CHAPTER 22

COMPUTER APPRECIATION

Objectives

At the end of this chapter students should be able to:

(i)   explain the meaning and importance of computer;

(ii)   list types of computer;

(iii)   list parts of a computer;

(iv)   list the advantages and disadvantages of computer.

22.1 Definition

The computer is an electronic machine that accepts data and processes data in order to give information at a faster speed.

In the world of today, the use of computer is increasing everywhere in homes, schools, colleges, offices, industries and organizations. Computer knowledge is a necessity if a person wants to be relevant in the world today.

22.2 Uses of Computers

Computers have wide areas of application in terms of what they are capable of doing.

Areas	What it can be used for
1. Home	Computers can be used to do the following: 1. Play music and watch movies 2. Play games 3. Connect to T.V. set and watch television 4. Type letters and other documents 5. Watch CNN and other foreign news 6. Connect to the internet and send E-mail, etc

2.   Schools
      Colleges
      Churches
      Mosques
	1. For teaching students
	2. For research work
	3. To prepare documents (letters, and memos)
	4. Connect to the internet and interact with the whole world
	5. Sending and receiving mail through the internet.

3.	Office	1. Typing letters, memos and other documents
		2. Sending and receiving mail
		3. Connecting internet to do business 'live'
		4. Sending and receiving fax messages
		5. To prepare reports
		6. To keep staff records.
4.	Banks	1. To count money
		2. To calculate deposits and withdrawals
		3. To calculate interests for customers
		4. To prepare reports and type letters
		5. For on-line information transmission among branchers.
5.	Hospital	1. To diagnose (patients) sick people
		2. To carry out tests
		3. To prescribe drugs.
6.	Transportation: a. Road	To control traffic, i.e. traffic light that passes vehicles on our roads in an orderly and systematic way
	b. Airport	To fly aeroplane,
		To monitor airplane (flight) route (direction or movement);
		To monitor flight information;
		To control taking-off and landing of planes
		For booking tickets.
	c. Seaports	For navigating ship;
		For monitoring cargo information; For monitoring ship on routes or high sea;
		Assist in clearing of goods.
	d. Railway	For driving train;
		For monitoring train on routes;
		For managing information on coaches.
7.	Electricity	For calculating electricity bills;
		To up-date meter reading.
8.	Telephone	Nigerian Telecommunication Corporation uses computer to operate in all their exchanges; For telephone meter-reading and calculating monthly bills.
9.	Court	For storing case files and related documents.

10.	Industries	For controlling machines; For controlling products quality; For storing data and information.
11.	Hotels	For storing data and information; For printing bills and producing customers' statements of accounts; For preparing hotels' and of period financial statements; For hotels booking and reservation.
12.	Press	For publishing magazines, books and newspapers.

22.3 Types of Computers

Classes of Computers By Sizes and Cost

If we want to classify computers by sizes and costs there are usually four types.

(i) **Super Computer:-** This is the largest and most powerful computer, but it is not very common. It is used for a lot of things such as research, flying airplanes, rockets into the moon, space war fighters, oil exploration, energy conservation and aircraft design.

(ii) **Main-frame Computer:-** This is equally a large sized computer and larger than a mini-computer but smaller than the super computer. It can be used by at least fifty people at the same time - by attaching fifty monitors, keyboards and a mouse to its Central Processing Unit (CPU).

It is used in very large companies that keep large data or information like the banks, pension houses, government establishments, etc.

(ii) **Mini - Computer:-** This is not as big as the Main-frame computer. But it is bigger in size than the micro-computer. It equally has a larger CPU than the micro-computer. It can make use of ten to twenty keyboards and VDU.

(iv) **Micro Computer:-** This is the smallest computer that has a CPU, keyboard and a VDU. It is smaller than the mini computer. It has only one CPU, monitor, keyboard and mouse, and can only be used by one person at a time. It is known as PC (Personal Computer) or a Desktop Computer, an example of a micro computer. Micro Computer can be used in offices, homes and government departments.

All the classes of computer stated above (that is super, mainframe, mini and micro computers) are under **THREE** types:-
    i. Digital Computer
    ii. Analog Computer
    iii. Hybrid Computer.

(i) **Digital Computer:-** This performs arithmetic/mathematical operations. That is, it functions by the use of numbers. This is the commonest and most used. Some examples are wristwatch, calculating machines, digital multimetre, etc.

(ii) **Analog Computer:-** This functions by indicators transferring variables into measurable physical quantities. For instance it uses variables like temperature, speed, humidity, blood pressure, wind direction to operate. It is used in scientific operations.

(iii) **Hybrid Computer:-** It is a computer that combines the best of the functions of the digital and analog computers. That is it measures using numbers and indicators. The most common example is the dual wristwatch.

It is used for science and mathematical purposes.

22.4 Parts of a Computer

All classes of computer have six major parts:
1. Input devices
2. Output devices
3. Control Unit
4. Arithmetic and logic
5. Memory Unit (Internal)
6. Storage Unit (External)

But the six parts can be compressed into two broader components i.e

(a) Hardware

(b) Software

(a) **Hardware:-** This is the name given to all the physical and tangible parts of the equipment connected to the computer and to the computer itself as output devices. The hardware cannot work without the software. Examples of the hardware devices are (1) Visual Display Units (V. D.U.); (2) Central Processing Unit (CPU); (3) keyboard; (4) Printer; (5) Mouse, etc.

Examples of the Hardware devices

(1) **Visual Display Unit (VDU):-** This is the output unit or output devices of the computer. It is the fastest growing form of computer in soft copy form. It is a distinctive **T.V.**-type shape. It has 24 lines of so characters with a blinking point on the screen and it is known as cursor. It can be in single colour (known as monochrome) or in many colours referred to simply as coloured.

With the aid of the V. D. U. one can see the date and instruction being typed from the keyboard into the CPU and one can check if the output information is correct or not. It also allows one to see what one selects, draws or moves with the use of the mouse.

(2) **The Central Processing Unit:-** This is divided into two major parts are input device and output device. The central working processing unit that controls the computer and all other equipment, e.g. printer, VDU, key board and computer mouse.

  (a) control unit
  (b) arithmetic and logic unit parts of this is the area inside the CPU that is responsible for the arithmetic calculation, such as addition, substraction, multiplication and division.
  (c) internal memory which is also in two areas:

  (i) **Random Access Memory (RAM):** this stores information on temporary basis only. RAM occupies the larger part of the internal memory or internal storage. Here if the light goes off the information is lost.

  (ii) **Read Only Memory (ROM):** this stores information on a permanent basis and occupies a smaller part. It also holds information if the light goes off.

  (d) **External storage:** is for storing information permanently. It helps the internal memory to record data and information. Examples are diskette, tape, hard-disk, zip diskette, etc.

  (e) **Power pack:** is a unit through which electricity comes into the computer.

  (f) **Speaker:** this provides sound in the computer.

  (g) **Drive:** through this unit storage devices are inserted to release or store information, e.g. this is called a floppy drive. There is also a CD Rom drive and the hard disk.

  (h) **Cards:** allows transfer of information within and outside the CPU, e.g. VGA card, 1-0 card, EGA card, etc.

(3) *Keyboard:* This is the unit for making entry into the CPU. It is otherwise known as **INPUT DEVICE.** It is made up of a number of keys such as:

  (i) **alphabetic keys:** which consist of letters Aa - Zz which can be used for typing into the computer such alphabetic keys can be combine with other special characters like +, -, % while working on the computer.

  (ii) **numeric keys:** these are from 0 - 9, they are used for performing arithmetic calculations and can be combined with other special characters like +, -, % on the computer.

  (iii) **control keys:** there are many keys under the control keys and they perform different functions whether singly or in combination with other keys.Examples are: space bar, shift key, enter key, Esq key, end key, other keys are functional keys: caps lock key, escape key, arrow and unlock key.

(4) **Printers:** This prints out document from the computer on paper and it is the fastest growing form of computer output in a **hard copy** form. It is in **TWO** categories:

(i) **Input Printers** - these make noise with the ribbon during printing these are in three parts: daisy wheel printers, dot matrix printer and line printer. They can be otherwise referred to as character printer.

(ii) **Non-Impact Printer** - these do not make a noise while printing. Examples are Bubble Jet printer, Laser Jet printer. They operate on the principle of photocopying in printing. They are also known as the line printer or page printer.

(5) **Computer Mouse:-** This is an example of an input device. It performs the same function as the keyboard. It is used to move, select an object or draw when working on the computer. It is faster than the keyboard. It can perform better and can reach every corner of the screen (monitor). It has an arrow shape on the monitor or a beam when in the typing area. When in use it is placed on a pad called mouse pad for smooth and easy movement.

(b) **Software:-** Softwares has been an essential complement to the computer hardware itself. Software is to the hardware what the human is, been to the human bone. Without the flesh the human bone is dead. Without the software the hardware is useless.

Components of the Software

A computer software is made up of some programmes. A programme is a collection of related instructions or commands that direct a computer to carry out a task. The person who codes computer language into a programme is called a computer programmer. There are many computer languages, each with its unique syntax, pneumatics and pragmatics.
Software can be divided into four major classes: -

    i.   System software

    ii.   Utility

    iii.   Application software

    iv.   Software packages

(i) **System:-** This is a group of related programmes coded by a group of computer programming experts who command good working knowledge of the computer. An operating system is an executive manager of all the resources of the computing system. It also controls the flows of programme and data from one component of the CPU to the other and control, the input and output devices.

It helps in the operation of the computer, it usually comes with the computer. Examples are Ms Dos, windows, etc. A programmer designs this for the specific use in an organization.

(ii) **Utility Program:-** This is a variation of application in a data processing environment, there are some operation which are commonly carried out by the users. Examples are:-

(a) Sorting the records of a file in an ascending or descending order of data items (such as the records of students in a school into descending order of total score in an examination). An example is pascal.

(b) Merging two or more data files, e.g storing the records of SSS 1, SSS 2 and SSS 3 in the computer in three separate files, the need may arise to merge the three files into one. This is referred to as Data base.

(iii) **Application Software Programme:-** This is written in computer language by a computer programmer to carry out a specific task, e.g. to keep records of employees for the payment of monthly salaries. We can use it for keeping and monitoring governments budget, warehouse items, and records of patients in an hospital. Examples of programming language are Basic, Cobol and Prolog.

(iv) **Software Packages:-** This is a set of related programmes coded by a group of computer programmers to carry out some tasks that are commonly handled by human experts of a given profession, e.g. computer aided learning programme for teachers and students. Such as data base processing for database administrators. Computer aided learning programme for engineers, architects, desktop publishing (DTP) for printers, publishers and media houses.
Other examples are word-processing, database on statistical analysis for statisticians.

Note: As shown in the diagram here utility and software packages are various types of the application software.

22.5 Advantages of Using Computer in a Business Organization

(i) **Fatigue:** Human beings working on their own get tired easily but with computers one can work for longer hours.

(ii) **Easy Calculation:** Computers make business calculations very easy and simple.

(iii) **Fast Output**: The computer turns output with great rapidity.

(iv) **Neat Output:** the output of business is not only fast and enormous but extremely neat.

(v) **Instant Communication:** Computers assist in instant communications both in domestic and international trade.

(vi) **Massive Storage Facilities:** Storage and retrieval system **of** data and information is great.

(vii) **Aids Managerial Productivity:** with an excellent display of computer knowledge business managers perform better and record increase in productivity.

22.6 Disadvantages of Using a Computer

(i) **Quality** of **Input:-** The output of a computer systems is as good only as its input. That is why it is said in computer **â€œgarbage in garbage outâ€.** Therefore unless the input is good the benefits derivable from the system can be an illusion.

(ii) **As a Means of Committing Fraud:-** Computer can equally be used to commit and perpetuate fraud.

(iii) **An Expensive Substitute for Cheap Labour:-** In developing countries where labour is cheap and is readily available, wide computer application might become expensive and unwelcome, as computers compete with man-labour.

Revision Questions

A. *Essay Questions*

1. (a) Explain briefly the meaning of computer.

   (b) State ten situations where the computer can be used.

2. Write short notes on any five of the following:

   a. Hardware

   b. Software

   c. Humanware

   d. The Utility programme

   e. The Computer Programmer

   f. System Analyst.

3. Compare and contrast the system computer with the:

   a. Main-frame computer.

   b. Explain the differences between Digital, and Analog computers

4. State the classes by sizes of computer, briefly describe each of classes.

5. What are the benefits derivable from:

   a. the use of computers?

   b. must the use of computer be adopted at all costs? Discuss.

B. *Objective Questions*

1. Computer can be applied in some of the following places:-

   (i) Schools and Churches
   (ii) Offices and Banks
   (iii) Roads and airports

(iv)   Courts and Hospital
(v)   NITEL and NEPA offices

A.   i and v
B.   ii and iv
C.   iii and iv
D.   All of the above
E.   None of the above.

2. The unit through which the results of a processed data are displayed is the
   A.   Output
   B.   Display Unit
   C.   Control Unit
   D.   Logic Unit

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3. The type of computer commonly found in offices is:
   A.   Desktop
   B.   Lap-top
   C.   The Hybrid computer
   D.   The mainframe computer

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4. Which of the following best describes the classification of computers?
   A.   Mini-computer, Hybrid and digital
   B.   Micro-computer, mini-computer, mainframe, super computer
   C.   Mini-computer, speed and size.
   D.   Micro-computer, cost and abilities

5. The temporary working area of the Central Processing Unit is called the
   A.   RAM
   B.   ROM
   C.   CD RM
   D.   CD ROM

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6. Electronic computers differ from human beings in that they process data and minimise errors in a
   A.   Faster but less accurate manner
   B.   Faster and more accurate manner
   C.   Slower but more accurate manner
   D.   More organized manner.
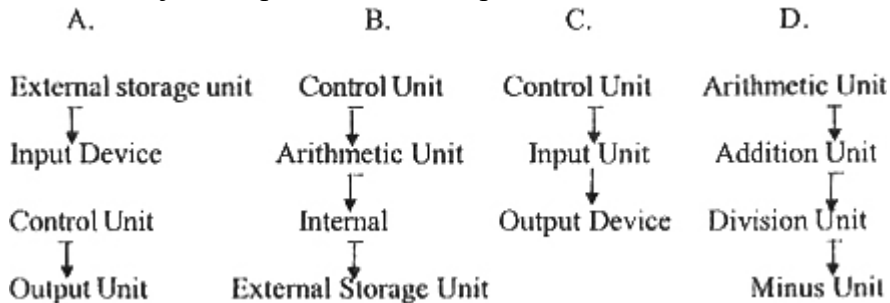
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7. The device which interprets and carries out the instruction presented to it by the computer program is known as
   A. Mouse
   B. Hard-disk
   C. Micro-processor
   D. Software.

8. The most widely used computer language that focuses on solving science-oriented problems is
   A. ADA
   B. COBOL
   C. FORTRAN
   D. BASIC

9. The major components of a computer are in this strict functional relationship.

A.	B.	C.	D.
External storage unit	Control Unit	Control Unit	Arithmetic Unit
↓	↓	↓	↓
Input Device	Arithmetic Unit	Input Unit	Addition Unit
↓	↓	↓	↓
Control Unit	Internal	Output Device	Division Unit
↓	↓		↓
Output Unit	External Storage Unit		Minus Unit

10. One of these is not an advantage of the use of a computer.
    A. fast ouput
    B. neat output
    C. massive storage facilities
    D. easy calculation
    E. can aid frauds in offices

Project

Make a visit to computer office or centre and make a sketch drawing of the machine. List the parts of the computer that are visible.