**SS1 Data Processing Lesson Note (First Term) [year]**

SUBJECT:  DATA PROCESSING               CLASS:  SS 1

SCHEME OF WORK

WEEK TOPIC

Theme 1: Information Age

1. History of Computing

(i) Concrete devices in computing (ii) Number system

1. Digitalization of Data (i) Definition of digitalization of data (ii) History of computer development
2. Digitalization of Data (iii) Types of computers (iv) Components of computer: Input, Output
3. Data and Information (i) Definition of data (ii) Meaning of information
4. History of computer   Generation of computer: 1st generation   2nd Generation

3rd Generation    4th Generation 5th Generation

1. Classification of computers

Classification of computers: (i) by type (ii) by size (iii) by functionality

1. MID TERM BREAK
2. ICT Application in everyday life (i) Uses of ICT (ii) ICT and the society

Theme 3: Information Processing

1. The Art of Information processing (i) Definition of information processing

(ii) Procedures for information processing: - Collation of information

- Organization of Information - Analysis of Information - Interpretation of Information

1. Revision

11-13 Examination.

Reference book:   Textbook on Data Processing for SS one by Adedapo F.O, Mitchell A. S

WEEK ONE

DATE:.........................................

TOPIC:  History of Computing

CONTENT:   (i) Concrete devices in computing

(ii) Number system

SUBTOPIC 1: History of Computing

Computers are affecting every sphere of human life and bringing about many changes in research, industry, education, government, scientific medicine, law and social sciences and even in arts like music and painting.

The history of computing is longer than the history of computing hardware and modern computing technology and includes the history of methods intended for pen and paper or for chalk and slate with or without the aid of tables.

Concrete Devices in computing

Concrete computing is intimately tied to the representation of numbers. But long before abstractions like the number arose, there were mathematical concepts to serve the purpose of civilization.

Tally Stick

This was an ancient memory aid device to record and document numbers, quantities or even messages. Tally sticks first appear as notches carved on animal bones, in the Upper Paleolithic Age. E.g. Ishango Bone

Types /Kinds of Tally Stick

There are two different kinds of tally sticks, the single and the slit tally

1. Single tally: This was an elongated piece of bone, ivory, wood or stone which is marked with a system of notches (like Tally marks).
2. Split tally: The split tally was a technique which became common in medieval Europe, which    was constantly short of money (coins) and predominantly illiterate, in order to record bilateral exchange and debts. A stick (squared Hazelwood sticks were most common) was marked with a system of notches and then split lengthwise. This way the two halves both record the same notches and each party to the transaction received one half of the marked stick as proof.

Tally Marks or Hash Marks

They are a form of numerical used for counting. They allow a form of numerical used for counting. They allow updating written intermediate results without erasing or discarding anything written down. However, because of the length of large numbers, tallies are not commonly used for static text.

Measuring Rod

This is a tool used to physically measure lengths and survey areas of various sizes. Most measuring rods are round or square sectioned, however they can be flat boards. Some have markings at regular intervals.

Abacus

The first calculating deice was probably Abacus. The Chinese invented it. It is still being used in some countries because of its simple operation. It is made up of a frame divided into two parts by horizontal bar and vertical threads. It is used for addition and subtraction.

Napier’s Bones

John Napier, a Scottish Mathematician, invented Napier’s bones. John Napier invented logarithms which are a technology that allows multiplication to be performed via addition. It comprises of a set of eleven rods, with four sides each, which was used as a multiplication tool. These rods were made from bones and were the reason why they were called Napier’s Bones. Products and quotients of large numbers could be obtained.

Slide Rule

Napier’s invention led directly to the slide rule, first built in England in 1632 and still in use in the 1960’s by the NASA engineers of the Mercury, Gemini, and Apollo programs which landed men on the moon. Slide rule uses two logarithms scales to allow rapid multiplication and division of numbers.

Evaluation

1. What is Abacus?
2. What was Napier’s bones made of?

Sub-topic 2

Number System

Number system is a way to represent numbers. Is also a way of counting.

Number Representation

A numeral system is a collection of symbols used to represent small numbers, together with a system of rules for representing larger numbers. Each numeral system uses a set of digits.

The following are different types of number system:

Denary/Decimal = Base 10 - 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

Binary = Base 2 - 0, 1

Octal = Base 8 - 0, 1, 2, 3, 4, 5, 6, 7, 8

Hexadecimal = Base 16 -      0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

Decimal System

This consists of ten digits ranging from 0 to 9. These digits can be used to represent any numerical value.

Binary System

The binary number system is base 2 and therefore requires only two digits, 0 and 1. The binary system is useful for computer programmers, because it can be used to represent the digital on/off method in which computer chips and memory work.

Octal System

This consists of eight digits from 0 to 7. Each digit position in this system represents a power of 8. Octal number system is used as a shorthand representation of long binary numbers.

Haxadecimal System

This consists of 16 digits from 0 to 9 and A to F. The alphabets A to F represent decimal number from 10 to 15. The base of this number system is (16).

EVALUATION:

1. What is computing device?
2. Give 3 examples of concrete devices.

GENERAL EVALUATION:

1. What is tally stick?
2. Name 2 types of tally stick
3. What is single tally?

READING ASSIGNMENT:

Students are expected to read digitalization of data from the textbook. Textbook of Data Processing SS 1 Page 8

WEEKEND ASSIGNMENT:

1. List concrete devices used in computing and explain two of them.
2. In hexadecimal numbers system, B, D, E represents.
3. Slide rule uses \_\_\_\_ logarithmic scales to allow rapid multiplication and division of numbers.     (a) three     (b) two   (c) one    (d) none of the above
4. The number of various unique digits, including zero, that a numeral system uses to represent numbers is called.     (a) base    (b) radix     (c) both the above     (d) none of the above
5. Napier’s bones had    \_\_\_\_    (a) 11 rods        (b) 9 rods      (c) 10 rods      (d) 12 rods

WEEK 2

DATE:.........................................

TOPIC:  DIGITALIZATION OF DATA

CONTENT:   (i) Definition of digitalization of data

(ii) History of Computer Development

SUBTOPIC 1: Definition of digitalization of data

Digitalization is the process of converting information into a digital format. In this format, information is organized into discrete units of data (called bit s) that can be separately addressed (usually in multiple-bit groups called byte s).

Digitalization of data is a means or process of converting physical or written records such as text, images, video and audio into digital form. Digitalization of data gives room for accessing, preservation and sharing of information.

Digitization at the British Library of a Dunhuang manuscript for

the International Dunhuang Project

Digitalized data offers the following benefits: Long term preservation of documents, orderly archiving of documents, easy & customized access to information, easy information dissemination through images & text, CD-ROMs, internet, intranets, and extranets.

History of Computer Development

ABACUS: Abacus is an instrument used in performing arithmetic calculations. It is probably the first calculating device. The Chinese invented it, and because of its success it spread from China to other countries. The abacus is also called a counting frame, it consist of a tablet or frame bearing parallel wires or grooves on which counters or beads are moved. A modern abacus consists of wooden frame with beads on parallel wires, and a crossbar oriented perpendicular to the wires that divides the beads into two groups. Each column or wire represents one place in the decimal system. The Abacus was used for addition and subtraction. It could not carry out complex mathematics operation.

The Abacus

NAPIER’S BONE: Napier's bones is an abacus created by John Napier of Merchiston for calculation of products and quotients of numbers, in 1600. John Napier was a Scottish mathematician who invented logarithms and the decimal point. The device consists of a set of graduated rods based on the principle of logarithms. It was then used as a multiplication aid.

To use Napier’s bones, the rods are moved up and down in a sliding manner against each other, matching the graduated rods. The device was a fore-runner of the slide rule which emerged in the middle of 17th century. Formerly used to perform multiplication and division but now taken over by modern electronic calculator.

Napier Bones

PASCAL’S CALCULATOR: Blaise Pascal a French Mathematician, Physicist and a religious philosopher, invented the Pascal’s calculator in 1642. Pascal’s calculator was first called the arithmetic machine, Pascal’s calculator and then the Pascaline. This machine was invented as a result of trying to help his father who was a tax collector and had the need for subtraction, addition, multiplication and division. Hence the need for this machine.

Pascaline's mechanism was very promising but in practice was very complicated and the weighted ratchets have a tendency to jam. Except that the ratchets didn't let the gears to rotate in both directions, so subtraction had to be implemented with nines complements trick, which is not so elegant way to perform a subtraction.

In addition as you can see from the previous examples, Pascaline is not a calculating machine, but actually just an adding machine. In fact all similar machines with stylus setting mechanisms should be called adding machines rather than calculating machines.

Despite all that Pascaline was a historical achievement and it is considered today as the first calculating device that the human race has discovered.

Sub-topic 2

JACQUARD LOOM: The Jacquard loom is a mechanical loom, invented by Joseph Marie Jacquard, first demonstrated in 1801, that simplifies the process of manufacturing textiles with complex patterns such as brocade, damask and matelasse. The loom was controlled by a "chain of cards", a number of punched cards, laced together into a continuous sequence. Multiple rows of holes were punched on each card and each row of punched holes corresponded to one row of the design. Several such paper cards, generally white in color, can be seen in the images below. Chains, like the much later paper tape, allowed sequences of any length to be constructed, not limited by the size of a card.

Jacquard’s Loom

Babbage Difference engine is an automatic mechanical calculator designed to tabulate polynomial functions. It was designed in 1822. The name derives from the method of divided differences, a way to interpolate or tabulate functions by using a small set of polynomial coefficients. Both logarithmic and trigonometric functions, functions commonly used by both navigators and scientists, can be approximated by polynomials, so a difference engine can compute many useful sets of numbers.

The historical difficulty in producing error free tables by teams of mathematicians and human "computers" spurred Charles Babbage's desire to build a mechanism to automate the process.

Difference engine

HOLLERITH CENSUS MACHINE: Herman Hollerith (February 29, 1860 – November 17, 1929) was an American statistician and inventor who developed a mechanical tabulator based on punched cards to rapidly tabulate statistics from millions of pieces of data. He was the founder of the Tabulating Machine Company that later merged to become IBM. Hollerith is widely regarded as the father of modern automatic computation.

Herman Hollerith

HARVARD MARK 1

In 1937, Harvard A. Aiken of Harvard University, using the techniques already developed for punched card machinery, began work on the design of a fully automatic machine in collaboration with International Business Machines Corporation. His aim was to develop a machine that could help in the solution of difficult differential equations, the large calculations of which would have been unreal manually.

Seven years later, in May 1944, the designs became a reality. In August of the same year, the now historically famous Harvard Mark 1 was donated to Harvard University in Cambridge.

ENIAC

In full Electronic Numerical Integrator and Calculator, the first programmable general-purpose electronic digital computer, built during World War II by the United States. In the United States, government funding during the war went to a project led by John Mauchly, J. Presper Eckert, Jr., and their colleagues at the Moore School of Electrical Engineering at the University of Pennsylvania; their objective was an all-electronic computer.

EDVAC (Electronic Discrete Variable Automatic Computer) was one of the earliest electronic computers. Unlike its predecessor the ENIAC, it was binary rather than decimal, and was a stored program computer.

The EDVAC was a binary serial computer with automatic addition, subtraction, multiplication, programmed division and automatic checking with an ultrasonic serial memory capacity of 1,000 44-bit words (later set to 1,024 words, thus giving a memory, in modern terms, of 5.5 kilobytes).

UNIVAC I

The UNIVAC I (Universal Variable Automatic Computer I) was the second commercial computer produced in the United States. It was designed principally by J. Presper Eckert and John Mauchly, the inventors of the ENIAC. Design work was started by their company, Eckert–Mauchly Computer Corporation, and was completed after the company had been acquired by Remington Rand (which later became part of Sperry, now Unisys). In the years before successor models of the UNIVAC I appeared, the machine was simply known as "the UNIVAC".

EVALUATION:

1. What are the two types of data?
2. What is a computing device?

GENERAL EVALUATION:

1. What is punched card?
2. Explain digitization of data
3. How is data handled?

READING ASSIGNMENT:

Students are expected to read types of data from the textbook. Textbook of Data Processing SS 1 Page 16

WEEKEND ASSIGNMENT:

1. \_\_\_ was probably the first calculating device
2. ENIAC was the result of very high speed \_\_\_\_\_
3. Jacquard’s loom was used in \_\_   (a) weaving industry    (b) Machinery industry  (c) Food industry     (d) Cosmetic industry
4. The size of UNIVAC was that of   (a) one-car garage    (b) Two-room house   (c) Two-story building    (d) A block of houses
5. Herman Hollerinth’s machine was used in \_\_\_\_\_\_\_\_\_\_\_

WEEK  3

DATE:.........................................

TOPIC:  DIGITALIZATION OF DATA (Cont.)

CONTENT:   (i) Types of Computers

(ii) Components of Computer: Input, Output

SUBTOPIC 1: Types of Computers

CLASSIFICATION OF COMPUTER BY TYPES

When computers are classified according to type, three different groups or classes of computers are recognized. They are the digital analogue and hybrid computer.

DIGITAL COMPUTER

This is most common type of computer today. It is used in processing discrete data that have to do with counting. Digit is a number therefore, digital computers measure physical quantities by counting. Most applications of computer have to do with data processing. As such, the digital computer is so much in use. Many modern devices are now using digital system. Examples of such devices are: calculator, digital wrist watches, digital fuel dispenser etc.

ANALOGUE COMPUTERS

Analogue computer processes continuous data such as speed, temperature, heartbeat etc. They are mostly used in scientific measurement which may require the processing of continuous data. These are the type of specialized computers you are likely to see in the hospitals connected to patients.

Analog means continuity of associated quantity just like an analog clock measures time by means of the distance traveled by the hand of the clock around a dial.

EXAMPLES:

* Thermometer
* Analog clock
* Speedometer
* Tire pressure gauge

HYBRID COMPUTER

This type of computer combines the features of digital and analogue computers together. It can count and as well as measure. A hybrid computer may use or produce analog data or digital data. It accepts a continuously varying input, which is then converted into a set of discrete values for digital processing. Examples:

* Hybrid computer is the computer used in hospitals to measure the heartbeat of the

patient.

* Devices used in petrol pump.
* Hybrid Machines are generally used in scientific applications or in controlling industrial

processes.

EVALUATION:

1. State three type of computers with examples.
2. Explain briefly the most common type of computer.
3. Digitalization of data means

Sub-topic 2

Components of Computer

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

1. Input devices
2. Output devices
3. Storage devices
4. Central Processing Unit
5. Control

Any computer, to qualify as a computer, must have internal parts that serve the following five functions: Input, Output, Processing, Information holding (Memory), Control.

INPUT

In computing, an input device is (a piece of computer hardware equipment) used to provide data and control signals to an information processing system such as a computer or information appliance. Examples of input devices include keyboards, mouse, scanners, digital cameras and joysticks.

OUTPUT

An output device is any device used to send data from a computer to another device or user. Most computer data output that is meant for humans is in the form of audio or video. Thus, most output devices used by humans are in these categories. Examples include monitors, projectors, speakers, headphones and printers.

STORAGE DEVICES (MEMORY)

A storage device is any computing hardware that is used for storing, porting and extracting data files and objects. It can hold and store information both temporarily and permanently, and can be internal or external to a computer, server or any similar computing device.

CENTRAL PROCESSING UNIT

A central processing unit (CPU) is the electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions.

EVALUATION:

1. What does I-P-O means?
2. Define Input

GENERAL EVALUATION:

1. What does a computer do?
2. Define processing
3. What does CPU consist of?

READING ASSIGNMENT:

Students are expected to read data and information from the textbook. Textbook of Data Processing SS 1 Page

WEEKEND ASSIGNMENT:

1. \_\_\_ Input means collection of \_\_\_ and entering into a computer
2. The collection of raw facts is called \_\_\_\_\_\_\_
3. In the I-P-O cycle, P stands for         (a) Output    (b) memory    (c) processing     (d) problem
4. ALU performs the following operation.    (a) Accurate     (b) Mathematical    (c) English

(d) Controlling

1. CPU is made up of     (a) ALU & control unit     (b) Memory & control unit    (c) Memory & ALU      (d) Storage & ALU

WEEK  4

DATE:.........................................

TOPIC:  Data and Information

CONTENT:   (i) Definition of data

(ii) Meaning of Information

SUBTOPIC 1:

Definition of Data & Information

Data

Is a collection of facts, such as numbers, words, measurements, observations or even just descriptions of things.

Data is a collection of numbers represented as bytes that are in turn composed of bits (binary digits) that can have the value one or zero. Data is processed by the CPU, which uses logical operations to produce new data (output) from source data (input).

Information

In general, information is a raw data that has been verified to be accurate and timely.

Information is also raw data that is presented within a context that gives it meaning and relevance, and which leads to increase in understanding and decrease in uncertainty.

The words information and data are used interchangeably in many contexts. This may leads to their confusion. However, they are not synonyms.

Types of Data

The two types of data are:

1. Qualitative
2. Quantitative

Qualitative data is data that is not given numerically.  Qualitative data is a categorical measurement expressed not in terms of numbers, but rather by means of a natural language description

For example: favorite color = "blue"

height = "tall"

i hated the most = "loryel"

Quantitative data is numerical. Quantitative data is a numerical measurement expressed not by means of a natural language description,

For example: molecule length = "450 nm"

height = "1.8 m"

Quantitative data always are associated with a scale measure

All quantitative data is based upon qualitative judgments; and all qualitative data can be described and manipulated numerically.

Method of gathering Data

Data can be gathered in the following ways:

1. By counting, using counters and also by measuring using tapes
2. By observation carried out by people
3. Using Questionnaires
4. Through Interviews
5. Filing of forms

EVALUATION:

1. What are data and information; differentiate them.

SUB TOPIC 2

TWO WAYS OF HANDLING DATA

1. Paper Based Method
2. Computer Based Method

Paper Based Method

This method uses paper and ink to handle data. The information is recorded in black and white, another name for it, is called traditional paper based method.

Computer Based Method

Computer handles data when data is input and store on a computer. The data is then processed in some way to turn it into useful information.

GENERAL EVALUATION:

1. What are the two types of data?
2. How is data handled?

READING ASSIGNMENT:

Students are expected to read History of computers – generation from the textbook. Textbook of Data Processing SS 1 Page

WEEK  5

DATE:.........................................

TOPIC:  History of Computer

CONTENT:   (i) Generation of Computers:  1st, 2nd, 3rd, 4th and 5th

SUBTOPIC 1: Generation of Computer

1ST GENERATION COMPUTERS

These include sets of computer built between 1940-1956. They employed electronic vales (vacuum tubes) for their circuits. Examples include Leo Mark III, Atlas Series. Universal Automatics computer (UNIVAC), Electronic Discrete Variable Automatic computer (EDVAC), Electronic Delay Storage Automatic computer (EDSAC). This was developed by two engineers Dr. John W. Mauchly and J. Prespert Eckert.

The IBM 650 Magnetic Drum Calculator

FEATURES

It uses punch card

It relied on machine language

It has valve-based machine and uses vacuum tube for storing and processing of data.

It has limited internal storage

It consumes too much electronic power and thereby generates too much heat.

2ND GENERATION COMPUTERS

This computer generation existed between (1956 - 1963). They used transistor in place of valve. William Shockley invented transistors in 1947, but however the effect was not felt until late 1950. They were smaller in size and faster in operation compared with the 1st generation. Besides, they were more reliable and then use English as computer language. High level language like BASIC, FORTRAN, COBOL etc. Examples are IBM 7000, series 7030, 7090, UNIVAC 1102, LEO MARK SERIES

FEATURES

-It uses transistors instead of valves therefore more reliable.

-Transistors was far superior to the vacuum tube

-It is faster in operation more than the first generation computers

-It uses magnetic tape as storage medium

-It is smaller in size compared to first generation computer

-It accepts external storage device like magnetic tape or disk.

3RD GENERATIONS COMPUTERS

The third generation computers mark the beginning of keyboards for input and video display unit (monitor) for output. It came between 1964-1971. Some of the computers, its major component was integrated circuits (IC) instead of transistor used during second generation. The introduction of integrated circuit drastically increased the speed and efficiency of computer. They came in three (3) different sizes ie mainframe, mini, micro computers.

Some of its features includes:

-use of circuits instead of transistors used in second generation

-it is more reliable than the second generation computers

-It has extensive processing storage

-It came in three different sizes – Mainframe, Mini, and Micro computers.

Sub-topic 2

4TH GENERATION COMPUTERS

This generation of electronic computer came into existence (19714-1984). Their technology is based on the use of semi-conductor device called silicon chips or micro processors. One of the most important results of large scale integration was the introduction of the micro processors.

Over time, larger units were introduced to generate an improved performance. These were LSI, VLSI AND ULSI. The arrival of this generation of computer gave rise to more powerful and less expensive but realistic computers development. Examples IBM 3030 and 7700.

FEATURES

It uses very large scale integrated circuit.

It has high speed and higher storage capacity

It is faster in operation and cheaper than the earlier ones

It has extensive processing storage

5TH GENERATION

The present day computers are classified into this category. The fifth generation of computers are capable of performing functions of human experts solving problems that require human intelligent, judgment, insight and experience.

Fight generation computers can learn, take decisions and perform other activities exclusive of human beings. It marks the era of Pentium i.e. Pentium 1 Pentium 2, 3, 4, and M which combine artificial intelligence with expert system.

Artificial intelligence is the ability of the computer to behave like an intelligent human being while expert system is the capability of computer to the judgment and decisions like an expert in a specialized field i.e. Diagnosis and prescription of drugs like a medical doctor.

FEATURES

Artificial Intelligence e.g Robot

It appears to be reasoning in some type of work.

It helps in planning financial management

Speech Synthesis

Expert System –  ability of making judgment and decision like an expert.

EVALUATION:

1. Mention at least 3 generations of computers and their features.
2. Distinguish between the first generations of computers and the

Second generations of computers.

EVALUATION:

1. What do you mean by first generation computer?
2. When was the first PC built?

GENERAL EVALUATION:

1. ICs were introduced in which generation of computers?
2. Which is the fifth generation of computer?

READING ASSIGNMENT:

Students are expected to read data and information from the textbook. Textbook of Data Processing SS 1 Page

WEEKEND ASSIGNMENT:

1. 2nd generation computers moved from machine language to     (a) binary language

(b) assembly language      (c) HLL       (d) VHLL

1. First generation computer relied on \_\_\_ language.
2. \_\_\_\_\_ Is not a feature of first generation computers (a)It uses punch card (b)It has limited internal storage (c)It consumes too much electricity (d)It does not generate much heat.
3. The following are examples of fifth generation computers except\_\_\_\_\_

(a)Pentium I (b) Pentium 2(c) Pentium M (d)Pentium None

WEEK  6

DATE:.........................................

TOPIC:  CLASSIFICATION OF COMPUTERS

CONTENT:   (i) Classification by type

(ii) Classification by size

(iii) Classification by Functionality (purpose)

SUBTOPIC 1: Classification by type

CLASSIFICATION OF COMPUTER BY TYPES

When computers are classified according to type, three different groups or classes of computers are recognized. They are the digital analogue and hybrid computer.

DIGITAL COMPUTER

This is most common type of computer today. It is used in processing discrete data that have to do with counting. Digit is a number therefore, digital computers measure physical quantities by counting. Most applications of computer have to do with data processing. As such, the digital computer is so much in use. Many modern devices are now using digital system. Examples of such devices are: calculator, digital wrist watches, digital fuel dispenser etc.

ANALOGUE COMPUTERS

Analogue computer processes continuous data such as speed, temperature, heartbeat etc. They are mostly used in scientific measurement which may require the processing of continuous data. These are the type of specialized computers you are likely to see in the hospitals connected to patients.

HYBRID COMPUTER

This type of computer combines the features of digital and analogue computers together. It can count and as well as measure.

SUB-TOPIC  2

TYPES OF MICRO-COMPUTERS

Micro computers came in different sizes ranging from desktop, laptop, palmtop, notebook computers etc.

DESKTOP

This category of micro computer can be set on the top of a desk “Desktop”. It supports other peripherals and has a very high storage capacity and speed.

LAPTOP COMPUTER

This type of computer can be placed on the lap and also in a belief case. They can be either AC powered, battery powered or both. They combine the power of the PC with mobility.

NOTEBOOK COMPUTERS

These are very high PCs but have all the capacities of a PC.

Palm top: They are small enough to be held in the palm of your hand: They are equally as powerful as the Desktop.

WORK STATIONS

These are more powerful than the PCs. They are used by the engineers and scientists who process a lot of data. It is a kind of special purpose computer.

SERVER

A computer that has been optimized to provide services to other computers over a network. Servers usually have powerful processors, lots of memory and large hard drives.

CLASSIFICATION OF COMPUTER BY SIZE

MINICOMPUTER

This is a medium size general purpose digital.

It is a multi-user i.e. it allows many users at once and has the ability to perform many tasks simultaneously. The distinguished features of mini from micro computers are: memory size, speed of operation, faster input and output devices and higher cost. They are specially designed to solve and handle wide variety of commuting problems. It has become a popular and powerful network server to help manage large internet web sites, corporate intranet and client server networks.

MAINFRAME COMPUTER

These are multi-user and multi-tasking general purpose computers.

They have large storage capacity and cost more than typical mini computers. They are used by large organizations such as banks, universities, central bank, national population commission etc. Mainframe is now known as enterprise server.

SUPER COMPUTER

This can be seen as technological improvement on mainframe computers. It is used in the scientific environment such as for space studies and weather forecast.

They have higher processing powers and large storage capacities.

CLASSIFICATION OF COMPUTER BY FUNCTIONALITY

Classification of computer according to purpose can be grouped into two, namely:

1.General purpose computers

2.Special purposes computers

SPECIAL PURPOSE COMPUTERS

These are computers designed solely to solve a restricted class of problems e.g. computer for medical diagnosis, weapon guidance, traffic control, wealth study and forecast, control of airplanes and production control of refinery and guidance etc.

GENERAL PURPOSE COMPUTER

This class of computers is also called multi-purpose computers and are used for variety of works. They have the ability to store various programs of instructions and perform variety of operations such as graphics, database inventory and sales analysis.

Most computers are general purpose computers and they can handles different kind of work.

EVALUATION:

1. What is an analog computer?
2. What is a digital computer?

GENERAL EVALUATION:

1. Compare general purpose and special purpose computers.
2. Compare mainframe with minicomputer.

READING ASSIGNMENT:

Students are expected to read ICT Application in everyday life from the textbook. Textbook of Data Processing SS 1 Page 26

WEEKEND ASSIGNMENT:

1. Personal computer defines a computer designed for general use by    (a) a single person      (b) two persons     (c) large group      (d) non of the above
2. PC that is not designed for portability is a    (a) laptop computer    (b) desktop    (c) PDA – Personal Digital Assistants      (d) none of the above
3. The fastest, most powerful and most expensive computer is   (a) Mainframe

(b) Minicomputer    (c) Supercomputer     (d) Desktop

1. Other name of mainframe is \_\_\_\_\_  server.

WEEK 7 : MID TERM BREAK

WEEK  EIGHT

DATE:.........................................

TOPIC:  ICT Application in

CONTENT:   (i) Uses of ICT

(ii) ICT and the Society

SUBTOPIC 1: Uses of ICT

ICTs stand for information and communication technologies and are defined, for the purposes of this primer, as a “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.”

ICT applications are useful in numerous instances to facilitate the development of various aspects of the society.

1. Public administration is a key aspect of civil society and it includes a range of services to citizens and industry. It provides various functions that enhance the society, economic and political developments of the citizenry. Example e-government
2. Urban and Rural Development

ICT application are useful in facilitating development programmes in many countries. These technologies help in supporting economic and social developments. The establishment of telecentres in rural communities can facilitate economic empowerment.

iii. Transport

In the transport sector, ICT applications can be used to improve road, air and rail transportation. ICT applications are noticeable in the air transport control, monitoring of freight and the day-to-day transport system.

Medicine

ICT applications are becoming valuable resources in the medical field. They support efficient exchange of information between health professionals, they enable transfer of patient records between sites and they can improve clinical effectiveness, continuity, and quality of care by health professionals.

Education

The education sector is arguably one major area that ICT are playing a remarkable role. These technologies help in facilitating learning and exchange of educational materials. ICT are helping library professional store and manage academic information.

Agriculture

At the micro level, ICT applications can be used to impart information directly to farmers and the farming community. There are expert system designed to handle agricultural issues such as water utilization and management, pest control, harvest management and so forth.

vii. INFORMATION PROCESSING/MANAGEMENT

ICT can be used in the following areas of information processing and management.

(i)Typing letters, notes and other documents.

(ii)Distributing and sharing of information.

(iii)Keeping records and inventory, storing, retrieving and manipulating data and information.

(iv)Transmitting information.

viii. Banking Industries

This is a platform that can be used on any device that has access to the internet. It helps to transfer money from someone’s account to any other account and monitor your account.

Sub-topic 2

ICT and the Society

The impact of ICT on society (Importance)

1. Faster communication speed

In the past, it took a long time for any news or message to be sent. Now with the internet, news or messages are sent via e-mail to friends, business partner or anyone efficiently.

1. Lower Communication cost

Using the internet is cost-effective in comparison to other modes of communication such as telephone, mailing or courier service. It allows people to have access to large amounts of data at a very low cost.

iii. Paperless Environment

ICT technology has created the term paperless environment. This term means the   information can stored and retrieved through the digital medium instead of paper.

1. Effective Sharing of Information

People can share and exchange opinions, news and information through discussion groups, mailing list and forums on the internet. The enable knowledge sharing which will contribute   to the development of knowledge based society.

1. Job Opportunities
2. Voting

vii. Defense, Urban planning, World Government

Effect of ICT

Social Problems

There are some of negative effects of ICT.

- Nowadays, people tend to choose online communication rather than having  real-time conversations.

- People tend to become more individualistic and introvert, prone to theft, hacking pornography and online gambling. This will result in moral decadent and generate threat to the society.

Health Problem

- A computer may harm the users if they use it for a long hours frequently.

- Computer users are also exposed to bad posture, eyestrain, physical and mental stress.

EVALUATION:

1. What are the impacts of ICT on society?

GENERAL EVALUATION:

1. What is the full meaning of ICT?
2. List 4 gadgets used for ICT

READING ASSIGNMENT:

Students are expected to read ICT Application in everyday life from the textbook. Textbook of Data Processing SS 1 Page 26

WEEKEND ASSIGNMENT:

1. ICT is used for the following except \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(a)e-learning (b) e-banking (c) e-travelling (d) e-passport

1. Which of the following is not a form of Computer Aided Instruction

(a)CD-ROM encyclopaedias

(b)Drills

(c)Textbooks

(d)Simulations

1. Application of computers in banking include all of the following except:

(a)ATM

(b)EFT

(c)CAI

(d)Smart cards

WEEK  NINE

DATE:.........................................

TOPIC:  The Art of Information processing

CONTENT:   (i) Definition of information processing

(ii) Procedures for information processing: - Collation of information

- Organization of Information - Analysis of Information - Interpretation of Information

SUBTOPIC 1: Definition of information processing

Information Processing is the change (processing) of information in any manner detectable by an observer. As such, it is a process which describes everything which happens (changes) in the universe, from the falling of a rock (a change in position) to the printing of a text file from a digital computer system.

Information processing refers to the manipulation of digitized information by computers and other digital electronic equipment, known collectively as information technology (IT). Information processing systems include business software, operating systems, computers, networks and mainframes.

Information processing may be sequential or parallel, either of which may be centralized or decentralized (distributed).

Sub-topic 2

Procedures for information processing

Information represent digitally in two-state, or binary, form is often referred to as digital information. Modern information systems are characterized by extensive metamorphoses of analog and digital information.

1. Collation of Information

Collation is the assembly of written information into a standard order. One common type of collation is called alphabetization, though collation is not limited to ordering letters of the alphabet. Collation lists of words or names into alphabetical order is the basis of most office filling systems, library catalogs and reference books.

Collation defines a total preorder on the set of possible items, typically by defining a total order on a sort-key.

1. Organization of Information

In any collection, physical objects are related by order. The ordering may be random or according to some characteristic called a key. Such characteristics may be intrinsic properties of the objects (e.g. size, weight, shape, or colour) or they may be assigned from some agreed- upon set, such as object class or date of purchase.

In most cases, order is imposed on a set of information objects for two reasons: to create their inventory and to facilitate locating specific objects in the set.

Possible ways of organizing information are:  i. Alphabetical by name   ii. Alphabetical by Title     iii. Chronologically    iv. Statistically      v. Subject (can be organized in alphabetical order)

1. Geographically     vii. Computer Databases  (can be searched by subject, keyword, author, title, etc)

1. Analysis of Information

Information analysis is the science of evaluating information content, and refining information to build portfolios. Information analysis work both for managers who use a non- quantitative process and for those who use a quantitative investment process.

Information analysis can work with something as simple as an analyst’s buy and sell recommendations. Or it can work with alpha forecasts for a broad universe of stocks.

Information analysis can be precise. It can determine whether information is valuable onnthe upside, the downside, or both.

1. Interpretation of Information

During the interpretation stage, searchers assess the usefulness of their information and reflect to develop personal meaning. Information requires interpretation to become knowledge. The interpretation stage engages searchers in the process of analyzing, synthesizing and evaluating information to determine its relevancy and usefulness to their research question or information need. Interpretation is another stage in this holistic process that is very important and often neglected.

EVALUATION:

1. What do you mean by information processing?
2. What is digital information?
3. How does collation differ from classification?

GENERAL EVALUATION:

1. What is information analysis?
2. What is interpretation of information?

READING ASSIGNMENT:

Students are expected to read all the topics for the term from the textbook. Textbook of Data Processing SS 1 Page

WEEKEND ASSIGNMENT:

1. Intrinsic properties of the objects are    (a) size    (b) weight    (c) colour    (d) all the above
2. Data that presents percentages in different groups    (a) line chart     (b) bar chart     (c) pie chart    (d) OHLC chart
3. \_\_\_ is the change of information in any manner detectable by an observer.

Hope you got what you visited this page for? The above is the lesson note for Data Processing for SS1 class. If you have any questions as regards Data Processing lesson note For SS1 class, kindly send them to us via the comment section below and we shall respond accordingly as usual.