BENTHA CYBER COMPUTER TRAING GUIDE

COMPUTER PACKAGES

Notes

INTRONDUCTION TO COMPUTER

COMPUTER: is an electronic device or set of device that works under control of installed programs. It accepts raw data from outside; it processes the data so as to give out information.
DATA: is any raw fact or figures that may not make sense to the user
INFORMATION: is the processed or refined product that can be understood by the user

QUALITIES OF THE COMPUTER

Automatic: this means that after the computer has been commanded to perform its task it requires minimal human intervention.
Data processor: computer has been designed to receive raw facts and figures that may not be meaningful to the user and then analyses it into information which the user can understand
Electronic: computers can be equated to household appliances such as the TV, radio, cameras, etc by the fact that they have capacitors, transistors, chips, circuit boards etc
Accuracy: since they are programmed devices, the writing of the instruction will repeatedly recur
Efficiency: compared to any other machine, computer will utilize time and effort to achieve high results
Secrecy: with the use of password
Versatile: Computers are multipurpose, they are compatible to accommodate and operate devices of different technologies e.g: watching T.V

Advantages of computer

- Eases filing system in the office
- Speed
- Enhances communication
- Enhances business
- Enhances education through e learning and e teaching
- Enhances industrial production through computer aided manufacturer(CAM)
- Enhances entertainment
- Create self-employment

Disadvantages of computers

- Expensive
- Cuts down on employment especially when computers are introduced where manual work existed
- Computers needs experts and skills to operate and maintain
- Health hazard e. g back ache, eye sight etc
- Volatile: they can lose huge and crucial information
- Sensitivity to dust, humidity, heat, water
- Addictive especially in games, chatting
- Most computers need electrical power
- Computer have encouraged laziness due to over reliance

TYPES OF A COMPUTER

Computer may be classified according to functionality, physical size/power processing, and purpose:

1. **Functionality**

A. Analogue (analog) computers

These computer deal with analog data. Analog data is that which continuous and progressively changes value over time. These computers respond to natural occurrences' such as temperature, speed and pressure. They may be used in manufacturing industries to check finances condition

B) Digital computer

These computers handle digital data. Digital in that is it discrete. These means the data can be represented as distinct values I.e. 1 or 0

C) Hybrid computer

These kind of computers would handle both analog and digital data.

2. PURPOSE

Under purpose computer there shall be two of them; general purpose and special purpose computers.

A) General purpose computer

Designed t, perform no of tasks, these computers are installed with programs which will enable them to handle a variety of duties. For instance, document processing calculation, accounting etc.

b) Special purpose computer

They are designed to perform only one special task. For instance, robots in CAMs belongs to this kind of a computer.

3. Physical size

a) Super computer

They are the biggest in size computers. They are fastest in term of speed, the most powerful terms of the tasks they can perform at particular nanosecond and therefore the most expensive only a few nation around the world can afford it. They would be used in complex computer engineering and also serve other small computers in complex network.

b) Main frame computers

They are also very larger, powerful and expensive but lower than super. They are stationary in the control room. They perform complex mathematical calculations. They a large storage capacity and can support a number of peripheral thus require no of people to operate one. They ideal in banks, airport, government, agencies and large organization

c) Mini computers

These are down scaled versions of the mainframe computers. Have less speed, fewer peripherals, less powerful etc. they can be found in research institution, engineering planes, scientific laboratories etc.

d) Micro computers

These consists of relatively small, cheap and not so complicated a computer. They are also transferable. They pose small silicon chip that analysis data. They are generally used in day to day duties in homes, hospitals, schools etc. they are sub grouped into;

i. Personal computer (PC)

PC is operated by one person for most of it peripheral are single e. g mouse, CPU, keyboard etc. they are usually placed on top of desk when operating thus dubbed desk top computer

ii. Laptop/notebook

These are small convenient and easily portable computer. They are placed on the lap when operating. Laptops are multicolored and bigger than notebook. Most of these computers are extremely expensive due to their convenience, portability and manufacturing technology. They are ideal for use by managers, journalists, researchers etc.

iii. Palmtop computers/PDAs

These are tiny pockets computers usually placed on the palm when operating. In most cases they are incorporated into mobile phones. They are ideal for business executive.

COMPUTERS OF GENERATION

FIRST GENERATION OF COMPUTERS

During the period of 1940 to 1956 first generation of computers were developed. The first generation computers used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. The vacuum tube was developed by Lee DeForest. A vacuum tube is a device generally used to amplify a signal by controlling the movement of electrons in an evacuated space. First generation computers were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions .

CHARACTERISTICS

1) First generation computers were based on vacuum tubes .
2) The operating systems of the first generation computers were very slow .
3) They were very large in size .
4) Production of the heat was in large amount in first generation computers.
5) Machine language was used for programming .
6) First generation computers were unreliable .
7) They were difficult to program and use.

SECOND GENERATION COMPUTERS

During the period of 1956 to 1963 second generation of computers were developed. The second generation computers emerged with development of Transistors. The transistor was invented in 1947 by three scientists J. Bardeen, H.W. Brattain and W. Shockley. A transistor is a small device made up of semiconductor material like germanium and silicon. Even though the Transistor were developed in 1947 but was not widely used until the end of 50s. The transistor made the second generation computers faster, smaller, cheaper, more energy-efficient and more reliable than their first-generation computers. Even though the transistor used in the computer generated enormous amount of heat which ultimately would lead to the damage of the computers but was far better than vacuum tubes.

Second generation computers used the low level language i.e. machine level language and assembly language which made the programmers easier to specify the instructions. Later on High level language programming were introduced such as COBOL and FORTRAN. Magnetic core was used as primary storage. Second generation computer has faster input /output devices which thus brought improvement in the computer.

CHARACTERISTICS

1) Transistors were used in place of vacuum tubes.
2) Second generation computers were smaller in comparison with the first generation computers.
3) They were faster in comparison with the first generation computers.
4) They generated less heat and were less prone to failure.
5) They took comparatively less computational time.
6) Assembly language was used for programming.
7) Second generation computers has faster input/output devices.

THIRD GENERATION COMPUTERS

During the period of 1964 to 1971 Third generation computers were developed. The third generation computers emerged with the development of IC (Integrated Circuits). The invention of the IC was the greatest achievement done in the period of third generation of computers. IC was invented by Robert Noyce and Jack Kilby in 1958-59. IC is a single component containing a

number of transistors. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers.
Keyboards and monitors developed during the period of third generation of computers. The third generation computers interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory.

CHARACTERISTICS

1) IC was used instead of transistors in the third generation computers.
2) Third generation computers were smaller in size and cheaper as compare to the second generation computers .
3) They were fast and more reliable .
4) High level language was developed .
5) Magnetic core and solid states as main storage .
6) They were able to reduce computational time and had low maintenance cost .
7) Input/output devices became more sophisticated.

FOURTH GENERATION COMPUTERS

After 1971 the fourth generation computers were built. The fourth generation computers were the extension of third generation technology. The fourth generation computers emerged with development of the VLSI (Very Large Scale Integration).With the help of VLSI technology microprocessor came into existence. The computers were designed by using microprocessor, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. The fourth generation computers became more powerful, compact, reliable and affordable. As a result, they give rise to personal computer (PC) revolution .
For the first time in 1981 IBM introduced its computer for the home user and in 1984 Apple introduced the Macintosh Microprocessor .

CHARACTERISTICS

1) The fourth generation computers have microprocessor-based systems .
2) They are the cheapest among all the computer generation .
3) The speed, accuracy and reliability of the computers were improved in fourth generation computers.
4) Many high-level languages were developed in the fourth generation such as COBOL, FORTRAN, BASIC, and PASCAL and C Language.
5) A Further refinement of input/output devices was developed .
6) Networking between the systems was developed .

IBM 4341, DEC 10, STAR 1000, PUP 11 and APPLE II are the examples of fourth generation computers.

FIFTH GENERATION COMPUTERS

Fifth generation computers are in developmental stage which is based on the artificial intelligence. The goal of the fifth generation is to develop the device which could respond to natural language input and are capable of learning and self-organization. Quantum computation and molecular and nanotechnology will be used in this technology. So we can say that the fifth generation computers will have the power of human intelligence.

CHARACTERISTICS

1) The fifth generation computers will use super large scale integrated chips .
2) They will have artificial intelligence .
3) They will be able to recognize image and graphs .
4) Fifth generation computer aims to be able to solve highly complex problem including decision making, logical reasoning .
5) They will be able to use more than one CPU for faster processing speed .
6) Fifth generation computers are intended to work with natural language

THE COMPUTER SYSTEM

Computer system comprises of all the parts that make computer phenomenon. There three major parts of computer system:

- **Hardware (devices)**
- **Software (programs)**
- **Org ware/ Live ware (user)**

Org ware/ Live ware (user)

The user is a person who operates the computer
There are three experts

- ✓ Computer operator
- ✓ Computer programmer
- ✓ Computer designer

HARDWARE

Physical or tangible components of the computer are referred to as hardware. When the computer is shut off, the hardware would remain visible. Hardware are sub grouped into four components namely;

- **CPU (processor)**
- **Input devices**
- **Output devices**
- **Storage devices**

- **CPU (central processing unit)**

CPU also referred as the processor, is a small silicon chip housed inside the system unit of a micro-computer which analyses raw data into information. It has been dubbed the computer 'brain' for it coordinates all the activities in the computer. The speed of the CPU is very important for it determine the time to be taken and the amount of task to be carried out by the computer modem CPUs range from P1-P4; whereby P4 is fastest. All input, output and peripherals must be attached to the CPU via the motherboard of the system unit.
The CPU is sub-divided into three smaller areas;

- ❖ **Control unit (CU)**
- ❖ **Arithmetic and logical unit (ALU)**
- ❖ **Main memory**

- ❖ **Control unit (CU)**

Receive and analyses/interprets all instruction into the computer. Also delegates duties to all other parts in the computer

- ❖ **Arithmetic and logical unit (ALU)**

Carries out all arithmetic/calculation in the computer. It also logically compares among the operations in the computer.

- **Main memory (MM)**

It is compartment that holds current data & instruction. It is refers to as the primary storage within the computer. It is sub-divided into;

- **ROM (read only memory)**

It is the compartment once data has been written can ever be changed through ordinary computer operation. It is stored permanently .it cannot be upgraded. Information is not volatile I. e it cannot be lost in case of a black out. For this reason, most system file necessary for computer booting are stored here.

- **RAM (random access memory)**

Also referred to as type write and ready memory.it is virtual memory. Information is temporarily stored and thus volatile I. e it can be easily erased due to black out if not saved. This memory is upgradeable or expandable thus increasing speed of the computer.

- **Input devices**

These are in the devices/ gadgets that enter data and instruction into the computer for processing e. g keyboard, mouse, scanners, joy sticks, microphone and digital cameras.

- **Output devices**

These are the devices/ gadgets that relay the processed information out of the computer so that the user can see, view, hear, read etc. example include monitor, visual display unit (VDU) printer, speaker etc.

Storage device

These are devices/gadgets capable of holding processed information within the computer example are:

- ✓ Hard disk (hard drive/drive c)
- ✓ removable devices such as
- ✓ Floppy/ diskette/ drive a
- ✓ CD compact disk
- ✓ DVD digital versatile disk
- ✓ Tape drive: resemble ordinary video tapes. They can be used to back up information / data. They are highly durable.
- ✓ Flash disk: an external memory stick which can store huge amount of data. This is becoming every ones mobile briefcase if not mobile office and thus rendering the diskette.

STORAGE OF DATA IN COMPUTER

Storage is measured by bytes. Bytes are units which measure space occupied by data information in the computer and storage device. One byte is made up of 8 bits. One bit is made up of 2 digits i. e 1 and 0. In textual data, one byte is equivalent to one character.

1Bit	=1 or 0
8Bits	=1 Byte
1024 Byte	=1 kilobyte
1024 KB	=1 megabyte
1024 MB	=1 gigabyte
1024 GB	=1 terabyte

DRIVES AND MEMORY LOCATION

Drives

Drives are gadgets that have the ability to store information: floppy drive (drive a), hard drive (drive c), tape drive, zip drive, jazz drive etc.

Memory location

Memory location are compartment within the computer established to store information. Example include; desktop, my computer, document, recycle bin, file folders etc.

SYSTEM UNIT

System unit is a metallic or plastic casing that houses or protects most of the major parts that control and define the computer. All these smaller parts are attached to the main board called **mother board or system board**. Even all the peripheral are attached to the mother wood at the rare of the system unit. Mother board has multiple circuits that enhances transportation of data and expansion slots that allow connection of additional parts. Some of parts found on system unit are the CPU (processor), hard disk, drives, memory chip, cards, buses etc.

THE MOUSE

Mouse is an input device that enters instruction or retrieves commands out of the computer. Mouse is an operating system that assist keyboard in operating computer. Mouse has two buttons;

- Left mouse button LMB
- Right mouse button RMB

The LMB is the active button for it is after issue commands in to the computer. Is the inactive button for it is not after use when the RMB is used, it is the retrieve commands out of the computer.

How Mouse operators

An ordinary mouse has a rubber ball at its underside. The ball rolls in relation to how the device is moved on a surface. There are two rollers that touch the ball and they roll as the ball moves. Next to each roller is a sensor that checks the distance travelled, the direction moved and the speed of the mouse pointer on the screen.

Techniques or action of the mouse

When the computer is operated and the mouse is used, one or more of the actions below must be applied.

1. **Click**

This is briefly to press and release a mouse button so as to issue a command or select an item.

2. **Double click**

This is consecutively pressing LMB twice in order to issue command; i. e to open an item or to highlight a word

3. **Triple click**

This is giving three consecutive taps to the LMB twice in order to issue command I. e to highlight paragraph or an entire document.

4. **Right click**

This is briefly pressing the RMB (inactive button) on an item or on an area in order to retrieve commands for application.

5. **Click away**

It is pointing and clicking the active mouse button outside a selection or a displayed menu in order to deselect or to do away with it.

6. **Point / select**

This is to move mouse pointer on an item then click the LMB

7. **Drag/drop**

This is to point, press and hold down the LMB on an item to move it from a position to another

8. **Highlight**

This is to point and drag over a text so as to select the textual data for particular aspect.

9. Position cursor/ insertion point

It point between the characters so as to type a character

10. Resize objects

This is to point border handles of an objects and drug so as to increasing and decreasing its size

11. Move/position object

This is to point and drug the object from one position to another

THE KEYBOARD

It is another input device used to enter textual data through typing in to the computer. It can also be used to enter commands and instruction in the computer by pressing the keys. The keys of the keyboard may be sub-grouped into the following categories:

1. ALPHA NUMERIC KEYS

These consist of;
The alphabets I. e (A-Z)
The numerals I. e (0-9)
The punctuation marks I. e (,.; :")
The symbols I. e (# @ %)
The mathematical operator I. e (+-=/)

2. NUMERIC KEYPAD

This is positioned at the extreme right of the keyboard. It consists of the numerals the mathematical operators and a few special keys. It is deal when dealing with calculations. It is activated or deactivated by pressing the Num lock key.

3. FUNCTIONS KEYS

They include F1 through F12 and are positioned at the top most part of the keyboard. Their purpose is to shortcut commands or they can be assigned some special duties. Sometimes they are used together with keys to attain the duty e. g
F1 can retrieve help notes
F7 can be used to check spelling and grammar
F12 can be used to save
Alt +F4 can be used to close a program

4. ARROW KEYS

They are also referred to navigation keys. They are four of them; **ARROW LEFT, ARROW RIGHT, ARROW UP, ARROW DOWN.**

Arrow keys facilitate horizontal and vertical movement to navigate through the cells; and can be used with other keys to achieve the duty

5. SPECIAL KEYS

These are meant to perform special duties either singly or used together with other keys e. g

a) Enter key

These are two enter keys. Duties are:

- Executes commands
- Acquires the next line when typing
- Explores a folder I. e (ctrl + shift + enter)
- Crate space between the lines

B. Caps lock

Interchanges between uppercase and lowercase and vice versa

c. Space bar

It is the biggest key on the keyboard. It creates a single character space between words.

d. Delete key

Delete/ erases characters and spaces at the right of the cursor I. e forwards
Also erases selected items and text

e. Tab key

Creates set intervals between characters, word, text etc.
Navigates through the cell forwards
Navigates through the dialog box

f. Shift key

Normally used with other keys e. g
Highlight text (shift + arrow key)
Acquires upper character in a double character key. This is a key on the keyboard where two letters or values are place
Momentarily acquires the upper case or lowercase when typing

g. **CTRL (control) key**

It is always used together with other keys to achieve duties.it has the biggest combination of keys in Ms. Window e. g
Ctrl +A highlight all
Ctrl +C copies
Ctrl +S saves
Ctrl +P prints
Ctrl +V pastes

h. Alt (alternative) key

Also used with other keys e. g
Alt +F display file menu
Alt +w displays window menu
Alt +F4 closes a running program

i. Esc (escape) key

Clears a display menu or dialog box displays start menu with ctrl I. e ctrl + esc

j. **Print key**

k. Home key

Takes cursor to the beginning of the line
Take cursor to the beginning of document I. e ctrl + home

l. End key

Takes the cursor to the end of the line
Takes cursor to the end of the document I. e ctrl +end

n. Page up

Scroll/ moves the page up

o. Page down

Scrolls/ moves the page down

STEPS TO START A COMPUTER

- Switch on the mains switch
- Switch on the UPS (interruptible power supply) if available
- Switch on the system unit
- Switch the monitor
- Wait for the booting process to take place
- Click the user account
- Type the password if applicable

STEPS TO SHUT DOWN THE COMPUTER

- Save and close all running program
- Log off the user account
- Click the start button
- Click shut down
- Wait for the closure
- Switch of the monitor
- Switch off the UPS if any
- Switch off the mains

BOOTING OF THE COMPUTER

It is the process by which the computer loads the system file to prepare it elf for the org ware to operate when power has been run into the system. This process makes the computer undergo power on self-test (POST) to make sure the computer system is complete- no important hardware or software is missing.

Types of booting

- **Cold booting**

This is turning on the computer by pressing the power button on the system unit and turning it on again.

- Warm booting

This is forcing the computer to restart in order to rectifying minor errors within the system. It is done by pressing ctrl + alt + Del keys. When this process repeated the computer restart.

There are various choices for closing or suspending a session

- **SHUT DOWN**: Close all open programs and services before powering off the computer
- **STANDBY/SLEEP**: save the current session to memory and put the computer into minimal power State
- **HIBERNATE**: save the current session to disk before powering of the computer
- **LOG OFF:** close all open program and services started under the user account but leave the computer running
- **SWITCH USER**: log on to another user account, leaving programs and files under the current account open
- **LOCK:** Secure the desktop while leaving the running programs
- **RESTART:** close all open programs and services before rebooting without powering down (a soft reset)

SOFTWARE

Software are the intangible component of the computer. They cannot be seen but only their results. Software are programs. Program are sets if instruction in electronic language, written to instruct the computer hardware on what to do and how to do it.

Types of software

- System software
- Application software

SYSTEM SOFTWARE

These are programs concerned with the effective performance of the computer hardware. They aid org ware handle/ operate the computer. They act on the user's requirement as he/ she commands them. Some control various programs in order to achieve a certain duty.
System software can be grouped into;

1. Operating system software

Operating system (OS) is a complex amalgamation of programs which controls the execution of the user applications. It enables the user access hardware and software resources of the computer. They control, and coordinate most of the computer operation. OS could be single tasking or multi- tasking, single user or multi - user, and command base interface, menu driven interface or graphical user interface.

Functions of OS

- Job scheduling
- Resource control and allocation
- Input/ output handling
- Memory management
- Error handling
- Job sequencing
- Interrupt handling

Example of OS

- Microsoft windows

Windows has version such as

- ✓ Ms. Windows NT
- ✓ Ms. Windows me
- ✓ Ms. Windows 2000
- ✓ Ms. Windows's xp
- ✓ Ms. Windows's vista
- ✓ Ms Windows 7
- ✓ Ms Windows 8
- ✓ Ms Windows 10 etc.

- Microsoft dos (disk operating system)
- UNIX
- Linux
- Macintosh (mac OS)

2. Language translators

This system software electronically translates one language to another through a machine. Language is computerized

3. Utility/ service system software

These special system file that render services commonly applied tasks within the computer. These task include copying, sorting, file handling, disk management etc.

4. Communication system software

Enhances communication or interaction between people through machines e. g phone dealers, network connection, internet etc.

APPLICATION SOFTWARE

These are program that enable the user to perform and achieve results from any perturbing problem I. e they are applied by user to achieve a certain duty/ task.

Classes of application software

- User application
- Application packages

User application

They program designed for the computer user according to his/her specifications; there for referred to as tailor-made. They are written by ordinary programmers for their client.

Application packages

These are ready made programs. They are complex for the keenly manufactured to accomplish several tasks. They are directly bought form the shop installed into the computer.

Sub-classes of application packages

- **Word processor**

These are designed to edit textual data. There is a lot of typing and formatting in this sub class. Example include MS word, word perfect, word star, word pro etc.

- **Spreadsheets**

These are designed to create and manipulate numerical data. Here formulas and functions are utilized to enable calculation. Example MS excel, lotus 1-2-3, VisiCalc, VP planner etc.

- **Database**

These are used to create, organize, store and manage huge amount of data. Example include MS access, dbase I-IV, paradox, fox pro etc.

- **Presentation**

These help to prepare notes and graphic in an artistic manner by a presenter intended to a certain audience. Example include MS power point freelance graphics etc.

- **Graphics and design**

They also referred to as desktop publishing (DTP's) because they were traditionally used for publishing purposes. They highly employ both text and graphics. Example are Corel draw, adobe page maker, Microsoft publisher, adobe photo shop, adobe illustrator etc.

- **Accounting packages**

They are meant to tackle and simplify the accounting aspect such as the ledgers, balance sheet, assets, stock, report, chart etc. example are quick books, quicken, sage line 50, pastel etc.

MALWARE

Short for **malicious software**, is any software used to disrupt computer operation, gather sensitive information, or gain access to private computer systems. Malware is defined by its malicious intent, acting against the requirements of the computer user, and does not include software that causes unintentional harm due to some deficiency. The term badware is sometimes used, and applied to both true (malicious) malware and unintentionally harmful software

Probably the most well-known and most common type of malware,

Viruses consist of harmful programs designed to infect legitimate software programs. Once a person installs and runs the infected program, the virus activates and spreads itself to other programs installed on the computer before taking further action such as deleting critical files within the operating system. Similarly,

Computer viruses are small software programs that are designed to spread from one computer to another and to interfere with computer operation. A virus might corrupt or delete data on your computer, use your e-mail program to spread itself to other computers, or even erase everything on your hard disk.

Computer viruses are often spread by attachments in e-mail messages or instant messaging messages. That is why it is essential that you never open e-mail attachments unless you know who it's from and you are expecting it.

Worms are stand-alone programs that are able to transmit themselves across a network directly. Unlike a computer virus, worms do not need to attach themselves to an existing program.

However both types of malware can cause severe damage by exploiting shared files and databases.

Other malwares

Trojan Horse. Similar to Greek mythology, Trojans present themselves as harmless, useful gifts, in order to persuade victims to install them on your computer. Thus, Trojans typically appear as regular software. The catch is that the Trojan comes bundled with other software that often includes a backdoor allowing unauthorized access to your computer. Trojans do not attempt to inject themselves into other files or applications like computer viruses instead, they use tactics such as drive-by downloads or installing via online games in order to reach their targets.

Adware and spyware. Though not technically fitting into the virus category, at times these programs may invade your privacy, contain malicious code and at the very least become a nuisance. **Adware** is a form of financially supported malware that usually presents itself as unwanted advertisements to the user. The Internet is filled with these types of programs that can hijack your PC for profit, most are hidden inside so-called "free" downloads and pop-up ads that forcibly install software on systems with active vulnerabilities.

Similarly, **spyware** is a type of malware that surreptitiously gathers information and transmits it to interested parties. Information gathered includes the websites visited, browser and system information and IP address. Spyware does not have any infection mechanisms and is usually dropped by Trojans. Once dropped, it installs itself on the victim's computer and will begin collecting information silently as to avoid detection.

A **zombie** works in a similar way to spyware. The difference is that a zombie does not usually collect information from the computer. Instead, it just sits there waiting for commands from a command-and-control server controlled by the attacker. Attackers infect tens of thousands of computers, turning them into zombies and then issuing commands so that all of them instantaneously send network requests to a target host, overwhelming it with traffic also known as a DDoS attack or distributed denial of service.

SAFETY PRECAUTIONS TO THE COMPUTER AND THE LABORATORY

Computer are very sensitive, delicate, volatile and even expensive; therefore it is important to note some safety precautions when handling them so that may serve longer and better:

1. Proper hardware assembling
2. Proper power management; include an uninterruptible power supply (UPS)
3. Cover your computer system when not in operation to avoid dust, water etc.
4. Do not bang computer devices
5. Do not eat or drink from computer lab
6. Do not run about the computer lab
7. Ensure sufficient ventilation in the lab
8. Protect computer from direct heat
9. Ensure clean environment
10. Burglar proof doors and windows are important to prevent theft
11. Ensure regular servicing to the computer
12. Handle the diskette and CDs carefully
13. Do not place gadgets on the edges to avoid falling
14. Do not interfere with computer setup
15. Do not open the computer devices unless you are computer technician

16. Do not entertain foreign hardware and software to prevent virus infection

FACTORS TO CONSIDER WHEN BUYING A COMPUTER

- The processor speed
- The hard disk capacity
- The memory RAM size
- The purpose of the computer user needs
- Warranty
- Portability
- Upgradeability and compatibility
- Documentation (operation manual)
- New or used
- The cost

FACTORS TO CONSIDER WHEN BUYING SOFTWARE

- Authenticity
- Reliability and security
- User friendliness
- The purpose of software
- Warranty
- Portability
- Compatibility and system configuration
- Documentation (operation manual)
- The cost