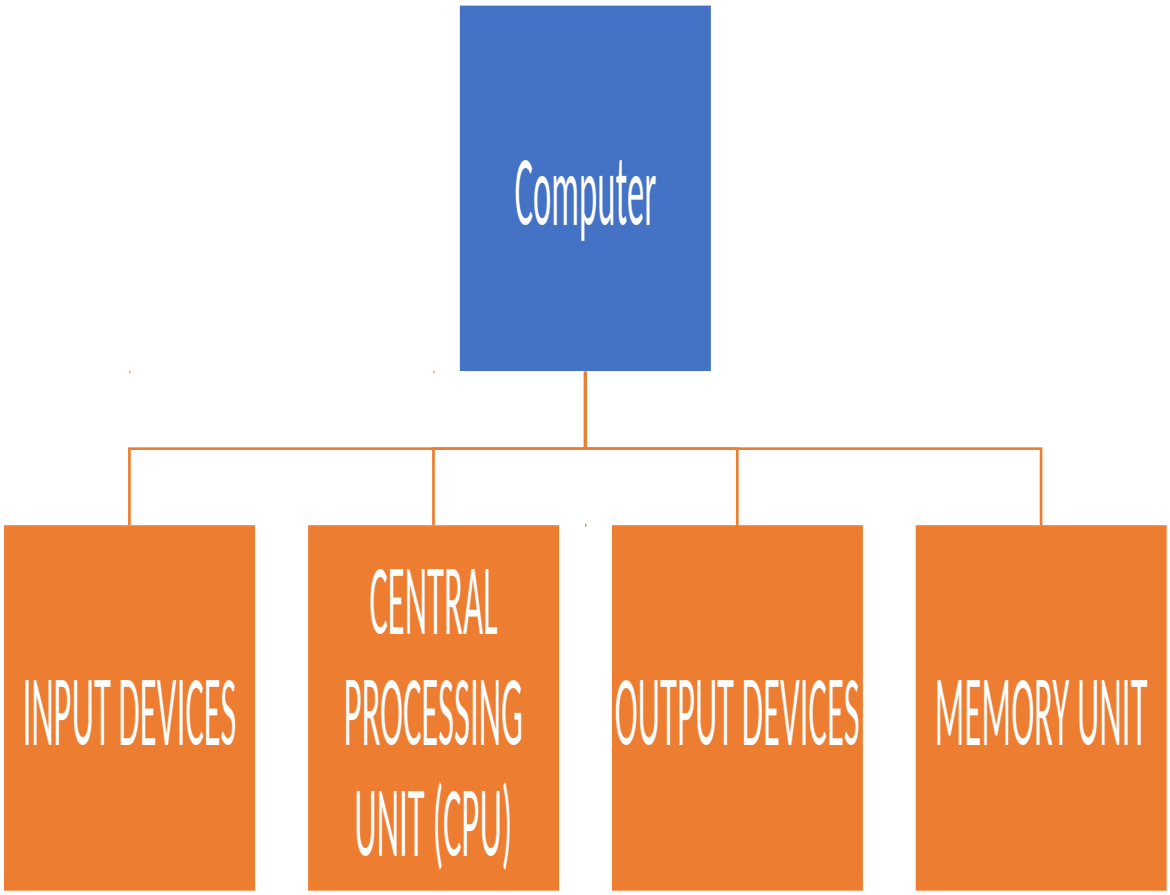
CCA-101: FUNDAMENTAL OF IT & PROGRAMMING

ASSIGNMENT-1

Q1: What are the four fundamental parts of computer? Explain it with the help of a diagram.

ANSWER. The four fundamental parts of computer are as follows:-



- **Input Devices**: Computer systems use many devices for input purpose. Input devices include the mouse, input pen, touch screen, and microphone. Regardless of the type of device used, all are components for interpretation and communication between people and computer systems.
- **Central Processing Unit (CPU):** It is the brain of the computer without this unit computer unable to process.
- **Output device:** Output device is used to show the result of the instructions. Example Monitor, printer, Headphones etc
- **Memory unit:** A memory unit is the collection of storage units or devices together. The memory unit stores the binary information in the form of bits.

Q2: Discuss about the classification of computer based on size and capacity.

ANSWER. Based on the size and capacity, computers are classified as follows:

1. SUPER COMPUTERS
2. MAINFRAME COMPUTERS
3. MINI COMPUTERS
4. MICRO COMPUTERS

1)SUPER COMPUTERS

- Supercomputers are the most powerful and physically the largest by size.
- These are systems designed to process huge amounts of data.
- The fastest supercomputers can perform over one trillion calculations in a second.
- Supercomputers have thousands of processors.
- Because of their extraordinary speed, accuracy and processing power, supercomputers are well suited for solving highly complex problems and huge amounts of calculations. Example: JAGUAR, ROADRUNNER, ETC

2)MAINFRAME COMPUTERS

- Mainframe computers are very large often filling an entire room and can process thousands of millions of instructions per second.
- In a mainframe environment, users connect to the mainframe through the many terminals wired to the mainframe.
- Mainframe are capable of supporting hundreds to thousands of users simultaneously.
- Some of the functions performed by a mainframe include: flight scheduling, reservations and ticketing for an airline etc

Example: IBM mainframes Z13, IBM System z9 mainframe

3)MINI COMPUTERS

- Minicomputers are much smaller than mainframes.
- These computers are also less expensive.
- Sometimes referred to as Midrange Server or Midrange Computer.
- They are typically larger, more powerful and more expensive than desktop computers.
- Midrange computers are usually used by small and medium-sized businesses as their servers
- Users connect to the server through a network by using desktop computers.
  Example: Apple iPod, CDC 160A

4)MICRO COMPUTERS

- Microcomputers are the most frequently used type of computer.
- It is also, known as Personal Computer (PC)
- A microcomputer is a small computer system designed to be used by one person at a time.
  Example: Desktop computers, laptops

Q3: What is the meaning of the computer generation? How many Computer Generation are defined? What technologies were/are used?

ANSWER. Generation in computer terminology is a change in technology a computer is/was being used. Initially, the generation term was used to distinguish between varying hardware technologies. Nowadays, generation includes both hardware and software, which together make up an entire computer system. There are five computer generations known till date. They are as under

First Generation
Second Generation
Third Generation
Fourth Generation
Fifth Generation

First Generation: Vacuum Tubes (1940-1956):

The first computer systems used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. These computers were very expensive to operate and in addition to using a great deal of electricity, the first computers generated a lot of heat, which was often the cause of malfunctions. First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and they could only solve one problem at a time. It would take operators days or even weeks to set-up a new problem. Input was based on punched cards and paper tape, and output was displayed on printouts. The UNIVAC (Universal Automatic Computer) and ENIAC (Electronic Numerical Integrator and Computer) computers are examples of first-generation computing devices. The UNIVAC was the first commercial computer delivered to a business client, the U.S. Census Bureau in 1951

Second Generation: Transistors (1956-1963): The world would see transistors replace vacuum tubes in the second generation of computers. The transistor was invented at Bell Labs in 1947 but did not see widespread use in computers until the late 1950s. The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than their first-generation predecessors. Though the transistor still generated a great deal of heat that subjected the computer to damage, it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output. Second-generation computers moved from cryptic binary machine language to symbolic, or assembly, language.

Third Generation: Integrated Circuits (1964-1971) The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and

efficiency of computers. Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

Fourth Generation: Microprocessors (1971-Present): The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. The Intel 4004 chip, developed in 1971, located all the components of the computer—from the unit and memory to input/output controls—on a single chip. In 1981 IBM introduced its first computer for the home user, and in 1984 Apple introduced the Macintosh. Microprocessors also moved out of the realm of desktop computers and into many areas of life as more and more everyday products began to use microprocessors. As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet. Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.

Fifth Generation: Artificial Intelligence (Present and Beyond): Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come. The goal of fifth-generation computing is to develop devices respond to natural language input and are capable of learning and self-organization.

Q4: Differentiate between Volatile & Non- Volatile memories.
ANSWER.

Volatile Memory	**Non-Volatile Memory**
• Volatile memory is the type of memory in which data is lost as it is powered-off.	• Non-volatile memory is the type of memory in which data remains stored even if it is powered-off.
• Contents of Volatile memory is stored temporarily.	• Contents of Non-Volatile memory is stored permanently.
• It is faster than non-volatile memory.	• It is slower than volatile memory.
• RAM(Random Access Memory) is an example of volatile memory.	• ROM(Read Only Memory) is an example of non-volatile memory.
• In volatile memory, data can be easily transferred in comparison to non-volatile memory.	• In non-volatile memory, data cannot be easily transferred in comparison to volatile memory.

Q6: b) Write steps regarding followings

- To change the font style

ANSWER. M.S Word allows you to change the font style of your text. The basic steps to change the font style are:-

  - Select the text you want to modify.
  - Go to home tab.
  - Click the dropdown button
  - Select any font style. (choose any font style)
  - Click left select the desired font style.
  - If you want to change the font to bold or italic, then click the ‘B’ or ‘I’ icons on the format bar.

- To change the font size

ANSWER.

- Select the font you want to modify.
- Go to home tab.
- Click to dropdown button
- Select any font size.
- Left click select the desired the font size.

➢ To change the font color
ANSWER.

- Select the text you want to modify.
- Go to home tab.
- Click the dropdown arrow next to font color button.
- Font color menu appears.
- Select the desired font color with left click
- Word will change the font color of the select text.
