CCA-101: Fundamentals of IT & Programming

Assignment -1

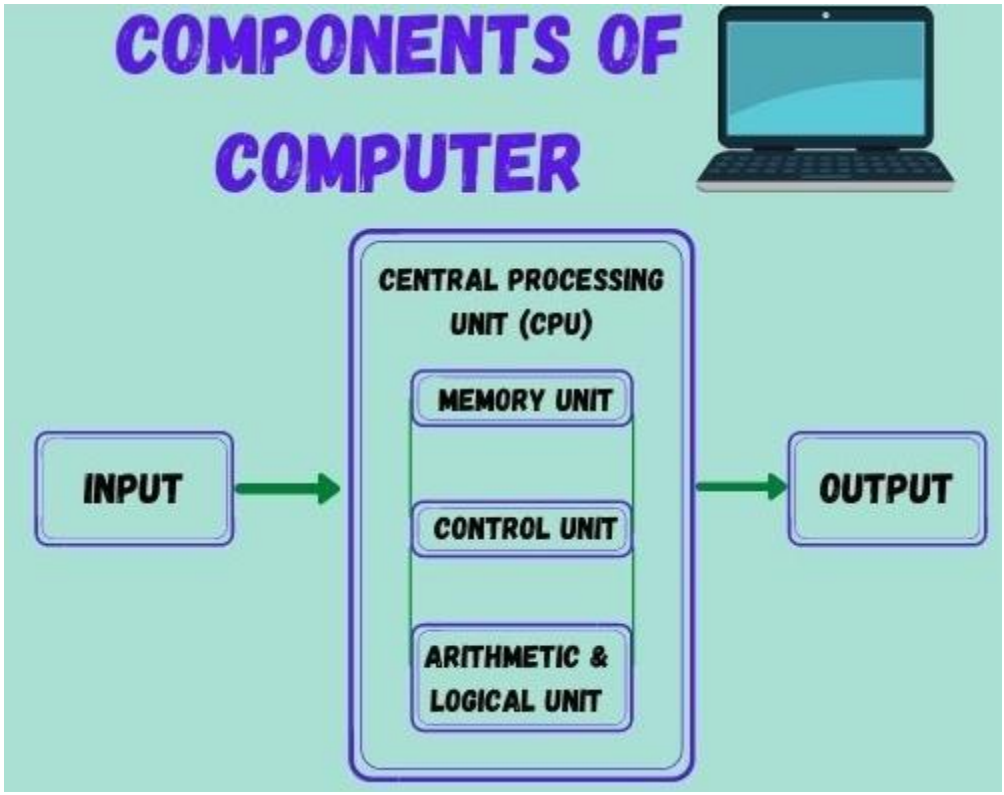
Q1: What are the four fundamental parts of computer? Explain it with the help of diagram.

A computer device is made up of various elements which help in its effective functioning and processing. There are five basic components of the computer which help in making this processing of data easier and convenient.

In this article, we shall discuss the basic computer components along with their functions. Also, for candidates preparing Computer Knowledge for upcoming competitive exams, sample questions based on this concept have been given further below in this article.By definition, components of a computer system are the primary elements which make the functioning of an electronic device smooth and faster. There are five basic components which include:

1. Input Unit
2. Output Unit
3. Memory Unit
4. Control Unit
5. Arithmetical and Logical Unit

To have a better understanding of the Fundamentals of Computer, visit the linked article.
The exterior of any computerized device may look different and may also have varied features, but the basic components remain the same for their functioning.
Since the computers (in various forms) have become a part of everyday life, understanding these components of a computer system is important for everyone. As for Government exam aspirants, questions based on these may be asked in the form of multiple-choice questions in the final exam. Thus, preparing yourselves accordingly is also important



- ## Input Unit

A computer will only respond when a command is given to the device. These commands can be given using the input unit or the input devices.
For example: Using a keyboard we can type things on a Notepad and the computer processes the entered data and then displays the output of the same of the screen.
The data entered can be in the form of numbers, alphabet, images, etc. We enter the information using an input device, the processing units convert it into computer understandable languages and then the final output is received by a human-understandable language.

- ## Output Unit

When we command a computer to perform a task, it reverts for the action performed and gives us a result. This result is called output. There are various output devices connected to the computer. The most basic of which is a monitor. Whatever we write using a keyboard or click using a mouse, is all displayed on the monitor.
Thus, the output unit gives us the final result once the entire processing is done within the mechanism of a device.
For example: when we visit an ATM, we enter our details like language, pin, amount to be withdrawn, etc. and then the final money which the cash dispenser releases is our outcome. In this case, the cash dispenser acts as an output unit.
To get a list of computer input and output devices and the function of the various I/O devices, visit the linked article.

For better understanding and more interactive analysis of the components of the computer, candidates can check the video given below and get detailed information reading the five major components responsible for the functioning of a computer device.

- ## Memory Unit

When we enter the data into the computer using an input device, the entered information immediately gets saved in the memory unit of the Central Processing Unit (CPU). Because of the presence of some existing programming, the Memory Unit transmits the data further to the other parts of the CPU.
Similarly, when the output of our command is processed by the computer, it is saved in the memory unit before giving the output to the user.

- ## Control Unit

This is the core unit which manages the entire functioning of the computer device. It is one of the most essential components of the computer system.
The Control Unit collects the data entered using the input unit, leads it on for processing and once that is done, receives the output and presents it to the user. It can be said to the centre of all processing actions taking place inside a computer device.
Basically, the instructions taken, interpretation of entered data, issuing signals to execute the data and then finally retrieving the data is all done in the Control Unit.

- ## Arithmetic & Logical Unit

As the name suggests, all the mathematical calculations or arithmetic operations are performed in the Arithmetic and Logical Unit of the CPU.
It can also perform actions like a comparison of data and decision-making actions. The ALU comprises circuits using which addition, subtraction, multiplication, division and other numerical based calculations can be performed.

Central Processing Unit (CPU)

The Central Processing Unit is the core of any computer devices. It comprises three major components of the computer which have been discussed above:

- Memory Unit
- Control Unit
- Arithmetic and Logical Unit

All these three units are elements of CPU and together help in the efficient working and processing of data. It is also known as the “Brain of Computer” and no action can be conducted by a device without the execution and permission of the Central Processing Unit.

The device is a close-knit circuit comparison microprocessor which helps in fetching the data and proving suitable results to the user. Thus, CPU is the main processing unit of the computer.

Also, while discussing the various components of computers, it must be known that a device which is so complex and intricately made using circuits and wires comprises various other elements, which affects its overall programming and performance.

Given below are a few difference between articles with regard to Computer Awareness and will help in better understanding of the varied computer terms, programs and applications:

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

Introduction

Classification of computers are based on their architecture, speed of executing commands or instructions, peripheral used and also their uses. Microcomputers are usually used in home and offices and only a single user can perform the task using a microcomputer. Its storage and data handling capacity are limited as per the requirement for home and office work. The another type of computer is called minicomputer which has usually larger storage and can handle multiuser at a time. This chapter includes the classification of computers.

Computer's Classification

Computers are classified on different parameters, such as, storage capacity, processing speed and component (CPU) used in computers. Depending upon the components used and features of different computers, they are classified into four groups, Microcomputers, Minicomputers, Mainframe computers and Supercomputers.

Micro Computers

Micro Computer is a computer whose CPU (Central Processing Unit) is a microprocessor. All the components of a microprocessor are on a single integrated circuit chip. Micro computer can be categorized as the desktop, programmable and workstation. The microprocessor based computers are called third generation computers. They are the backbone of the modern computer era. The first and second generation computers are based on vacuum tubes and bipolar junction transistors.

Desktop Computers

Desktop computer is a type of microcomputer. A desktop computer has a keyboard for input data, a LCD or CRT monitor to display information and Central processing unit tower contains storage, memory, different types of drives, such as, CD drive, hard drive, etc. A desktop computer is mainly used at home and office applications.

Programmable Computers (PDA)

Personal digital assistance is a type of hand held programmable digital computer. It is used as notepads, address books and can connect to world web wave to share information. A PDA is equipped with mobile phone hence, called smallest computer.

Workstation

A workstation computer has greater memory capability and more extensive mathematical abilities. It is connected with other workstation computers or personal computer to exchange data and mostly used for scientific applications. It also supports multitasking applications.

Mini Computers

Minicomputers were introduced in early 1960s. They were faster than micro computers. Basically these computers were mainly multi-user systems, where many users work on the systems. Generally these types of computers had larger memories and greater storage capacity. They had large instruction set and address field. These kinds of computers have efficient storage for handling of text, in comparison to lower bit machines. Due to more efficient processor, speed and memory size, minicomputer was used in variety of applications and could support business applications along with the scientific applications. Minicomputer was a multi-user system which means more than one user could use this system simultaneously.

Mainframe Computers

Mainframe computers are large and expensive machines. The word length of mainframe computers may be 48, 60 or 64 bits, memory capacity being in some megabytes and storage capacity in some terabytes. Generally they handle huge volumes of information and data. In terms of speed, they are having significant processing capacity. They are used in research organizations, large industries, airlines reservation where a large database has to be maintained.

Super Computers

Super Computers are the fastest computer in current era. The processing capabilities of super computer lies in the range of GIPS2, word length 64-128 or may be in 256 or so. The memory capacity of super computer is in some gigabytes or in terabytes. The storage capacity of this type of computer is in exabytes.

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

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. Each generation has been discussed in detail along with their time period and characteristics. In the following table, approximate dates against each generation has been mentioned, which are normally accepted.
Following are the main five generations of computers.

S.No	Generation & Description
1	First Generation The period of first generation: 1946-1959. Vacuum tube based.

2	Second Generation The period of second generation: 1959-1965. Transistor based.
3	Third Generation The period of third generation: 1965-1971. Integrated Circuit based.
4	Fourth Generation The period of fourth generation: 1971-1980. VLSI microprocessor based.
5	Fifth Generation The period of fifth generation: 1980-onwards. ULSI microprocessor based.

Q4: Differentiate between Volatile & Non- Volatile memories.

Volatile and Non-Volatile Memory are both types of computer memory. Volatile Memory is used to store computer programs and data that CPU needs in real time and is erased once computer is switched off. RAM and Cache memory are volatile memory. Where as Non-volatile memory is static and remains in the computer even if computer is switched off. ROM and HDD are non-volatile memory.

On the basis of language in which software is developed and platform which is required for its execution, we can group different types of software into two categories: **System Software** and **Application Software**. Read through this article to find out more about System Software and Application Software and how they are different from each other.

System Software

Those computer software that control and monitor the computer hardware and provide essential functionality to the computer are called **system software**. Therefore, system software are essential parts of a computer, which means a computer cannot perform its functions without system software.

Application Software

A computer software which is developed to perform a specific function is known as an **application software.** Application software are also called end-user software because they are designed to use by users of the computer.

Q.5 Create a file in MS-word to insert a paragraph about yourself and save it with file name“yourself”. Describe all steps involved in it.

Step 1: Open Ms word on your system.

Step 2: Click on the new file when you open the word file when the dialog box appear.

Step 3: Once this click on Blank doc under the recent section, it will get in bold or highlighted by default.

Step 4: Click on the create A new blank doc will open.

Step 5: Once it is opened you can write anything you want in the doc for yourself.

Step 6: You can also edit the text you have written as you can change the background color ,or the text and many other things in the docs.

Q8. Create a file in MS-word for the following document and save it with file name ‘equations’. Describe all steps involved in it.

$X_2+Y_5=30$

Z^3+Q^4+30