**COMPUTER STUDIES JSS 1**

**FIRST TERM**

## SCHEME OF WORK

**WEEK TOPIC**

1. **Technology of different information age I**
2. Historical Development of Computers
3. **Generations of Computer**

4. Basic Computer concepts

5. Data and Information

6. Information Transmission

7. Information Evolution and Communication Technology (ICT)

8. Information Evolution and Communication Technology (ICT)

9. Classification of Means of Transmitting Information

10. ICT Applications in Everyday Life

11. Revision

12. Examination

**REFERENCES**

* Hiit for JSS1 by professor Charles O. Uwadia
* Early Learning of Computer Studies for Junior Secondary Schools. By Yomi Soyombo
* Computer studies for Junior Secondary Schools by Stella Chiemeke
* Computer Studies for Beginners. By: Adekunle Eyitayo etal.

**WEEK ONE**

**TOPIC: TECHNOLOGY OF DIFFERENT INFORMATION AGE I**

**Information Age:**

Information age refers to the developmental stages in man’s history. In the early years, man was conscious of the necessity of tools, until the need for counting began to arise. Man, as historians and scientists agree, has gone through major developmental stages. It is essential to go through the ages and examine the major developments that characterized them as a prelude to how Computers and Computing came into existence.

**The ages are:**

* Stone age
* Iron age(hoe and cutlass)
* Middle age(feather,pen and ink)
* Industrial age.(machine)
* Electronic age
* Computer and Information age
* **Stone Age:**

This is a broad pre-historic time period (Approximately 500,000 BC 10,000 BC) when humans widely used stones for tool making. During this period, man’s basic task was gathering food and hunting animals using tools made from natural rocks and stones, which were used for making fire, killing animals and enemies. Examples of stone age tools are flints which were used for cutting, basalt and sandstone which were used for grinding.

* **Iron Age:**

The Iron Age is a pre –history period (Approximately 3500years ago 1. E. 1500 BC) during which cutting tools and weapons were mainly made of Iron or steel. For the first time, humans were able to exploit efficiently the temperature forests, villages were fortified, warfare was conducted on horseback and in horse-drawn chariots, and alphabetic writing based on the Phoenician script became widespread.

Artwork in the Iron Age communicated the cultural and societal influences of that time.

* **Middle Age:**

This is a period in history which lasted for roughly a millennium, commonly dated from the 5th century to the beginning of the 16th Century. One of the most important developments in the “Middle Age” was the experimentation and developments in iron production. In the medieval history, development were made in the areas of agriculture tools, harnessing of time, use of iron, building construction, weaving and textiles industry. The plow is considered to be one of the most important but the oldest technology developed but was radically improved and was used with multiple- oxen teams.

* **Industrial Age:**

This is the period of evolution of machines used in our societies today. During the period of industrial revolution which started in Britain and later spread to the other parts of the world, an economy based on manual labour was replaced by one dominated by industry and manufacture of machinery. It began with the mechanization of textiles industries, the development of iron- making techniques and the increased use of refined coal.

There was trade explosion, introduction of canals, improved roads and railways. The introduction of steam power and powered machinery underpinned the increase in production capacity and the development of all metal- machine tools which facilitated production of machines in other industries.

* **Electronic Age:**

This is the development of mechanical calculators, slide rules, paper and pencils which formed the world’s main tools for calculation in early 60’s. The first large electronic desktop calculators began to replace electronic mechanical machines.

Those models based on the newest electronic technology used thousands of transistors. The first electronic desktop calculators were noted for the abundant publication, consumption and manipulation of information especially by computers and computer networks. Examples of electronic age tools are electronic typewriters and electronic calculators.

* **Computer and Information Age:**

This is also known as the computer age or digital age. It is characterized by the ability of individuals to transfer information freely, and to have instant access to knowledge. This age has allowed rapid global communications and networking to shape modern society.

**EVALUATION**

1. List the developmental stages in man’s history.
2. What is information age?

**A CHART SHOWING THE DESCRIPTIVE EXPLANATION OF INFORMATION AGE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Information age: | Tools used: | Purposes: | Time period: | Examples of useful tools in that age |
| * Stone age | Stone | Identification, sewing, cutting, counting, defence, transaction ,storage, pottery exhibitions | Below 12th century | Basalt, sandstone,  flint,chert |
| * Iron age | Iron | Defence, agric | 12th century | Hoes and cutlasses |
| * Middle age | Writing materials | Knowledge transfer, education, | 12th and 13th century | Pen, ink, feather |
| * Industrial age. | Machine, coals | Power development, faster movement | Late 18th and early 19th century | Cars, ships,trains,airplane,  power generator |
| * Electronic age | computer | Storage,accuracy,speed  timeliness | Late 19th century and above | Circuits, processor |

**GENERAL EVALUATION**

1. State the different information ages.

2. State the tools used in each age.

**WEEKEND ASSIGNMENT**

1. The \_\_\_\_\_\_\_\_age is a pre- history period during which human beings widely used stone for tool making. (a) stone ( b) middle ( c) iron (d) industrial
2. The \_\_\_\_\_\_age was a period in late 18th and early 19th centuries. (a) industrial (b) middle age

(c) stone (d) none of the above

1. The emergence of machines was during the middle age (a) false (b) true (c) not sure
2. Pen, feather and ink were used in \_\_\_\_\_ age (a) middle ( b) stone (c) industrial (d)electronic
3. How many information ages do we have presently? (a) 5 (b )3 (c) 3 d) 2

**THEORY**

Write short note on the following:

1. Stone age, iron age, middle age

2. Industrial age and electronic age

**WEEK TWO**

**TOPIC: COMPUTING DEVICES I (PRE-COMPUTER AGE TO 19TH CENTURY)**

**CONTENT**

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 computing devices: manual, mechanical and automatic.

**Manual Devices or Mechanical Calculating Tools : Examples are**

1. Abacus
2. Slide rule

**Mechanical Counting Machines: Examples are**

1. John Napier bone
2. Blaise Pascal machine
3. Gottfried Leibniz machine
4. Joseph Jacquard loom
5. Charles Babbage analytic machine

**Automatic Devices or Electronic Counting Machines: Examples are**

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

**EVALUATION**

1. Mention three kinds of computing devices that you know.

2. Give two examples of each above.

**ABACUS**

The first calculating device was probably Abacus. The Babylonians 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 a horizontal bar and vertical threads. Each thread contains some beads. To do simple addition and subtraction you shift the beads from one portion to another.

**SLIDE RULE**

The slide rule is a calculating device that was based on the principles of logarithms. It was first built in England in 1632 and is still in use in the 1960’s by the NASA engineers of Mercury, Gemini, and Apollo programs which led men on the moon.

**NAPIER’S BONE**

The need for a better calculating device was felt as time passed. John Napier, a Scottish mathematician in 1617, 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.

**PASCALINE**

The first mechanical calculating machine was invented in 1642, by Blaise Pascal, a French mathematician. Numbers were entered by dialing a series of numbered wheels in this machine. A sequence of wheels transferred the movements to a dial, which showed the result. Though 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 machine that could add, subtract, multiply and divide and called it ***Stepped Reckoner***. Leibnitz was the first to advocate use of binary number system.

**JACQUARD’S LOOM**

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

**CHARLES BABBAGE’S DIFFERENCE ENGINE**

In 1822 Charles Babbage proposed a calculating machine known as Difference Engine. It would be able to compute tables of numbers such as logarithm tables but was not finished.

**CHARLES BABBAGE’S ANALYTICAL ENGINE**

In 1833, Babbage designed another machine called Analytical Engine. The machine is as large as a house powered by six steam engines more general purpose in nature and programmable due to the punched card technology of Jacquard.

**MARK I.**

Mark I. invented the world first electro- mechanical computer and was used during World War II by the U.S Navy.

**EVALUATION**

1. List any three computing devices.

2. Mention four scientists who contributed to the development of computers.

**HERMAN HOLLERITH’S MACHINE**

Herman Hollerith invented a machine which worked on electricity for the first time in 1889. One machine was used for recording data and the other one was used for doing calculations of the recording of the recorded data. His machine was capable of reading both numbers and letters.

Hollerith invented the tabulation machine that could read information from punched cards. His machine was used to collate the census data for the United States of America in 1890.

**BURROUGH’S MACHINE**

In 1885, William Seward Burroughs invented this mechanical adding machine. The early Burroughs modes were large machines characterized by having glass panels in the sides, so the mechanism could be seen. Common components of the Burroughs machines are: keypads, lever, registers and printer.

**JOHN VON NEUMANN’S MACHINE:**

John Von Neumann was a Hungarian-born American mathematician developed MINIAC (Mathematics Analyzer, Numerical Integrator and Computer), which at the time was the fastest computer of its kind. The first machine built using Von Neumann’s architecture was the EDVAC.

**PHILIP EMEAGWALI’S COMPUTER:**

Nigerian born Dr. Philip Emeagwali first entered limelight in 1989 when he won the prestigious Gordon Bell Prize for inventing a very fast computer. He programmed a computer that could compute a world record 3.1 billion calculations per second using 65,535 processors to simulate oil reservoirs.

**CONCLUSION**

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

**GENERAL EVALUATION**

(1) List any four pre-computer age to 19th century computing devices.

(2) What are the use(s) of the computing devices you mentioned above?

(3) Give the names of four scientists who contributed to the development of computer.

**WEEKEND ASSIGNMENT**

1. Napier’s Bones had …........ (a) 10 rods (b) 9 rods (c) 11 rods (d) 8 rods

2. Jacquard’s loom was used in the …(a) Mechanical industry (b) Food industry

(c) Weaving industry (d) Electronic industry

3. Who invented the analytical engine? …………. (a) Gottfried Leibnitz (b) Joseph Jacquard (c) Charles Babbage (d) Herman Hollerith

4. Who invented Pascaline? (a) Pascal Joseph (b) Leibnitz Von (c) Blaise Pascal

(d) Charles Babbage

5. …… was the first computing device. (a) Napier’s Bones (b) Punched Card (c) Abacus (d) Slide         rule

**THEORY**

1. List any four pre-computer age to 19th century computing devices.

2. Discuss the components and features of the computing devices mentioned above.

**WEEK THREE**

**TOPIC: COMPUTING DEVICES II (20TH CENTURY TO DATE)**

**EXAMPLES: GENERATION OF COMPUTERS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Generation of Computers | Year of Development | The Technology (input, control, design) | Characteristics | Software Instruction | Storage Capacity |
| First | 1940 – 1950  e.g. edsac,Univa, edvac  IBM 350 | Vacuum tube | Gigantic ,Low speeding milliseconds(1/1000th of a seconds), high energy production | Machine language | Small internal memory and internal storage of magnetic drum and delay lines. |
| Second | 1950 - 1960 e.g. The IBM 605, Honeywell National Cash Register(NCR 304) | Transistor | Less heat generation, | High level and assembler | Core storage |
| Third | 1960 - 1970 e.g. IBM 360, IBM 370 systems | 100-1000 chips | Introduction of Integrated circuit(IC),use of operating system, communication cable and reduction in the cost of storage. | Multi programming facilities | internal |
| Fourth | 1970 – 1980 e.g. IBM PS/2, Computers that used Intel (80286,80386) microprocessor | 1000-106 chips | LSI | Introduction of Non-procedural language | Flexible, internal and external and very large, network facilities |
| Five | 1980 – 1990 e.g Compaq, Dell, Toshiba, HP | 106 chips | Artificial intelligent(AI),speech production, expert system | Introduction of object Oriented programming language(OOP) | Small but powerful network |

**GENERATIONS OF COMPUTERS**

**FIRST GENERATION**

The first generation computers were developed between 1940s and 1950s. Computers of that 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 due to the use of vacuum tubes.

6. They had reliability problem.

Examples of first generation computers are: ENIAC (Electronic Numerical Integrator and Calculator), EDVAC (Electronic Discreet Variable Automatic Computer), EDSAC (Electronic Delayed Storage Automatic Computer) and IBM 650.

**SECOND GENERATION**

Second generation computers were developed between 1950s and 1960s. In this generation, transistors were used instead of vacuum tubes. Second generation computers utilized primary discrete TRANSISTORS. They had limited capability but were more advanced than the first generation computers.

The following could be noted of second generation computers.

1. They were more reliable than first generation.

2. They could perform calculations.

3. They had a more efficient storage facility.

4. They generated lesser heat when compared with first generation computers.

Examples of this generation are: NCR 304 (National Cash Register 304) and IBM 605.

**THIRD GENERATION**

Third generation computers were developed between 1960s and 1970s. In this generation, Integrated circuits were used in place of vacuum tubes and transistors. Integrated circuits (IC) are produced as a single chip containing dozens of components fused together in a single process. In this generation, SSI (Small Scale Integration) and MSI (Medium Scale Integration) were used. In SSI, components in tens were fused as a single unit on a chip and in the MSI, components in hundreds are fused as a single unit on a chip.

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.

Examples of third generation computers are IBM360 and IBM370.

**EVALUATION**

1. State four characteristics of the first generation computer.
2. Write the full meaning of the following; i. ENIAC ii. EDVAC iii. EDSAC

**FOURTH GENERATION**

Fourth generation computers appeared between 1970s and 1980s. In this generation, Large Scale Integrated (LSI) technique was used in the integrated circuits. In LSI, more than hundred components were placed on a single chip. This generation of computers brought about the development of microprocessors. 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. Examples are: IBM PS/2, and computers that used Intel (80282, 80386) microprocessors.

**EVALUATION**

1. State the features of the 4th generation computer.
2. Write down the full meaning of LSI

**FIFTH GENERATION**

These generations of computers appeared between 1980s and 1990s. The technique used in the integrated circuits of these computers is Very Large Scale Integration, VLSI. Artificial Intelligence (AI), speech processing, pattern recognition and Expert System (ES) are characteristics of these computers. Artificial Intelligence is the ability of the computer to exhibit intelligence behavior like humans, while Expert System is the ability of the computer to make decisions and judgments like an expert in a particular field of profession.

**CONCLUSION**

We have learnt that the first generation computers used vacuum tubes, second generation used transistor while the third generation computers used integrated circuits. We also learnt the features of the fourth and fifth generations of computers i.e. the fourth generation used Very Large Scale Integration (VLSI) and ARTIFICAL INTELLIGENCE (AI).

**GENERAL EVALUATION/REVISIONAL QUESTIONS**

1. What are Artificial Intelligence and Expert system?

2. What are the technologies behind each of the generations of computer?

3. State two features of first generation of computers.

4. What is the technology behind Second and Third generation of computers.

**WEEKEND ASSIGNMENT**

**OBJECTIVE**

1. Which of these is not an example of first generation computers? (a) ENIAC (b) UNIVAC

(c) EDVAC (d) IBM 360

2. The first generation used …………… (a) IC (b) SSI (c) Transistor (d) vacuum tubes

3. The second generation used ……….. (a) Vacuum tubes (b) MSI (c) IC (d) Transistors

4. The third generation used ………….. (a) SSI (b) Transistor (c) Vacuum tubes (d) ICs

5. IC means ………….(a) Integrated Circle (b) International Class (c) In Charge

(d) Integrated Circuit

**THEORY**

1. State two features of first generation computers.

2. What is the technology behind Second and Fifth generation of computers.

3. Give the full meaning of the following acronyms:

(i) AS

(ii) VLSI

(iii) SSI

(iv) LSI

(v) AI

4.Mention the characteristics of 5th generation computers.

**WEEK FOUR**

**TOPIC: BASIC COMPUTER CONCEPT**

**Definition of Computer:**

Computer can be defined as a combination of electronic and electro-mechanical devices that are capable of accepting data or information , processing it, storing or providing output under the control of sets of Instructions called programs.

**Description of a Computer as Input Process Output (IPO) Device**

The following pictorial representation shows how the computer is functionally organized to perform all the stages involved in Data Processing (Input process output) as described in the figure below.

PROCESS

O

U

T

P

U

T

I

N

P

U

T

ARITHMETIC LOGIC

CONTROL UNIT

U U

N N

I I

T T

MAIN MEMORY

**The parts of computer are:**

1. **Input Devices:** These are the devices with which one can send data and information into the system. The most common input devices are keyboard, sensors and joystick, mouse & pad, scanner multimedia microphone, light pen, web camera, touch screen .
2. **Processing Device:** This is also called the processor. It is the brain of the computer system that works on the data supplied from the input devices. The processor and all other parts form what is called the **Central Processing Unit.** The CPU is housed by a casing or box that may be horizontal (desktop) or vertical (tower

top) called the **system unit** and mounted on the mother board. A processor is the logic circuitry that responds to and processes the basic instructions that drive a computer.

The Central Processing Unit consists of three units: Control unit, Arithmetic Logic unit and Memory unit.

**(i) The Control unit:**  It coordinates and directs the activities of other elements of the system as directed by the program in store, and also directs control signal between the CPU, input and output devices.

**(ii) The Arithmetic and Logic Unit:** It consists of two units; the arithmetic unit which performs arithmetic operations such as addition,subtraction, multiplication and division.the logical unit performs logical operations such as the comparison of data e. g greater than(>, less than (<)or equal to (=)

**(iii) The Memory Unit:** otherwise known as Main Memory is used for storing data to be processed and the instruction for processing.

**EVALUATION**

1. What is Computer?
2. State the three parts of a computer.

**Types of processor**

There are two primary manufacturers of computer microprocessor; Intel and Advanced Micro Devices (AMD). Intel’s desktop CPUs include Celeron, Pentiom and Core, AMD desktop processors include sempron, Athlonan Phenom. Intel makes Celeron M, Pentium M and Core mobile processors for notebooks.

AMD makes mobile versions of its Sempron and Athlon as well as the Turion mobile processor which comes in Ultra and Dual-Core versions. Both companies make both single-core and multi-core processors.

**Features of the Processor**

Each processor has a clock speed which is measured in gigahertz. A processor also has a front side bus which connects it with the system’s random access memory (RAM). CPU also has two or three levels of cache.

Cache is a type of fast memory which serves as a buffer between RAM and the processor.

**Function of the processor**

A processor is a silicon chip containing millions of microscopic transistors which processes the instructions or operations contained within executable computer programs. The rate at which information is processed by the Central Processing Unit varies and depends on the processor speed and available Random Access Memory size.

1. **Output Devices :** the output devices display or provide the result of the processed inputs either on the Monitor (VDU) or through other output devices some of these output devices are Monitor, Printers, Projector, Plotters, Multimedia Speaker etc.

**Hardware of a modern Personal Computer**

1. Monitor
2. Motherboard
3. CPU
4. RAM Memory
5. Expansion card
6. Power supply
7. Optical disk drive
8. Hard disk
9. Keyboard
10. Mouse

**CONCLUSION**

We have learnt that computer is an electronic device that consists of the input unit that accept data, process the data in the system unit and produces the result through output devices.

**GENERAL EVALUATION:**

1. Define computer as an IPO system.
2. List the three units of a central processing units.

**WEEKEND ASSIGNMENT**

1. The operation of the computer system is coordinated by a unit called \_\_\_\_ (a) memory unit (b) processing unit (c) storage unit (d) arithmetic and logic unit
2. The part of the computer that displays the result of the processed data is called **\_\_\_\_** (a) input unit (b) output (c) control unit (d) ALU
3. The processor’s speed is measured in \_\_ (a) megahertz (b) kilobyte (c) gigahertz (d) byte
4. \_\_\_\_ is the device used in sending data and information into the system (a) processor (b) input (c) output (d) storage.
5. \_\_\_\_ is used for storing data to be processed and the instruction for processing.(a) memory (b) control (c) output (d) CPU

**THEORY**

1. What is central processing unit?
2. List and explain the three units of a CPU.

**WEEK FIVE**

**TOPIC: DATA AND INFORMATION**

**Definition of Data**

**Data** is a raw facts that need to be processed.It is a representation of unprocessed facts about people, places, events, objects or transactions recorded from which information can be prepared.

Examples of Data

1. Name e.g. Segun, Peter, Taye ect.
2. Dates e. g. 21st January 2009, 2009-08-24 etc.
3. Numbers e. g. 1, 2, 3. 4, 5 etc.
4. Occupations e. g. Doctor, Footballer, Lawyer etc.
5. Nationality e. g. Nigerian, Iranian, Togolese etc.

**Sources of Data**

(i) Books

(ii) Document

(iii) Presentations

(iv) Through Interviews

(v) Worksheet etc.

(vi) Databases

**Types of Data**

Data can be classified into four types:

1. Alphabetic
2. Numeric
3. Alphanumeric
4. symbols

* **Alphabetic Data:** They are those data that consists of letters. Examples are A, B, X, W.
* **Numeric Data:** They consists of numbers only. For example 1, 7, 20 etc.
* **Alphanumeric Data:** They are data that contains both letters and numbers e.g Y2K
* **Symbolic Data:** This represents any symbolic value e. g +, { }, . >, <

**EVALUATION**

1. What is Data?
2. Mention four types of Data.

**INFORMATION**

Information is the data that have been processed .

**Sources of Information**

There are two sources of information: primary and secondary

1. **Primary source:** This is the origin of an item of information e. g eyewitness to an event, place in question, the document under scrutiny etc.
2. **Secondary source:** It provides already made information e.g. internet, television, newspapers, magazines, textbooks etc.

**Examples of information documents include:** Report card, bank account balance, identity card, PHCN bill, staff salary , advertisement of vacancy, C- caution, Zebra crossing the road is an indication for road user to stop for people to cross.Traffic light showing green, red and orange.

**Forms of information:**

* **Visual:** This is information in graphical or pictorial form e.g photographic.
* **Oral:** This is any information communicated by mouth.
* **Sensory:** This is any information passed through the five sense organs.
* **Written:** This a hand written or printed form.
* **Historical:** This refers to information known and recorded about activities, events or transactions which happened in the past e. g a student’s medical history, educational history etc.

|  |  |
| --- | --- |
| **Types of Information** | **Sources** |
| Current information | Magazines, Newspapers, Journals, Internet |
| Summaries/overviews | Encyclopedia |
| Historical information | Books, Journals, Older magazines |
| Detailed information | Books, Journals, Internet |
| Scholarly information | Books, Journals, Proceedings |
| Primary information | Diary, interviews, letters, Archives, Raw data. |

**Qualities of good Information**

* A good information should be complete for its purpose.
* It should be relevant.
* It should be accurate.
* It should be meaningful to the user.
* It should be communicated to the right person.
* Its volume should be manageable.
* It should be timely.
* It should be communicated through an appropriate channel of communication.

**CONCLUSION**

We have learnt about data, the sources, types and examples of data. Also about information, sources, examples, and qualities of good information.

**GENERAL EVALUATION**

1. Differentiate between data and information
2. State two sources of information
3. Mention five forms of information.
4. List three examples of information

**WEEKEND ASSIGNMENT**

1. A processed data is called …….. (a) files (b)component (c) information (d) field.
2. The following characteristics of a good information except.(a)accuracy (b)relevant (c)precise (d) written
3. The basic raw facts and figures are referred to as……. (a)information (b) data (c)report (d) history
4. which of the following refers to events, activities and transactions that happened in the past? (a) timely (b) future (c) present (d) historical
5. the forms of information include the following except. (a) visual (b) oral (c) sensory (d) written

**THEORY**

1. Define data and information.

2. State four sources of data and two sources of information.

3. State four qualities of good information.

**WEEK SIX**

**TOPIC: INFORMATION TRANSMISSION**

**Information transmission** is the exchange of information in any form ( e.g voice, data, text and images) over a medium (air, cable ,water ,) using natural, or man- made equipment or tools.

**Modes of transmitting information are:**

* **Ancient methods:**

This is the method of transmitting information in the olden days and they include:

**1. Oral information:** This is the information communicated verbally either between individual or two parties.

**2. Beating of drums:** This is commonly used by town criers who usually move around the towns or villages in rural areas with loud sounding drums or gongs which are beaten intermittently to attract the attention of the audience.

**3. Fire lightning:** This is used to indicate the presence of someone at a particular spot.

**4. Town crying:** This is a means of using person to pass information from the village head or clan head to the people.

**5. Whistling**

**6. Drawing diagrams:** This involves the sketching of images on walls or on the ground to transmit information e.g. maps road traffic symbols etc.

**7. Making Representation:** In the olden days farmers would leave their farm products by the road side unattended to a given number of stones beside it which represent the cost of each of the item representations

**8.** **Metal gong**: It is a hollow metal beaten with stick to make announcement to members of a community.

**EVALUATION**

1. What is information transmission?
2. Explain the two methods of transmitting information.

* **Modern methods:**

**1**. **Prints**: This is the process of producing texts and images on paper to send information from one place to another.

**2**. **Telephone:** This is the process of transmitting sound or speech to a distant point by an electric device.

**3. Telex:** It is used to transmit written messages or information via cable from one place to another through a teleprompter.

**4. Radio:** This is an electronic device that detects and demodulate and amplifies transmitted signals.

**5. Television:** This is a means of transmitting dynamic or sometimes static images, with accompany sound, via electric or electromagnetic signals.

**6. Fax:** This is a method or device for transmitting documents, drawings, photographs etc. by means of radio or telephone for exact production elsewhere.

**7. Satellite:** This is an object that orbits around another object. The artificial satellites have dish, which transmit information into space and therefore makes such available for other satellites.

**8. Internet:** This is the global communication network that allows almost all computers worldwide to connect and exchange information.

**9. GSM**: Global System of Mobile Communication (GSM) is an improved way of telephoning without the use of telephone cables.

**GENERAL EVALUATION**

1. Explain the ancient method of transmitting information.
2. List five ancient method of transmitting information.
3. Explain the modern methods of transmitting information.
4. List five methods of transmitting information.

**WEEKEND ASSIGNM,ENT**

1. Information can be transmitted through the following ways EXCEPT. (a) courier

(b) dancing (c) oral (d) television

1. The ancient method of transmission include the following except. (a) FAX (b) drawing (c) fire lighting (d) metal gong
2. The modern method of transmitting information include the following Except.

(a) Printing (b) Telex (c) town crier (d) television

1. …………is the electronic device that detects and demodulate and amplifies transmitted signals. (a) GSM (b) Radio (c) Fax (d) Telex
2. The global communication network that allows almost all computers worldwide to connect and exchange information. (a) Radio (b) Print (c) Internet (d) Fax

**THEORY**

1. What is information transmission?
2. Mention the two method of transmitting information and give five examples for each.

**WEEK SEVEN & EIGHT**

**TOPIC: INFORMATION EVOLUTION AND COMMUNICATION TECHNOLOGY**

**INTRODUCTION**

Over the years, a lot of improvement has taken place in the way information is transmitted. These changes are usually technology based and driven by the need to pass more information faster at less cost. The stages have been divided into categories of information transmission inventions.

**INVENTION OF LANGUAGE**

Human beings in different society and parts of the world share messages by one means or the other. The most elaborate means by which messages are being sent is through the use of languages which have been invented so that people can express themselves and communicate with one another very clearly.

**INVENTION OF PRINTING**

The invention of mass printing practices changed our world and the print invention is regarded by many as the invention of the millennium.

Johannes Gutenberg a German inventor in 1440, invented a printing press process. The inventor method of printing from movable type, included the use of metal molds and alloys, a special press, and oil-based inks, allowed for the first time the mass production of printed books.

**INVENTION OF RADI**O

The invention of radio started with the discovery of “radio waves” – electromagnetic waves that have the capacity to transmit music, speech, picture and other data invisibly through the air. Many devices work by using electromagnetic waves including radio, microwaves, cordless phones, remote controlled toys etc.

**EVALUATION**

1. Explain the invention of printing.
2. Explain the invention of radio.

**INVENTION OF TELEVISION**

Philo Farnsworth is accredited with the invention of the first fully electronic television system. In 1921, he had an idea while working on his father’s Idaho farm, he realized an electron beam could scan a picture in horizontal lines, reproducing the image almost instantaneously. This would prove to be a critical breakthrough in Philo Farnsworth’s invention of the television in 1927.

Television broadcast reach makes it powerful and an attractive medium for advertisers. Many television networks and stations sell blocks of broadcast time to advertisers.

Television was commercially available since late 1930s, the television set has become a common communication receiver in homes, business and institutions, as a source of entertainment and news. Since the 1970s, the availability of video cassettes, laserdiscs, DVDs and now Blu-ray Discs, have resulted in the television set frequently being used for viewing recorded as well as broadcast material. Although other forms such as Closed –Circuit-Television (CCTV) are in use, the most common usage of the medium is for broadcast television, which was modelled on the existing radio broadcasting systems developed in the 1920s, and uses high-powered radio- frequency transmitters to broadcast the television signal to individual TV receiver.

**INVENTION OF COMPUTER**

Charles Babbage, an English mathematicians, is considered to be the father of Computer over 150 years ago. He invented a sophisticated calculating machine and called it the “Analytical Engine” Babbage’s computer was not finished. He is called the Father of Computers because the first computers produced were based on his computation and design.

**Linking up Computer with Information Technology**

Information technology deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve information. It merges computing with high speed communication links carrying data, sound and video. This technology has made the world to be seen as a “Global Village”.

ICT makes it possible to communicate using computers and other electronic devices. Computer technology and telecommunication technology were developed independently, since then, they have fused together to produce a new hybrid information environment.

**GENERAL EVALUATION**

1. Why is language invented?
2. How did the invention of computer affect information evolution?
3. Describe the latest stage of information evolution.

**READIND ASSIGNMENT**

Computer Studies for junior secondary education JS1 by HiiT Plc: page 19 – 22, Chapter 4

**WEEKEND ASSIGMENT**

1. **…….**. invented a printing press process.(a)Charles Babbage (b) Johannels Gutenberg

(c) Bill Gate (phiilip)

1. ……….is accredited with the invention of the first fully electronic television system.

(a) Philo Farnsworth (b) Napier bone (c)Leibniz (d) Johannes Gutenberg

1. The act of using electronic computer and computer software to convert, store, process, transmit and retrieve information is called ……… (a) mechanics (b) data processing

(c) information technology (d) maintenance.

1. ………..a sophisticated calculating machine and called it the “Analytical Engine”.

(a) Blaise Pascal (b) John Napier (c) Charles Babbage (d) Mark I.

1. Which of the following brought revolution to the way information is processed?

(a) invention of language (b) invention of printing (c) invention of mass media (d) invention of computer

**THEORY**

1. What is information technology?
2. Describe the latest stage of information evolution.
3. How did the invention of computer affect information evolution?

**WEEK NINE**

**TOPIC: CLASSIFICATION OF MEANS OF TRANSMITTING INFORMATION**

Information can be transmitted from one place to another through two major means; they are:

1. **Electronic** e.g telephone system, fax, broadcast radio, television and satellite.
2. **Non-electronic**: file cabining, typewriter.

**EVALUATION**

1. What is information transmission?
2. State two methods of transmitting information.
3. List the two classes of the means of transmitting information

**Modes of receiving information:**

1. Audio:information can be received by hearing
2. Visual;information received by picture,diagram etc
3. Audio-visual :information received by hearing and seeing

**GENERAL EVALUATION/REVISIONAL QUESTIONS**

1. What are means of transmitting information?

2. State three modes of receiving information?

3. What is information transmission?

4. List five modern methods of information transfer.

**WEEKEND ASSIGNMENT**

* 1. \_\_\_\_ is the exchange of information in any form (a) Information input (b) Information media (c) Information output (d) information transmission
  2. Information can be received in the following ways except (a) audio (b) visual (c) audio-visual (d) all of the above
  3. \_\_\_\_ is a means of broadcasting information like radio with accompanying pictures

(a) fax (b) (c) file cabinet (d) television

* 1. \_\_\_\_ is a means of scanning document through a machine from one place to another

(a) radio (b) telephone (c) internet (d) fax

5. \_\_\_\_ is an electronic media located above the earth in an orbit with capability to receive and transmit information from and to an earth station (a) television (b) internet (c) fax (d) satellite

**THEORY**

1. Explain the two methods of transmitting information.

2. State the three modes of receiving information.

**WEEK TEN**

**TOPIC: ICT APPLICATION IN EVERY DAY LIFE**

**CONTENT**

**INFORMATION AND COMMUNICATION TECHNOLOGY**

ICT is an umbrella that includes all technologies for the communication of information. These technologies include:

(i) Computers ( ii)Telephones (GSM) (iii) Satellite Communication (iv) Internet (v) broadcasting technologies (TV and Radio)

**EVALUATION**

1. What is ICT?

2. Mention four application areas of ICT

**USES OF ICT**

1. **Communication:** Use of GSM (Global System of Mobile Communication ) has made communication easier.
2. **Timing and Control:** Traffic control, weather control, machine control and airplane control
3. **Information Processing and Management:** (1) Database Management: Computers are used to prepare, store, edit, and retrieve record on an individual, organization or event. (2) Order Processing: Marketing, generation of payroll and accounting and banking.
4. **Healthcare:** Hospitals are computerized to facilitate patient care. Timely patient information is very valuable in medical emergencies.
5. **Airlines:** Airline reservation agent communicate with a centralized computer via a remote terminal to update the database the moment a seat on any flight is filled or becomes available.
6. **Law:** Lawyers use keyword to search through massive full-text database containing more cases than in any law.
7. **Video and Tele-conferencing:** In having meeting with various members of staff or board of directors in different locations, with the ability to view themselves.
8. **Email:** Ability to send and receive mails through the internet.
9. **Multi-media communications:** Various means of communicating with large audience.

**IMPACT ON SOCIETY**

* Latest news on different subject are gotten
* Employment patterns have changed.
* Advertisement patterns have increased.
* Transactions of business have changed.
* Payment patterns have changed.

**GENERAL EVALUATION**

1. State the uses of ICT in daily life activities.

2. Identify the impact of ICT in daily activities.

**WEEKEND ASSIGNMENT**

1. Information and communication technology is an umbrella that includes all technologies for communicating information (a) False (b) Not sure c) True (d) A and B
2. The use of GSM has made communication easier (a) False (b) not sure (c) True(d) A and B
3. Which of these area is ICT used for timing and control (a) Teaching (b) Swimming

(c) Traffic (d) Boxing

1. The following are the uses of ICT except (a) Communication (b) Information processing Management (c) Timing and control (d) all of the above.
2. Database is the use of computers to prepare, edit , store and ………… information on an individual (a) process (b) calculate (c) refine (d) retrieve

**THEORY**

1. What are the uses of ICT?

2. Mention the impact of ICT in daily activities.