FIRST TERM E-LEARNING NOTE

SUBJECT: DATA PROCESSING **CLASS: SSS1**

SCHEME OF WORK

WEEK	TOPIC
1.	INTRODUCTION TO DATA PROCESSING
2.	HISTORY OF COMPUTING
3.	HISTORY OF COMPUTERI.
4.	HISTORY OF COMPUTER II.
5.	CLASSIFICATION OF COMPUTERSI.
6.	CLASSIFICATION OF COMPUTERSII.
7.	DIGITALIZATION OF DATAI.
8.	DIGITALIZATION OF DATAII.
9.	ICT APPLICATION IN EVERYDAY LIFE
10.	DATA AND INFORMATION
11.	REVISION
12.	EXAMINATION

REFERENCES

- Data Processing forSenior Secondary Education by Hiit Plc.
- A Handbook on Computer Studies by NiyiAdekolegan.
- On-line Materials.

WEEK ONE

TOPIC: INTRODUCTION TO DATA PROCESSING

In this chapter, you shall learn about what is data and information; the difference between data and information. Attempt to distinguish between manual and electronic data processing.

DEFINITION OF DATA

The term data means any basic fact which may be input to some processing system. A processing system is one where computations, comparisons and general manipulation of data are done. The processing may be people or machine e.g the computer.

Information on the other hand, is the end – result of a processing system. The information is needed by management for decision making. The relationship between data and information is shown in the diagram below:

INPUT ⟶ PROCESSING ⟶ OUTPUT

FIRST TERM Data Processing E-LEARNING NOTE

WHAT IS DATA PROCESSING?
Data processing is the task of using a collection of basic facts to produce information, usually it has no value in itself until it is subjected to analysis, validations and comparisons with other data produce result (information), for example a collection of weights of individuals do not turn useful information for decision making.

However when the set of data is processed such as searching for individual with a maximum or minimum weight or the weight of all concerned in the study, information is produced.

Management can decide on the basis of each information to assign special duties to the fellow with the maximum or minimum weight. Other use could be made on such information depending upon the situation prevailing on the organization and their special needs.

Therefore, data processing is an operation on computer data which involves the entering, sorting, updating and retrieving of information using computer.

PROPERTIES OF DATA

1. Collected/Captured
2. Prepared
3. Presented
4. Precise
5. Complete
6. Accurate
7. Purposeful
8. Assigned

DATA PROCESSING CYCLE
The data processing cycle describes the stages of data processing. It involves the following stages:

- Data gathering
- Data collation
- Input stage
- Processing stage
- Storage stage
- Output stage

Element of data processing;
INPUT ——→ PROCESSINGOUTPUT→

Data is often required for various purposes. Even the same item of data may be used in a great variety of ways depending upon the user's objectives.
Most data processing work may be viewed as consisting of data, processor and output. Usually, storage also features since both data and program instructions need to be stored.

EVALUATION

1. Differentiate between data and information
2. Define data processing

DATA PROCESSING ACTIVITIES

Data processing activities involve the following:

1. **INPUT**: involves three steps; collection, verification/validation and coding
2. **PROCESSING** : involves classification, sorting, calculating, converting and storing
3. **OUTPUT**: involve retrieving, converting and communication.

INPUT ACTIVITY

a) **COLLECTION**: involves gathering data from various sources and assembling it at one location.

b) **VERIFICATION/VALIDATION**: after data have been gathered, its accuracy and completeness must be checked. This is an important step that helps to eliminate the possibility of Garbage-In – Garbage-out(GIGO)

c) **CODE**: data must be converted into machine readable form so that it can be entered into the processing system. Entering data via a computer terminal and keyboard is one example of coding.

PROCESSING ACTIVITY

a) **CLASSIFICATION**: Classification involves categorizing data according to certain characteristics to make it meaningful to the user. For example, sales data can be grouped according to salesperson, product type, customer or any other classification useful to management.

b) **SORT**:This involves arranging the grouped data element into predetermined sequence to facilitate processing. For example, an employee number can be last. Sorting can be done on numbers, letters, special characters or a combination of them.After it hasbeen classified, data may be stored.

c) **CALCULATION**: The arithmetical or logical manipulation of data is referred to as calculation. Examples include computation of students' grade –point averages, customers' bank balances and employee's wages.

d) **SUMMARISE**:reducing large amount of data to concise, usable form is called summarizing. The logical reduction of data is necessary to provide information that is useful.

e) **STORE**: this involves the storing of data not immediately needed;data could be stored on a disk, tape or CD-ROM.

OUTPUT ACTIVITY

This involves retrieving data, printing data and data communication.

IMPORTANCE OF DATA PROCESSING

The art of management is increasing as our society becomes more competitive and more technologically advance. The volume of data being generated is correspondingly increasing and becoming unmanageable. On the other hand, the need to make information available, timely and accurately is becoming more vital in the competitive world in which we have found ourselves. It is when a large volume of data is required to be processed speedily and accurately that Data Processing becomes indispensable.

GENERAL EVALUATION

1. What is data processing?
2. Describe a typical data processing cycle.
3. Describe what is involved in each stage of data processing.
4. Why is computer a better tool for data processing?
5. Discuss why data processing is important in business organization.

READING ASSIGNMENT
Data Processing For Senior Secondary School ByHiit.

WEEKEND ASSIGNMENT

1. …….is a basic fact that needs to undergo processing.
   A. information B. data C. output D. input
2. The methodology of converting data into information is
   A. data and information B. data processing C. decision making D. none of the above
3. The major reason for data processing is A. decision making B. conflict promotion
   C. information generation D. data manipulation
4. In data processing, input activity involves A. collection B. verification
   C. retrieving D. all of the above.
5. One of these is not data property
   A. presentation B. collection C. misuse D. accuracy

THEORY

1. What is data processing?
2. Describe and explain a typical data processing cycle.

WEEK TWO

TOPIC: HISTORY OF COMPUTING

EARLY MECHANICAL COUNTING/CALCULATING DEVICES

1. Abacus
2. Slide rule

EARLY ELECTRO-MECHANICAL COUNTING DEVICES

1. John Napier bone
2. Blaize Pascal machine
3. Gottfried Leitbnitz machine
4. Joseph Jacquard Loom
5. Charles Babbage analytical machine

EARLY ELECTRONIC COUNTING DEVICES:

1. Herman Hollerith punch card
2. John Von Neumann machine

Man has put in every effort to have better methods of calculations. As a result of man's search for fast and accurate calculating devices, the computer was developed. Essentially, there are three kinds of calculating devices: manual, mechanical and automatic.

ABACUS

The first calculating device was probably Abacus. The Chinese invented it. It is still in use in some countries because of its simple operation. It is made up of a frame divided into two parts by a horizontal bar and vertical threads. Each thread contains some beads. It was used to calculate simple addition and subtraction.

NAPIER'S BONE

The need for a better calculating device was felt as time passed. John Napier, a Scottish mathematician, invented a set of eleven rods, with four sides each which was used as a multiplication tool. These rods were made from bones and this was the reason why they were called Napier Bones. The rods had numbers marked in such a way that, by placing them side by side, products and quotients of large numbers can be obtained.

EVALUATION

1. Explain types of early counting devices.
2. How does Abacus and Napier's function.

PASCALINE
The first mechanical calculating machine was invented in 1642, by Blaize Pascal, a French mathematician. Numbers were entered by dialling a series of numbered wheels in this machine. A sequence of wheels transferred the movements to a dial, which showed the result.

Through addition and subtraction were performed the normal way, the device could perform division by repeated subtraction and multiplication by repeated addition.

LEIBNITZ CALCULATING MACHINE
Gottfried Wilhelm Von Leibnitz invented a computer that was built in 1694. It could add and after changing some things around, it could multiply. Leibnitz invented a special stepped gear mechanism for introducing the added digits and this is still being used.

JACQUARD'S LOOM
Jacquard's loom was one of the first machines that were run by a program. Joseph Jacquard changed the weaving industry by creating a loom that controlled the raising of the thread through punched cards. Jacquard's loom used lines of holes on a card to represent the weaving pattern.

PUNCHED CARD
During the years1920 and 1930, the punched card system developed steadily. A standard card was divided into 80 columns and 12 rows. Only one character could be represented in the 80 columns, thus providing a maximum of 80 characters per card. Punching one, two or three holes in any one column represented a character. Holes were punched into a blank card by a punch machine whose keyboard resembled that of a typewriter.

CONCLUSION
We have learnt about the various calculating devices and the various ways they perform their operations. We learnt also that Abacus was the first calculating devices.

NUMBER SYSTEM (REVISION)
To effectively use the computer, it is therefore necessary to know how data is represented and communicatedto it. There are different ways of representing data in the number system, namely:

1. Decimal System
2. Binary System
3. Octal System
4. Hexadecimal Number System.

GENERAL EVALUATION

1. How does Abacus and Jacquard's loom function?
2. What type of operation can Pascaline perform?
3. Explain the four number system.
4. List any four early counting devices.

READING ASSIGNMENT
Read Chapter 1, Pg1-3, A Handbook On Computer Studies, By NiyiAdekolegan.

WEEKEND ASSIGNMENT

1. Napier's Bones had ……..A. 9 rods B. 11 rods C. 10 rods D. 12 rods
2. Jacquard's loom was used in the ……A. mechanical industry B. weaving industry C. food industry D. all of the above
3. ……. was the first calculating device. A. Napier's Bones B. Punched card C. Abacus D. Slide rule
4. The octal number system has a radix of ……. A. 7 B. 10 C. 16 D. 8
5. The Decimal Number is in Base ……A. 2 B. 8 C. 10 D. 16

THEORY

1. Describe a standard Punch Card.
2. Explain Decimal Number system.

WEEK THREE
TOPIC: GENERATIONS OF COMPUTERS

FIRST GENERATION

Electronic machine which was distinct from mechanical computers evolved about 1945. UNIVAC is a good example of this generation of computers.

Computers of this generation were characterized by:

1. They used Vacuum tubes.
2. They were very large and expensive.
3. They were very bulky.
4. They had a low retentive memory.
5. They generated a lot of heat.

SECOND GENERATION

Second generation computers were the replacement of vacuum tubes. Second generation computers utilized primary discrete TRANSISTORS. They had limited capability but were more advanced than the first generation computers.

FEATURES

1. They were more reliable than the first generation.
2. They could perform calculations.
3. They had a more efficient storage facility.
4. They generated lesser heat compared with the first generated computers.

THIRD GENERATION

Third generation computers utilized INTEGRATED CIRCUIT [ICs] technology, Small Scale Integration [SSI] with more sophisticated software capability like multi-programming, multi-processing and operating systems as resource managers.

The following can be noted in third generation computers:

1. Faster input and output.
2. Increased storage capability
3. Increased process capability
4. Ability to display pictures and musical sound

CONCLUSION

We have learnt that the first generation computers used vacuum tubes, second generation computers used TRANSISTORS while the third generation computers used integrated circuits.

EVALUATION

1. Mention the characteristics of first generation computers.
2. What did the second generation make use of?

FOURTH GENERATION

Fourth generation computers appeared at about 1975. The technologies that characterized these machines were LARGE SCALE INTEGRATION (LSI) and VERY LARGE SCALE INTEGRATION (VLSI). The computers produced at this period were of a higher capability in terms of speed, storage and of superior performance over their counterparts of the third generation.

FIFTH GENERATION

These generations of computers made use of ARTFICIAL INTELLIGENCE (AL). This category of computer was built around the following objects.

1. To build super computer i.e computers which could perform operation in the range of 10 billion instructions per seconds.
2. They were designed to have capacities like sight and hearing as well as capability to stimulate human thoughts e.g robots.

CONCLUSION

We have learnt features of the fourth and fifth generations of computers i.e the fourth generation used Very Large Scale Integrated (VLSI) and ARTIFICIAL INTELLIGENCE (AL)

EVALUATION

1. What did the fourth generation use?
2. Fifth generation computers is built on what technology?

GENERAL EVALUATION

1. The first generation uses …… as its circuitry.
2. List four features of the second generation computer.
3. What is the difference between AI and Expert system?
4. VLSI means …….

READING ASSIGNMENT

Read Chapter 2, Page 9-10, A Handbook On Computer Studies, By NiyiAdekolegan.

WEEKEND ASSIGNMENT

1. Fourth generation computers made use of ……A. VLSI B. Transistors C. AI
2. Fifth generation made use of …… A. AI B. Vacuum tubes. C. SSI
3. ……..is an example of computers in the fifth generation A. Robort B. UNIVAC C. AI
4. How many generations of computers do we have? A. 4 B. 5 C. 6 D. 9
5. The fourth generation of computers came on board in the year…….A. 1957 B. 1975 C. 1997 D. 1990

THEORY

1. Give the full meaning of the following acronyms:
   i) IC
   ii) VLSI
   iii) SSI
   iv) LSI
   v) AI

2. Explain the Fifth generation computers.

WEEK FOUR
TOPIC: HISTORY OF COMPUTERS

Consider the table below:

Generations Of computers	Year of development	The Technology Used	Characteristics	Software Instruction	Storage Capacity
First	1951-1958	Vacuum tube	Very big and slow in operation	Machine language	Small internal storage
Second	1959-1964	Transistor	Less heat generation	High level & Assembly	Core storage
Third	1965-1975	100-1000 Chips	Introduction of integrated circuit	Multiprogramming Facilities	Internal
Fourth	1975-1982	1000 above	VLSIC	Introduction of Non-procedural language	Flexible internal & external storage
Fifth	1982 and above	10^6chips	AI and Expert system	Introduction of object oriented programming language	Small but powerful network

GENERAL EVALUATION

1. Differentiate between the first and second generation of computers.
2. Which of the generation of computer uses microchips?
3. Which of the generation of computers used VLSIC?
4. What is non-procedural programming?

READING ASSIGNMENT

Any recommended text.

WEEKEND ASSIGNMENT

1. AI means……A. artefact intelligence B. artificial intellect C. artificial intelligence D. attitude intelligence.
2. Which of the generation of computer was between 1975 and 1982? A. First B. Second C. Fifth D. Fourth
3. Which of the generation of computer used vacuum tube? A. First B. Second C. Fifth D. Fourth
4. Which of the generation of computers used VLSIC? A. First B. Second C. Fifth D. Fourth
5. Which of the generation of computers begins Non Procedural programming? A. First B. Second C. Fifth D. Fourth

THEORY

1. What is artificial intelligence?

2. Explain second generation of computers.

WEEK FIVE
TOPIC: CLASSIFICATION OF COMPUTER BY TYPES

Computers can be classified by types into THREE major types. They are:
DIGITAL COMPUTER
ANALOGUE COMPUTER

HYBRID COMPUTER

- **DIGITAL COMPUTER**

This is the most common type of computer today. It measures physical quantities by counting. Examples are calculator,digital wrist watches, digital fuel dispenser etc.

- **ANALOGUE COMPUTER**

This type of computer is used to measure and process continuous data such as speed, temperature, heartbeat etc. Examples are speedometer, thermometer etc.

- **HYBRID COMPUTER**

This type of computer combines the features of digital and analogue computers together. It is a combinations of digital and analogue computers.

EVALUATION

1. List the classification of computers according to type
2. Explain the difference between the classifications of computer according to type.

CLASSIFICATION OF COMPUTER BY FUNCTIONALITY

Classification of computer according to purpose can be grouped into two (2), namely:
1. General purpose computers
2. Special purpose computers

- **SPECIAL PURPOSE COMPUTERS**

These are computers designed solely to solve a restricted class of problem e.g computer for medical diagnosis, weapon guidance, traffic control, weather study and forecast etc.

- **GENERAL PURPOSE COMPUTERS**

These are computers designed solely to solve a vast variety of problems e.g it can be used for Word processing and at the same time used for graphics, database, spreadsheet etc.

GENERAL EVALUATION

1. What is the difference between general purpose computers and special purpose computers?
2. Explain the following: digital, analogue and hybrid computers.
3. Give any two examples of general purpose computer.
4. Mention classification of computer by purpose.

READING ASSIGNMENT

Hiit Data Processing For Senior Secondary Education, Pg 13

WEEKEND ASSIGNMENT

1. How many classifications of computers do we have? A. 2 B. 4 C. 7 D. 3
2. The generation of computerthat uses AI is A. third B. second C. fifth D. first

3. ……..is the smallest and the most popular class of computers. A. Micro B. Mini C. Super D. Mainframe.
4. What type of computercombines both features of digital and Analogue computers? A. micro B. hybrid C. digital D. super
5. Computers designed solely to solve a restricted class of problem is called A. general purpose B. special purpose C. digital D. analogue

THEORY

1. List the classifications of computers according to type.
2. Explain the difference between the classifications of computers according to type.

WEEK SIX

TOPIC: CLASSIFICATION OF COMPUTERS BY SIZE

Computers can be generally categorized into four, namely:

1. Super computers
2. Mainframe computers
3. Mini computers
4. Micro computers

SUPER COMPUTER

These are the largest, fastest and most expensive computers. The cost is several millions of dollars and the speed is between 600 million to 900 million instructions per second (MIP).
Another name for super computer is MONSTER. Scientists in weather forecasting, exploration make use of super computers. It can also be used for complex calculations e.g CRAY, X-MP etc.

MAINFRAME COMPUTERS

A mainframe computer is a large computer in terms of price, size of internal memory and speed. It has a variety of peripheral devices such as printers, plotters etc more than those found with small computers, except small computers with large amount of external storage.
Mainframe computers usually need a specialized environment to operate, with dust, temperature and humidity carefully controlled. They are used in large establishments e.g banks, airports etc. Examples of Mainframe computers are IBM 360/370,NCR-V 8800.

CONCLUSION

We learnt that computers are categorized into four which are: super computer, mainframe computer, minicomputer and microcomputer

EVALUATION

1. What is another name for super computer?
2. Mention TWO examples of mainframe computer.

MINI COMPUTERS

Mini computers were developed in the 1970s for specialized tasks (i.e they are special purpose computers). They are smaller and less powerful and less expensive than mainframes.
Mini computers, as they are called, are easier to install and operate e.g PDP II, VAX 750/6000, NCR 9300, DEC, HP 3000 etc.

MICRO COMPUTERS

A microcomputer is a computer whose central processing unit (CPU) is based on a microprocessor.

Micro computers are at present the most popular of computers. They are very small. The capability is generally not as many and not as complex as mini computers or Mainframe computers. They are easy to use. Another name for microcomputer is Personal Computer (PC).

REASONS WHY MICRO COMPUTERS ARE WIDELY USED

1. They are cheap.
2. They have small sizes.
3. They do not require special environment for their operations.
4. They can be used anywhere.

CONCLUSION

Microcomputers are the most popular and most widely used among the categories of computers. Another name for a microcomputer is Personal Computer (PC).

GENERAL EVALUATION

1. Mention four classifications of computers by size.
2. Differentiate between mini and microcomputers.
3. Give two examples of minicomputer.
4. Mainframe computers are used for …….

READING ASSIGNMENT

HiiT @ Schools for Senior Secondary Education Data Processing, pg14-15

WEEKEND ASSIGNMENT

1. The most popularly used categories of computers is ……
   A. microcomputer B. minicomputer C. super computer
2. Another name for microcomputer is……
   A. home computer B.personal computer C. analogue computer.
3. HP 3000 is an example of……..computers. A. super B. mainframe C. mini.
4. Mini computers were developed in the …….A. 1970s B. 1980s C. 1990s.
5. Mainframe computers can be used in the …..A. bank B. church C. market D. none

THEORY

1. a) List any two examples of mini computers.
   b) What is another name for microcomputers?
2. List any two reasons why micro computers are widely used.

WEEK SEVEN

TOPIC: DIGITALIZATION OF DATAI

Digitalization is the process of converting information into digital format. This information may represent an object, image, sound, document or a signal (usually an analog signal) organized into discrete set of its points or samples. This is the binary data that computers and many devices with computing capacity (such as digital camera and digital hearing aids) can process.

Digitalization can also be defined as the integration of digital technologies into everyday life. Digital system uses a binary numeric system in which electronic pulses are represented by either 0 for a Low pulse or 1 for a High pulse. Digital can more easily represent symbols such as alphanumeric characters that represent real world data than the analog system.

BENEFITS OF DIGITALIZATION

1. Long term preservation of documents
2. Orderly archiving of documents
3. Easy and customized access to information
4. Easy information dissemination through images and text, CD-ROM, Internet, Intranet and extranets.

TYPES OF DIGITAL COMPUTER

1. Micro computers
2. Mini computers
3. Mainframe computers
4. Super computers

TECHNOLOGY OF DIFFERENT INFORMATION AGE

The ages are:

1. Stone age
2. Iron age
3. Middle age
4. Industrial age
5. Electronic age

Information age	Tools used	Purpose	Time period	Examples of tools in that age
Stone age	Stone	Sewing, cutting, counting, defence, transaction, storage, pottery exhibitions.	Below 12th century	Basalt, sandstone flint etc.
Iron age	Iron	Defence, Agric	12thcentury	Hoes and cutlass
Middle age	Writing materials	Knowledge transfer, education	12th and 13th century	Pen feather etc
Industrial age	Coals	Power development, faster movement	Late 18th and early 19th century	Cars, Ships etc
Electronic age	Computer	Storage, accuracy, soeed. Timeliness	Late 19th century and above	Circuit, Processor.

EVALUATION

1. State the different information ages.
2. State the tools used in each age.

EARLY COUNTING DEVICES

1. Fingers and Toes
2. Stone
3. Sticks
4. Pebbles
5. Cowries

In the early days of man's existence on earth, counting and simple arithmetic were performed using different parts of the body and some other counting aids. The following are devices used by people of ancient times.

FINGERS AND TOES

In ancient times, calculations were done by the use of fingers and toes. Fingers were usedfor simple addition and toes were used together with fingers in order to count up to twenty. The following problems were faced using fingers and toes to count:

1. They could not be used conveniently to count numbers more than twenty.
2. The result obtained from counting with fingers could not be easily remembered.

STONES AND PEBBLES

Stones were introduced for counting because of the limitations of counting with fingers and toes. Counting with stones involves building a pile of stones where each represents a quantity. The following were problems faced using stones as counting devices:

a) Large numbers of stones were too heavy to carry from one place to other.
b) It was cumbersome to count if the counting process involved large numbers.

GRAINS

The use of grains was introduced because of the heaviness of stones. Grains can be kernel, beans, rice, corn etc. Grains were used the same way as stones.

STICKS

These are small pieces of wood that are used for counting in place of stones and grains. Children in nursery and primary schools use match sticks for counting.

MARKS ON THE WALL

This involves the use of sharp objects in drawing line on the wall for the purpose of counting. Continuous marks on walls will make a wall dirty.

DISADVANTAGES OF EARLY COUNTING DEVICES

1. They are difficult to carry about.
2. Counting and calculation takes a lot of time.
3. They are prone to mistakes.
4. They cannot be used to count or calculate large numbers.
5. Their results cannot be easily remembered.
6. They have no storage facilities.

GENERAL EVALUATION

1. Mention types of computer according to sizes.
2. Which of the size is used for weather forecast?
3. Another name for mainframe computer is ……
4. List any two examples of mini computers.
5. Mention the four categories of computers.

READING ASSIGNMENT

A Handbook on computer studies for schools, pgs 1-3, by NiyiAdekolegan.

WEEKEND ASSIGNMENT

1. The ancient man began counting by using ……A. fingers B. slide rule C. abacus D. none
2. The following are examples of early counting methods except ……A. calculator B. pebbles C. grains D. none
3. In using fingers and toes, you can only count up to …….A. 20 B. 40 C. 50 D. 100
4. The following can be used for counting in the ancient times except…..A. fingers B. computer C. stones D. none
5. The stages of development of the computer machine are known as……..A. computer age B. computer history C. computer generation D. all

THEORY

1. Mention any THREE early counting devices.
2. List any TWO disadvantages of early counting devices.

WEEK EIGHT
TOPIC: DIGITALIZATION OF DATA II.

COMPONENTS OF A COMPUTER SYSTEM

A computer system consists of three main parts otherwise called components. They are :

1. Hardware
2. Software
3. People ware

HARDWARE COMPONENT

The computer hardware could be defined as the physical parts of the computer that we see, feel and handle. It consists of device for input, processing, storage, output and communications.

Hardware can be divided into two sections:

1. System Unit
2. The peripherals

HARDWARE

Hardware is the physical parts of the computer system that you can see and touch. They are the components that make up the visible computer. It consists of devices for input, processing, storage, output and communications.

The basic parts of computer hardware can be divided into:

1. System Unit
2. Peripherals

CPU/SYSTEM UNIT

The CPU is the brain of computer system and it can subdivided into:

1. Control Unit
2. Arithmetic and Logic Unit
3. Memory Unit

CONTROL UNIT

This is the unit of the computer system that fetches instructions from the main storage, interpret them and issue all the necessary signals to the components making up the system.

ARITHMETIC AND LOGIC UNIT

This part of the CPU is where all arithmetic operations are carried out in the computer. This unit is also involved in decision making. Logic functions such as less than (<), equal (=), greater than (>) etc which are operations of comparisons are used for decision making.

MEMORY UNIT

The memory or primary storage unit is the place in the computer where the program and the data are stored. The computer memory is divided into two namely:

1. Random Access Memory (RAM)
2. Read Only Memory (ROM)

PERIPHERALS

The peripherals are devices outside the CPU but function under the control of the CPU e.g mouse, keyboard, printer etc.

EVALUATION

1. What are the components of the computer system?
2. What are the classes of hardware?

SOFTWARE

Software is the set of instructions that is used to direct the computer hardware to perform its tasks. That is, it is a set of instructions that makes the users to do work and allow the computer to operate. Software is basically programs i.e another name for software is program.Program is the sequence of instructions given to computer to solve a given problems or accomplish a given task. There are two main classes of software which are:

1. System software
2. Application software

SYSTEM SOFTWARE

These are programs written by the manufacturer to control the smooth running of the computer.

APPLICATION SOFTWARE

These are programs written by programmers to instruct the computer to perform a particular task.

EVALUATION

1. What is software?
2. What is the difference between system and application software?

PEOPLE WARE

These are people who make and use the computer. They range from professional users to operational users. A user could also be anyone who makes use of computer. Without people, the computer cannot work. There two main classes of people ware:

1. Computer professionals.
2. Computer users.

EVALUATION

1. Can the computer system work without people?
2. Software is subdivided into……...and ……
3. What are the three components of the system unit?
4. Explain the function of each component of the CPU.

PERIPHERALS

Peripherals are in three categories:

1. Input Devices
2. Output Devices
3. Auxiliary Storage Devices

EVALUATION

1. What is the difference between input and output device?
2. Give four examples of auxiliary device.

MICRO COMPUTER

Sizes of Microcomputer are:laptop, palmtop, handtop, desktop, tower etc.

PARTS OF MICROCOMPUTER

1. SYSTEM UNIT
2. MONITOR (VDU)
3. KEYBOARD
4. MOUSE

THE MICROCOMPUTER

A computer is an electronic machine which accepts data as input, processes the data and gives out information under the control of stored programs. The information which the computergives out is called OUTPUT.

There are three keywords to note in the definition:

1. **COMPUTER AS A MACHINE**

This is the physical aspect of a computer known as computer hardware. It consists of electronic and electro-mechanical parts working together to process data.

2. **COMPUTER PROCESSES DATA**
   - i) It accepts data (input).
   - ii) It processes data (processing).
   - iii) It supplies information (output).
3. **A COMPUTER IS CONTROLLED BY A STORED PROGRAM**

A program is a set of instructions which tells the computer to perform a given task. A computer does not understand English or any of the Nigerian languages. Rather it has its own language called PROGRAM.

MAIN PARTS OF A MICRO COMPUTER

The microcomputer is divided into three main parts namely:

1. Central Processing Unit (CPU)
2. Monitor
3. Keyboard

CONCLUSION

We have learnt the definition of a computer, that is, computer is an electronic machine which accepts data as input, processes the data and gives out information under the control of stored programs. We also learnt that the computer is divided into three main parts which are Central Processing Unit, Monitor and Keyboard.

GENERAL EVALUATION

1. Mention the three main parts of microcomputer.
2. List the four types of computers according to size.
3. What is microcomputer?
4. State the difference between CPU and system unit.

READING ASSIGNMENT

Hiit @ Schools For Senior Secondary Education, Data Processing, By HiitPlc, Pgs 13-15

WEEKEND ASSIGNMENT

1. ……..is an electronic machine which accepts data as input, processes data and gives out information. A. Television B. Computer C. Photocopier D. None
2. A computer accepts data as……..A. input B. output C. processing D. store
3. The microcomputer is divided into ……..parts. A. 3 B. 4 C. 5 D. 9
4. The information which the computer gives is called …….. A. input B. output C. processing D. None
5. The language the computer understands is called…….. A. English B. programs C. French D. all languages

THEORY

1. What is a program?
2. Mention the main parts of a computer.

WEEK NINE
TOPIC: ICT APPLICATION IN EVERYDAY LIFE

INTRODUCTION
ICT has turned this world to a global village. Apart from communication, that is, reaching people both far and near; it has also made the work easier and better.
Better productivity, salaries, health care and even farming and education.

SECTORS WHERE ICT HAS PLAYED MAJOR ROLE
1. Education
2. Banking
3. Industry
4. Commerce

EDUCATION
ICT is applied in the education sector in the following ways:
1. Research for teaching materials, online conference etc.
2. ICT or computers are used as a reference tools.
3. ICT or computer is used by the researchers to collect and process data.
4. Computers are used as administrative tools.
5. ICT offers interactive learning.

BANKING SECTOR
1. Banks use computers to control the entire banking system.
2. On-line transactions by customers are possible 24 hour.
3. Accessing company account by businessmen On-line.
4. Supervision of banking activities by bank administrators.

INDUSTRY
1. Computers are used to facilitate production planning and control system.
2. Automation in the production of goods.
3. Researchers use computers to analyse and collect data for future reference.
4. Computers are used by administrators to oversee the entire operations in the factory.

COMMERCE
1. ICT makes buying and selling easier.
2. Computers are used by customers to connect On-line with Suppliers.
3. Computers are used to keep record of transaction.
4. ICT is applied as a means of communication between customers and the producers.

IMPACT OF ICT ON THE SOCIETY
1. Faster communication speed.
2. Lower communication cost.
3. Reliable mode of communication.
4. Effective sharing of information.
5. Borderless communication.

NEGATIVE EFFECTS OF ICT
1. Insecurity of data
2. Fraud

3. Unemployment
4. Virus threat
5. Cost of setting up ICT gadgets

EVALUATION

1. Define the term ICT.
2. Mention some ICT gadgets.

GENERAL EVALUATION

1. Explain the relevance of ICT in the music industry.
2. What do you understand by saying "ICT has turned the whole world to a Global village"?
3. List any five negative side of ICT.
4. Mention areas where ICT has played key role.

READING ASSIGNMENT

HiiT@ schools Data Processing for Senior Secondary Education, pgs 16-18.

WEEKEND ASSIGNMENT

1. The following are disadvantages of ICT except A. fraud B. virus C. faster communication D. none
2. ICT has turned the whole world into a ……A. global village B. galaxy C. universe D. none
3. The production of goods with or without human intervention using computer is known as …….A. automation B. AI C. expert system D. vacuum tube
4. E-commerce stands for ……..A. electric commerce B. electronic commerce C. electrical commerce. D. none
5. ATM means ……. A. Automatic Teller Machine B. Automated Teller Machine C. Auto Teller Machine D. None

THEORY

1. State three uses of ICT.
2. List three ways ICT has assisted in the social development.

WEEK TEN
TOPIC: DATA AND INFORMATION

DEFINITION OF DATA

Data are raw, unorganized or unprocessed facts that need to be processed. Data can be something simple and seemingly random and useless until it is organised.

TYPES OF DATA

1. Qualitative data i.e descriptive information
2. Quantitative data i.e numeric information

SUBDIVISION OF QUANTITATIVE DATA

1. Continuous data: this can take any value. It is also known as measured data. It can take value within a range e.g 0-99, 10-20 etc.

2. Discrete data: this type of data is whole in nature. It is not continuous. It takes a whole numbers and also called Counted data.

FORMS OF DATA

1. Numeric i. e 0-9
2. Letters i.e a-z or A-Z
3. Symbols e.g + , _ , * , % , = , <, >, etc

EXAMPLES OF DATA
Numbers, name of thing, place or animal, words, measurements, observations, descriptions of things etc.

SOURCES OF DATA
Data can come from different sources depending on the importance of the data. The following are sources of data: television, internet, articles, government documents and public records, newspaper, textbooks, biographies.

EVALUATION
1. Define data.
2. Explain the two types of data.
3. Mention any five sources of data.

INFORMATION
This refers to data that have been converted into a more meaningful and useful form.
It refers to a processed data that is meaningful to the user.

EXAMPLES OF INFORMATION
1. Student ID card
2. Weather reports
3. Student's report card
4. International passport
5. Utility bills e.g PHCN bills, Water bills

SOURCES OF INFORMATION
Internet, Database, Magazine/ Newspaper, Census board, Documents, Observation etc

CHARACTERISTICS OF GOOD INFORMATION
1. Relevance: it must be relevant and good enough for its purpose.
2. Reliability: it must come from a reliable source.
3. Accuracy: it must be an end product of processed data. That is, it must be error-free.
4. Availability: it must be available and communicated to the user as at when it is needed.
5. Suitability: it must be expressed in the form the user of the information can understand it and of suitable for its purpose.

DATA HANDLING
This the process of ensuring that research data is stored, archived or disposed off in a safe and secure manner during and after the conclusion of a research project.

WAYS OF HANDLING DATA
1. **Electronic methods:** Data can be handled electronically ensures data integrity. It includes personal digital assistants (PDA), storage media, CD/DVD, MEMORY CARDS etc.
2. **Non-Electronic methods**: This method includes paper files, journals and laboratory notebooks. It is basically called manual method in which human energy and effort are used to process data.

FIRST TERM Data Processing E-LEARNING NOTE

GENERAL EVALUATION

1. Mention any five sources of information.
2. Differentiate between data and information.
3. State any three forms of data.
4. Mention the two types of data
5. What is the difference between continuous data and discrete data?

READING ASSIGNMENT

Hiit @ schools data processing for Senior Secondary Education, pgs 8-9

WEEKEND ASSIGNMENT

1. ……..are raw facts which have not undergone processing.
   A. Information B. Data C. Record D. None
2. One of the characteristics of good information has to do with the correctness of information. A. reliability B. availability C. accuracy D. none
3. ……..refers to the information that has been processed.
   A. Data B. Information C. Database D. None
4. There are …… types of data. A. 2 B. 3 C. 4 D. 8
5. The process of surfing the NET to get information for further research is …….
   A. primary source B. on-line C. secondary source D. None

THEORY

1. Mention and explain the two ways of handling data.
2. Explain at least four characteristics of good information.