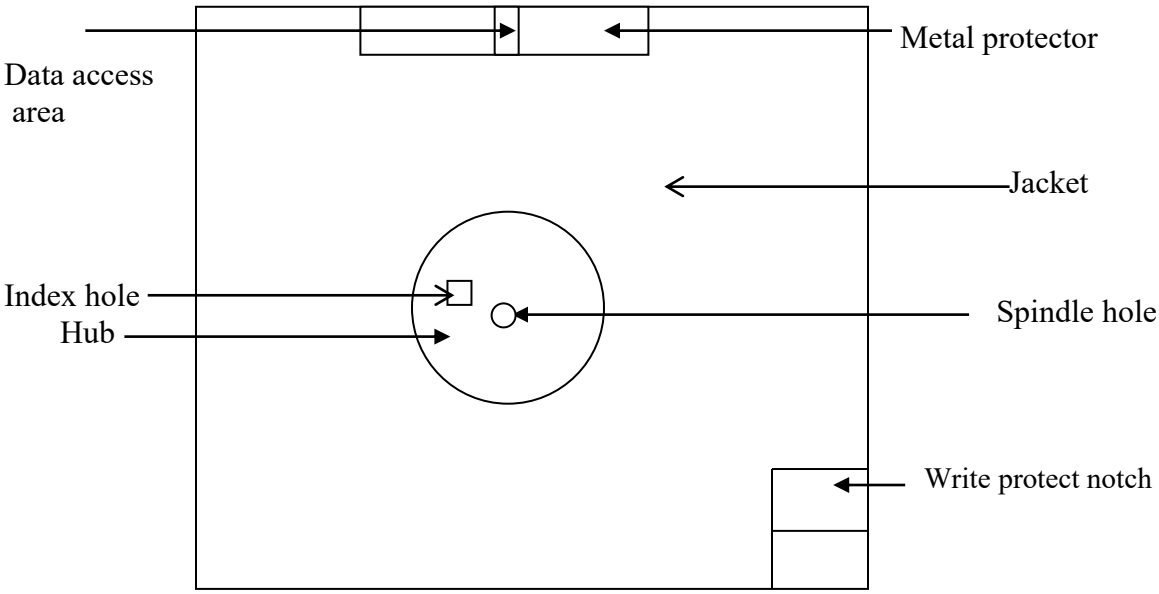
(a) 8 inch diskette
(b) 5 ¼ inch diskette
(c) 3 ½ diskette
The 3 ½ inch diskette is the most common diskette used, because it‟s accepted by all micro- computers.

PARTS OF A DISKETTE
The following are the parts of a diskette.

(i) Data Access Area – This is used to read the data fro the diskette
(ii) Hub – This is used for rotating the diskette

(iii) Write protect notch – this is used for protecting the data in the diskette
(iv) Index hole – This is also used in rotating the diskette
(v) Jacket – This is used for protecting the sectors
(vi) Sectors- This is where the data is stored.

A DISKETTE



CARE OF DISKETTES

(i) Do not touch the data access area for it is made of magnetic plastic which can be rubbed out.
(ii) Do not keep the disk at a cold place because of its magnetic material, which can get worn out.
(iii) Do not place an object on top of it because it can be broken.
(iv) Keep it at room temperature because that is the right condition for the diskette.

COMPUTER CLASSIFICATIONS:

Computer can be classified using different criteria namely:

a) Size
b) Type of data they process
c) Purpose
d) Generation.

1. Size

There are four types of computers according to size. They are

a) Super computer

- They are the largest computer ever to be invented
- They are very expensive.
- They are used in scientific and research centers.

b) Main-frame computer

- These types of computers are medium machine
- They are less expensive than super computers
- They store data on magnetic media.
- They are used in insurance companies and in airline reservations.

c) Mini-computers

- They are small machines compared to super and main-frame computers.
- They are multitasking i.e. several users can use them at the same time.
- They are cheap compared to the above two.

d) Micro-computers

- These are the smallest machine in the range of computers.
- They are latest machines to be developed.
- They are cheapest in the market.
- An individual at work or home can use them.

2. DATA PROCESSING

We have three basic types of computers classified according to the way they produce data.

a) Analog computer.

These types of computer measure physical magnitudes such as temperature, pressure etc. These computers are used for scientific and engineering purposes. They are not used for commercial data processing e.g. a slide rule and a care speedometer etc. They are commonly used in ICU‟s in hospitals.

b) Digital computers

These types of computers are used for commercial data processing. They function by taking direct numbers and performing mathematical calculation on them.

c) Hybrid computers.

These types of computers have both the characteristics of the analogue and digital computers e.g. computers used in the petrol station.

3. PURPOSE

Here they can be classified into two:

a) Special purpose computer

These as suggested by the names are computers designed for a particular work or job only, to solve problems of a restricted nature. Examples are computers designed for air traffic control or weapons guidance system.

b) General purpose computers.

These computers are designed to solve a wide variety of problems. Within the limitation imposed their particular design capabilities, they can be adopted to perform particular tasks or solve problem means of special written programs.

4. GENERATIONS

The first electronic computers were produced in the 1940s. Since then radical changes in electronics have occurred. With each major break through, the computers based upon the older for of electronics have been replaced with the new for of electronics thus forming the generation of computers.

a) First generation.

- These were the earliest computers using vacuum tubes as their key electronic device (1940s).
- They had the biggest size.
- They produced a lot of heat, thus had a higher chance of breaking down.
- They used punch card as their input device.
- They had as operation speed of 40,000 operation/sec.
- They only required an expert to operate and were then most expensive.

b) Second Generation

- These were more reliable computers than the first generation (1950s)
- Their key electronic device was the transistor.
- They were smaller in size than first generation.
- Their speed was 200,000 operations per second.
- They were less expensive than the first generation.
- Their internal memory was in form of magnetic core and stored data on magnetic tape.

c) Third generation:

- These were more powerful and reliable computers simple integrated circuits (1960s and early 1970s).
- The processing speed was higher, 1,000,000 operations/sec.
- Their size was smaller than the first and second generations.
- They were multitasking in nature.
- They had a higher internal storage.

d) Fourth generation

- These are the computers in use today, and which contain more complex micro electronic devices.
- They are the smallest in size.
- They have a higher processing speed.
- They have a higher internal storage capacity
- They are very cheap compared to the others.

e) Fifth generation:

There are many predictions that by the end of this century computers will have been developed which will be able to converse with people in a human like manner and which will be able to mimic human senses, manual skills and intelligence e.g. mobiles which accepts voice input and output.

SOFTWARES (PROGRAMS)

DEF: These are instructions given to computer to do useful work. They tell a computer what to do, how and when to do that. There are basically two types of software‟s namely:

a) System Software:

This is software that manages and controls the computer hardware operations. It loads in application software in a computer. It manages the computer data files. They make it easy for people to handle the computer. They include utility software‟s like anti-virus programs e.g. penciling, Norton and operating systems. E.g. MS-DOS, Windows, Linux etc.

b) Application Software.
This is a collection of related programs that are used to perform various jobs/tasks. They are programs written to solve specific problems. Major application software includes:

(i) Word processing
(ii) Electronic spread sheets
(iii) Database management systems
(iv) Graphic software
(v) Desktop publishing software
(vi) Statistical software
(vii) Accounting software.

i) Word Processing software:
This is a program that is used to type, edit and format text the way one would like it to appear. It"s useful skill required by everyone in any company. Examples include:

- Word perfect
- Ms. word
- Word star
- Multi mate
- Wang writer
- Ami-pro

ii) Electronics Spreadsheets:
They are used in mathematical and statistical statements. Figures are arranged into rows and columns. They are used to produce personalized reports involving financial, mathematical and statistics. Examples include:

- Super calm
- Lotus 1-2-3
- Micro Soft excel
- Multiplan
- Quattro pro

iii) Database management system:
A database is a collection of related information that is used to serve a specific purpose. A database can be applied in telephone directory, payroll system, electricity billing and water billing etc. Examples include.

- Database
- Fox Pro
- Ms. Access
- Paradox
- Fox base

iv) Graphic software
This is used to produce high quality graphics. It is mostly used by the architectures and designers. Examples include:

- Harvard graphics
- Corel draw
- CAD (Computer aided design)
- Auto CAD
- Auto shop
- CAM (computer aided manufacturer)

v) Desktop Publishing:
This is used to produce high quality professional looking publication e.g. wedding cards, calendars, business cards, certificates etc. It has a variety of sizes and combines both text and graphics together. Examples include.

- ❖ PageMaker
- ❖ Ms Publisher
- ❖ Ms PowerPoint
- ❖ Ventura
- ❖ Aldus

COMPUTER VIRUSES:
VIRUS (Vital Information Resource Under Siege)
This is a computer program designed to affect the normal function of the computer. It affects the computer by damaging the information stored in the computer. Examples of virus include:

- ❖ Worm virus
- ❖ Trojan
- ❖ Bomb

HOW VIRUS SPREAD:
They mainly spread through contact e.g.

- ❖ Network like in internet.
- ❖ Infected hardware i.e. through diskettes and memories
- ❖ Fake software e.g. games
- ❖ Pirated software.

SYMPTOMS OF VIRUS INFECTIONS:

- ❖ The computer repeatedly tells you that you have performed an illegal operation and the computer shuts down.
- ❖ A message that you don‟t have enough memory to run load a program that was previously running.
- ❖ Files changing sizes unusually and filling your storage media.
- ❖ File names being changed to codes and transferred to a folder called recycled.
- ❖ The computer keeps on hanging
- ❖ Program access taking longer than usual.
- ❖ Loss of information.

PREVENTION OF VIRUS:

- **VIRUS CAN BE PREVENTED USING THE FOLLOWING MEASURES:**
- Avoid downloading information from Internet on unprotected sites
- Avoid pirated software
- Scan your diskettes before use, using ant-virus toolkit programs e.g. Dr. Solomon anti-virus toolkit, MacAfee anti virus. Norton, Penicillin etc.
- Avoid using one diskettes in different computer.