

COMPUTER

★ About calculator or computer :-

Calculator :-

- a. calculator word come from calculate which means arithmetical operation.
- b. calculate refers to $+, -, \times, \div$.
- c. calculator is an electronic device which is used for Arithmetical operation.

Computer :-

- a. computer is an electronic device which used for Arithmetical and logical operation.
- b. Computer means device, machine, tools, equipment, which perform arithmetical and logical operation.
- c. Electronic device means which always work on fixed voltage.

Basic function of computer :-

- Do arithmetical and logical operation
- compares value
- Search, store and retrieve.

characteristics of computer :-

- very high speed
- super high accuracy and degree reliability
- storage capacity
- Integrity
- power of making logic
- versatility
- Diligence
- NO feeling.

~~Grammed
G/day, 07/02/2011~~

BLOCK DIAGRAM OF COMPUTER

APPLICATION OF COMPUTER :-

- official work, mechanical, banking, railway, hospital, education transport, communication, photo animation, agriculture, research biotechnology and much other area.

• Modern definition of computer:-

- computer is a commonly operating machine particularly used for trade, education and research.

• There are three part of computer:-

a) Input unit:-

- It is used for accepting the data.

- The data are entered into the computer by this unit.

e.g.- Mouse, Keyboard, Joystick.

b) CPU unit:-

- It is used to process the data

- The data are entered into the computer by this unit.

c) Output unit:-

- It gives the information and retrieves the data

e.g. Monitor, Printer.

History of computer:-

- Computer invented because man needed a fast and accurate calculating device.
- Modern day computer with accurate and speed which is not an invention of individual person.
- It is a result of countless invention, devotion and contribution of many persons throughout the last several decades.
- When human race started they felt a need of calculating devices.

★ Classification of computer :-

- ✓ Computers are classified on the basis of cost, speed, memory, size power supply and generation.
- ✓ Generation refers to major development in electronic data processing.
- ★ There are given below some generation of computer :-

➤ First generation computer :-

- They are based on vacuum tube technology.
- Thousand of vacuum tube were used to built a computer.
- This computer very large in size.
- one vacume tube equal to an electric bulb uses the filament for electronic control of signal.
- features :-
 1. They were too large in size.
 2. Required large room for installation.
 3. They emit large amount of heat.
 4. They need A.C to keep this computer.
 5. Power consumption of these computers was very high.
 6. They had a limited life because vacume tube burst frequently.

Example:- ENIAC, EDVAC, EDSAC

➤ Second generation computer :-

- The major contribution was of three scientist John, william and walter at Bell laboratories in 1947.
- They invented transistor is made up of silicon for which they received Nobel prize.

BLOCK DIAGRAM OF COMPUTER

- vacuum tube replaced by transistor.

➤ Features:-

1. 10 times faster than first generation computer.
2. They are much smaller Requiring Small Space.
3. They emit much less heat than first generation computer.
4. They consume less power consumption in comparison to first generation computer.
5. They are more Reliable
6. They had wide commercial use.

Example - UNIVAC, IBM, CPC 164 etc

➤ Third generation computer :-

- In third generation computer technology was completely changed
- Transistor was replaced by IC in 1964,
- IC made up of transistors and other electric component.
- Initially IC contain 10 to 20 electronic component These technology was named SSI.
- Later than advancement of this tech. became possible to integrate up to 100 electronic component this is called MSI

➤ Features:-

- i. They are much powerful than second generation computer.
- ii. They are much smaller than second generation computer.
- iii. They emit much less heat than second gen. computer.
- iv. They consume less power than S.G. computer.
- v. Commercial use is wider and cheaper.
- vi. Many high level language like BASIC, ROBOL, PASCAL etc were developed.

Example: Microsoft (Main frame computer)

➤ Fourth generation computer :-

- IC was replaced by the micro processor contain an entire electronic central processing.
- Technologies: LSI, VLSI used in single chip.

➤ Features:-

- I. Social revolution PC was used.
- II. it is faster and Reliable.
- III. HLL was developed.
- IV. consume less power.
- V. Total general purpose machine.
- VI. Affordable by individual.

➤ Fifth generation computers:-

- This are also based on micro processor but too advancement in computer science design into technology to enable of fifth generation.
- VANNUMANN's single processor was replaced by Parallel Processing.
- VLSI replaced by ULSI contain 10 billion electronic component fused in Single chip.

➤ Features:-

- I. Portable computer comes like laptop.
- II. Internet becomes a popular way for information exchange

★ Some contribution regarding of computing :

- Abacus
- Napier's logs and bones
- Pascal adding machine
- Charles Babbage
- Herman Hollerith's machine
- MARK-I

➤ Abacus :-

- it is the earliest & simplest calculating machine
- it was invented by Chinese mathematician during 3000 BC Chan Dawei
- it is day board consist of beads in wire. It is a mechanical device used for addition and subtraction.

➤ Napier's logs and bones :-

- It converts all the multiplication and division into addition and subtraction.
- $\log A \cdot B = A + B$
- $\log A/B = A - B$
- Napier's developed bones card which solve multiplication problem.

➤ Pascal adding machine :-

- In 1642 Pascal discovered adding machine
- In 1671 Gott Golff Sid developed the 1st calculating device which prefer like addition, subtraction, multiplication and division.

➤ Josef Jaquard's loom :-

- He was a textile manufacturer.
- He was invented Automatic loom in 1804.
- He used punch card to produce complex cloth with his automatic loom.
- The function of loom presence & absence of hook on the card.
- Jaquard gave the way for the modern storage mechanism and binary coding by punch card.

➤ Charles Babbage:-

- He is known as the father of computer, He brings out the concept of storage and speed.
- He was a professor of mathematics at Cambridge University
- In 1842 he invented a automatic differential machine Perform algebraic expression up to 20 digits.
- He spent 17000 dollar on his project.
- His idea of storage came from punch card of Jacquard's loom

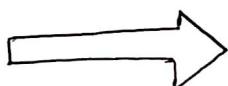
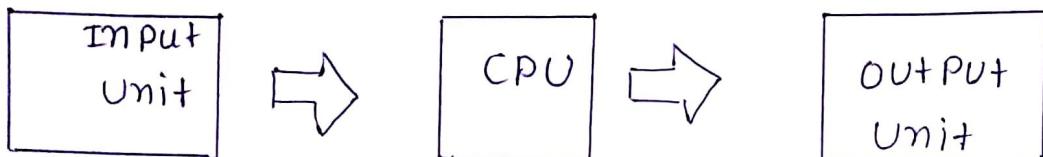
➤ Herman Hollerith's machine:-

- The next major contribution came from Dr. Herman Hollerith of U.S.A.
- He developed a machine which runs electrically for the first time for calculation of Data.
- it is also based on punch card this machine is capable for data process and giving out the letter.
- He was inventor of mechanical calculator and tabulator.
- He established a company in 1896 TMC which is today known as IBM

➤ MARK-I

- Card Picon developed first fully electro mechanically computer known as MARK-I

BLOCK DIAGRAM OF COMPUTER SYSTEM



Arrow indicates the flow of data.

❖ Control unit :-

- It is also known as 'brain of the computer.'
- CPU is the brain of the computer.
- it performs entire processing given by the input device.

a) Arithmetic logic unit:-

During data processing the actual execution of instruction takes place in ALU of the computer system. it performs and processes all the arithmetic and logic unit expression.

b) Control unit :-

The unit of control system is manage and control all the operation of computer system i.e. how does the time to enter the data and stored it. How to process the data and how to give the final data result by output unit. it obtains the instruction from main memory.

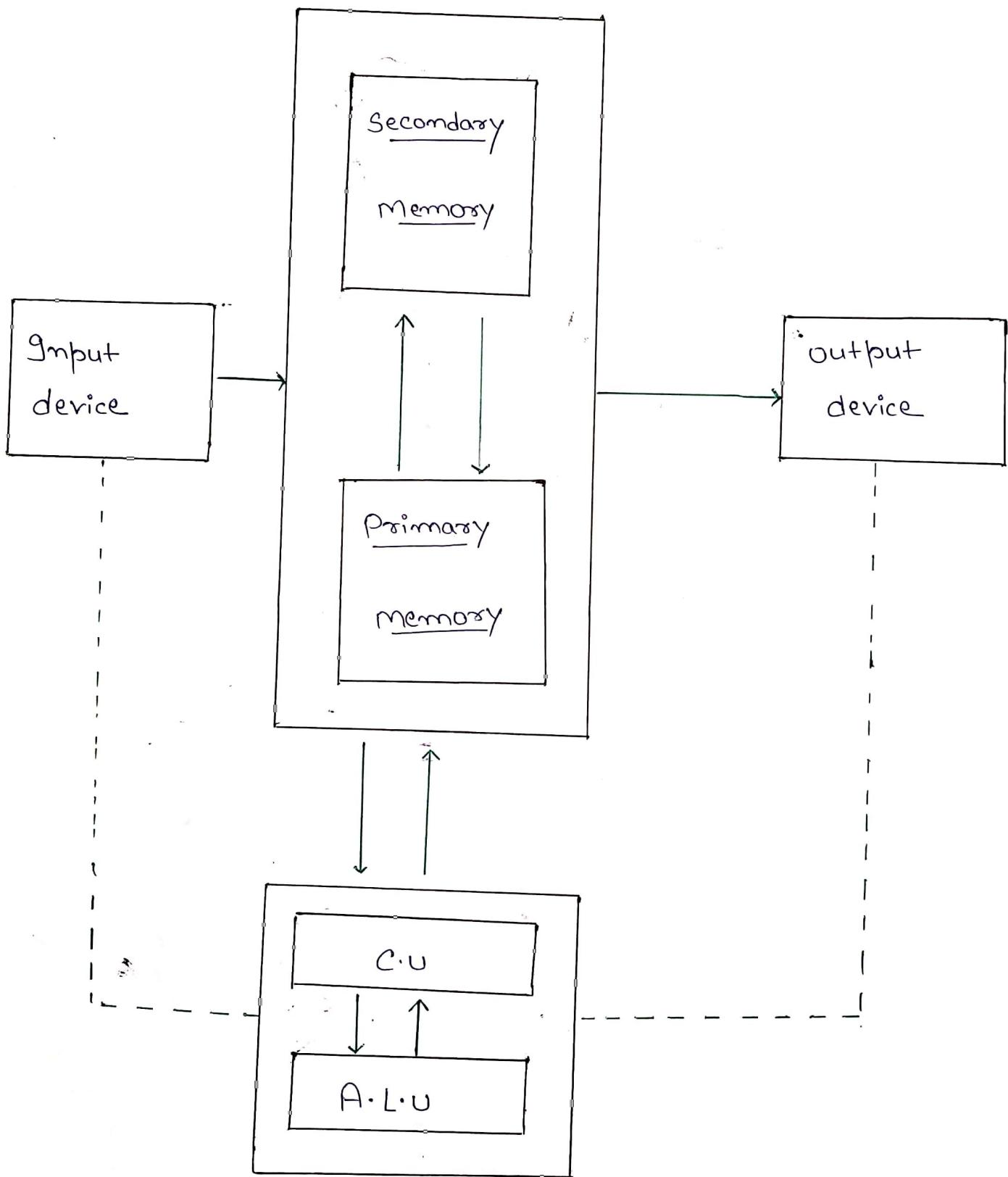
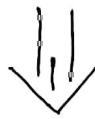
❖ Storage unit :-

- it is used to store the data, it has two types.

a) Primary memory :-

✓ It is also known as main/volatile memory/real memory etc. it is used to hold piece of data until the power supply is on. if the power supply is switched off or reset the data is disappeared or vanished.

Storage Unit



b) Secondary memory :-

- ✓ It is also known as ancillary memory.
- ✓ It is permanent storage.
- ✓ It takes care the limitation of primary memory.
- ✓ Much cheaper than primary memory.
- ✓ It holds the data and information. If the computer system is not working currently.
- ✓ It needs to hold them from processing later.

❖ On the basis of Power Supply computer are classified into :

a) Digital computer

- ✓ Comes from the word digit which means all the expressions are generally represented binary digit.
- ✓ On(1) and off(0) operation are done to use those digit at very high rate and speed.
- ✓ Digital computer basically known as for the addition remaining operation such as subtraction, division and multiplication are converted into addition and then calculated.

b) Analog computer :-

- ✓ Greek word which means similar to quantity.
- ✓ Data is following continuous.
- ✓ Analog computer operating by measuring rather than quantity.
- ✓ It makes noise.

❖ On the basis of memory unit size computer are classified into

a) Micro computer :-

- ✓ Mini in size.
- ✓ Micro processor of technology of 4th generation is used.
- ✓ It is million part of unit contain size (16 Kb to 4 mb)
- ✓ It is commonly used as personal computer.

b) Mini computer:-

- ✓ Small in size (256 Kb to 12 mb)
- ✓ 5 times faster than micro computer.
- ✓ 4 to 8 user can operate at a time.

c) Main frame computer:-

- ✓ Big in size required an Ac.
- ✓ mounted in a frame which is building in the cabinet.
- ✓ its size up to 128 mb.
- ✓ 128 can operate at a time.

d) Super computer:-

- ✓ first super computer is ILLIAC.
- ✓ it is five million faster than 1st generation computer
- ✓ its size up to 256 mb.
- ✓ many numbers of users can operate at a time.

COMPUTER LANGUAGE :-

- Computer language is also known as program language.
- Planning of program is called program logic and design technique.
- Language are written for program. Programming of program is called program logic and design technique.

∴ There are three types of program logic and design technique.

1) Algorithms:-

- It is the planning of program.
- The word algorithm comes from the word Al-Khwarizmi. The Arabic mathematician. That means recipe, methods, techniques, and procedure.
- It is the step by step program solving method that can be carrying out by a computer.
- It is part of program logic and design technique.
- It should be simple.
- It is easy to understand properly.
- It must be effective.
- Algorithm may be set forms any types of business scientific or industrial but more useful in case of commercial problems involve mathematical problem.

➤ Write an algorithm to add numbers:-

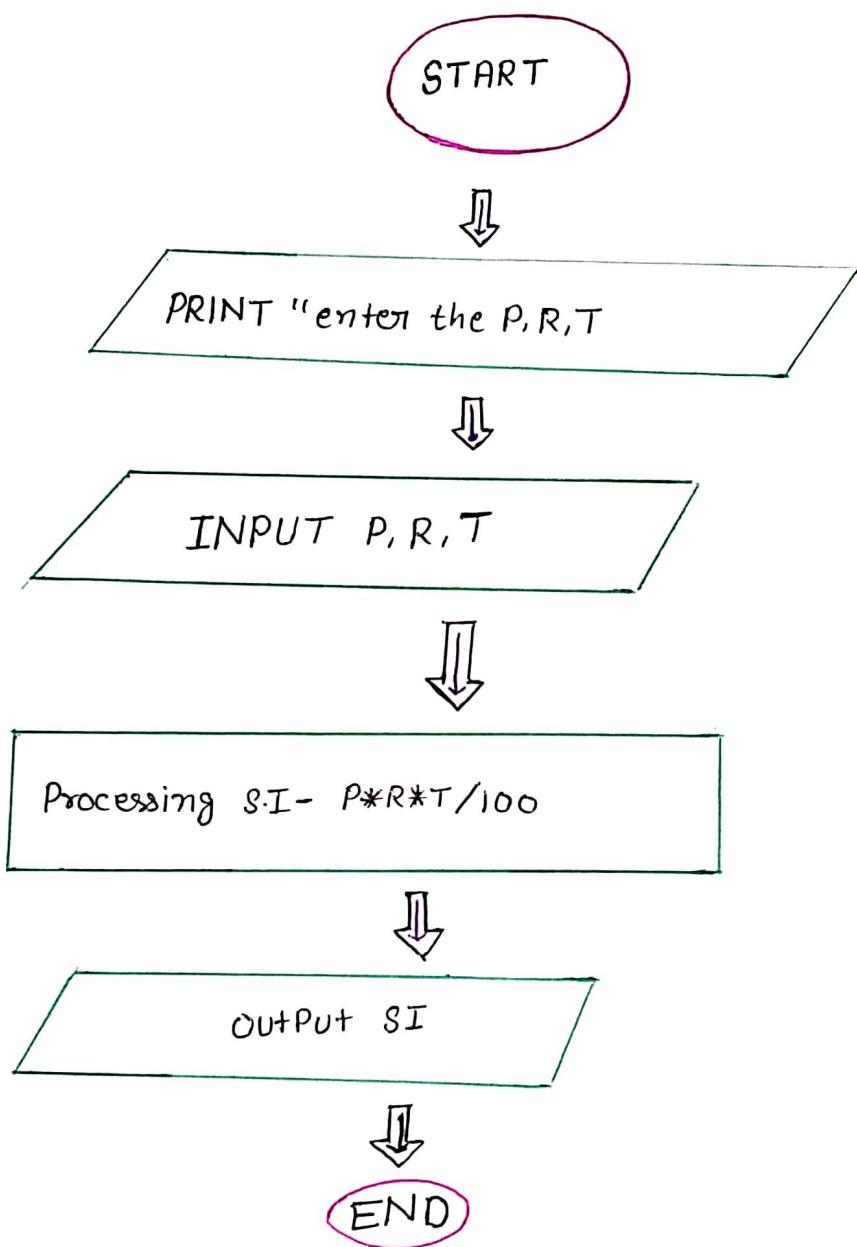
- Step 1 - Start
- Step 2 - print "enter the two numbers"
- Step 3 - input "a & b".
- Step 4 - $c = a + b$
- Step 5 - print "the result c"
- Step 6 - STOP

2) flow chart

- It is the planning of computer program.
- It is graphical representation and pictorial representation of program or algorithm.
- It is called flowchart since it's chart a flow of a program with the symbol.

These are the following important symbols are used to start flow chart :-

- oval - It is used for start or end.
- Parallelogram - It is used for input or output the data
- Rectangle - It is used for processing
- Diamond - It is used for taking decision or switching type of operation.
- Flow line and arrow - It is used for represent the direction function of flow of computer connector.
- circle - Represents the function in a flow line



3) Pseudo code :-

- gt is planning of program.
- gt is an algorithm written in natural language rather than computer language.
- gt is an alternative to flow charting.
- gt allows to represent the logic of the program in a manner which may like play in English show everybody may understand with any difficulties.

➤ write a psedo note to check the number is even or odd :-

- Begin
- Display "enter the number".
- Accept $y = n \bmod 2$
- if ($y = 0$) then
- Display "The number is even or odd"
- End.

❖ Computer in online monitoring and automation :-

- watching, directing or monitoring the work through computer system automatically.
- Any time certain concept which is help to monitor online work such as internet.

➤ Internet:-

- Internet is the name for a vast worldwide system consisting of people information & computer.
- A global network connecting million of people.
- Network of network i.e. network of interconnected computer around the world.
- A global area of network is called internet.
- Root of internet i.e. in a project called 'Arpanet' was sponsored by department of defense. US was the Arpa (Advanced research project agency).
- original aim was to create a network that would allow users of a research computer at one university to be able to "talk to" research computer at other university.
- The goal of the "ARPANET" researcher was to develop one large network to connect computer over long distances.

- So, on this pattern a technology that connects various types of network into a single large system. This lead to the concept of an 'INTERNET WORK' or 'INTERNET'.
- IT was much faster than postal system and telephone system. Both of these consist of many, many smaller parts connected into a larger international organization.

► features of Internet:-

- Cheaper
- flexible
- versatile

► USING THE INTERNET:-

Means sitting at your computer screen and using a program to perform some task. We might be at work at institute or at home using virtually any type of PC or computer.

Program performs:- checking e-mail, read message, reply to those that are required a response, send messages, read article and magazine, play a game, chatting, searching some articles or sites etc.

► Platform of internet:-

1. W.W.W :-

- The world wide web is an internet based global information system that makes available multimedia information over million of computer around the world.

2. Browser :-

- It is a software application resided in a computer and display text and view pages.

- eg. internet explorer, google chrome, Mozilla firefon.

3. Intranet:-

- Intranet is an internal secured environment but operates on a land.
- if the land provide an access to the internet, the internet resides behind a firewall with no gateway to or from internet.
- if the gateway exists. it is not an intranet it is extranet.

4. Extranet :-

- It is a private network that uses internal.
- The public telecommunication system to securely share the part of a business information or operating with supplier, vendor or customer or other network.
- An extranet internet is provided as a way to do business with other companies as well as to safe product to customer.
- An extranet required security and privacy.
- share news of common interest with partner companies.

Protocol :-

- ✓ The Protocol Pronounced as PROH-TUH-CAHL from a Greek word Proto column
- ✓ It has leaf of paper to manuscript volume describing its content.
- ✓ Protocol is special set of rule that end point in a telecommunication connection use when they communicate.
- ✓ On the internet Protocol are TCP/IP

➤ Transfer control protocol

- It is a set of rule which uses to exchange messages with another internet point at the information level
- It is used to send data in the form of message which units between computers over the Internet
- It is also known as connection oriented protocol.

➤ Internet protocol

- It is a set of rule uses to exchange the message at the internet address level.

➤ File transfer protocol:

- It is a set of protocol transfer the file from one computer to another computer.
- Extranet is private network that use extranet.
- The public communication system to security share part of information or operation with suppliers, vendors, partners, distributors, customers or other businessmen.
- In extranet internet is received as way to do business with other company as well as to sell protocol to customer.

Uniform Resource Factor:-

- ✓ It is an address of a webpage each pages has its own unique web address. This is how our Company located there the webpage which it's try to want.
- ✓ An URL is components uniformly referred as a web address although term not defined identical is a references to a web resource that specific its location on a computer network.
- ✓ URL is a spicific type of uniform Resource locator.

Hyper text transfer Protocol :-

- ✓ HTTP is an application protocol of distributive collaborative type's media.
- ✓ It is foundation of data connection for WWW.
- ✓ It is a structure that use logical link between the notes containing text.
- ✓ HTTP is the underline protocol used by WWW.
- ✓ HTTP is defined how messages are formatted, are transmitted and what action server and browser should take in Response to various component.