INTRODUCTION TO COMPUTER HARDWARE SERVICING

MODULE 1:

Learning objectives :

- **In this module you are expected to learn about :**

1. What is computer hardware servicing?

2. The overview of Internal Components

3. What are the Peripheral devices?

4. Basic **Computer** system Architecture…

Computer hardware servicing..

Computer Hardware Servicing is the process of maintaining hardware components which include diagnosing issues, upgrading, and repairing the hardware of a computer. There can be done yourself or with an expert computer repair technician. Maintaining, and routine diagnosis of hardware can be done by individuals. However, you'll need a professional technician for upgrading, replace, or check internal hardware issues (if you don't have proper tools).

Internal components of computer

- The **internal components** of a computer system consist of the hardware required to process data and to allow the processor to communicate with other devices such as secondary storage, display screens, and printers.

The main internal components of a computer system are:

- Processor (CPU)

- Main memory

- Input/output (I/O) controllers

Processor (CPU)

- The **processor**, sometimes referred to as the CPU (central processing unit), is the part of the computer system that processes data by **executing program instructions**.

- Each processor is designed to carry out a specific set of operations and will have a defined instruction set.

- For the processor to be able to execute a program, the program instructions must first be transferred from secondary storage into main memory from where they are fetched, decoded, and executed.

Main memory

Main memory is memory that can be accessed directly by the processor.

- Each **memory location** has a **unique** physical **address**, which is a number used to locate that memory location and access its contents.

- Main memory is distinct from secondary storage, which the processor can't work with directly. Secondary storage must be accessed through input/output (I/O) controllers.

There are two main types of main memory:

- Random access memory (RAM), which is the used to provide **working memory** that is read from and written to by the processor during the fetch-decode-execute cycle

- Read-only memory (ROM), which is used to store information used during the boot sequence when the computer system is first powered on

RAM AND ROM

Input and Output of computer

- All external (peripheral) devices are connected to the processor through **I/O controllers**. These provide the mechanism for:

- input data to be received for processing from input devices, such as keyboards the results of computation to be sent to output devices, such as display screens

- Secondary storage devices are also connected to the processor through I/O controllers. Secondary storage, in contrast to main memory, cannot be accessed directly by the processor.

- I/O controllers provide a set of **addressable registers** that the processor (CPU) can access to communicate with the I/O devices. For example, the characters entered using a keyboard would be stored in an I/O controller that the processor (CPU) can access and process, such as displaying the characters on a screen.

Peripheral devices

- There are many types of computer peripherals, including input devices, output devices, storage devices, and networking devices. Common input devices include a keyboard, mouse, scanner, microphone, and webcam. Output devices include a printer, speaker, and display. Storage devices include external hard drives, USB flash drives, and SD cards. Networking devices include routers, modems, and network adapters.

Basic Architecture

- Computer architecture is the organization of the components which make up a computer system and the meaning of the operations which guide its function. It defines what is seen on the machine interface, which is targeted by programming languages and their compilers.

- Computer architecture comprises hardware, software, and communication components. The operation of a computer system depends on the central processing unit (CPU), memory, input/output devices, and storage devices, which is called computer architecture.
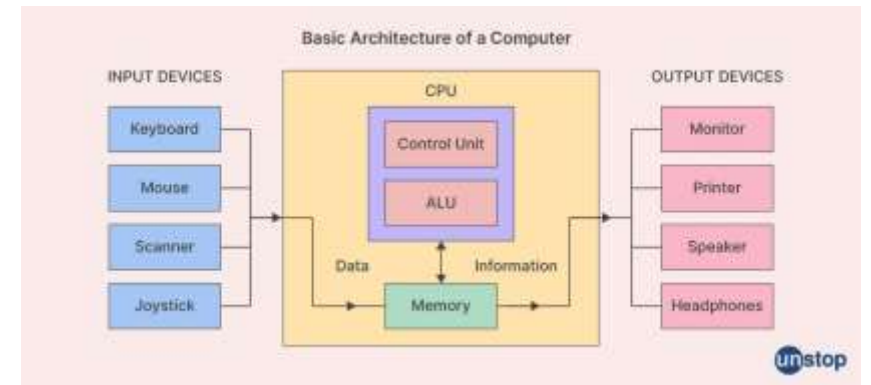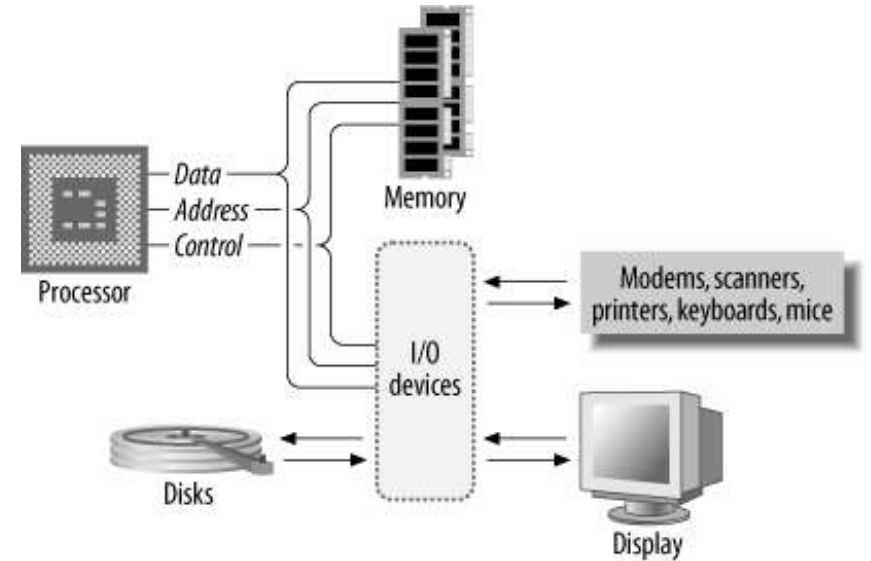
Computer Architecture comprises:

Hardware

Software

Communication components

Hardware

- Computer hardware includes the physical parts of a computer, such as the central processing unit, random access memory, motherboard, computer data storage, graphics card, sound card, and computer case. It includes external devices such as a monitor, mouse, keyboard, and speakers.
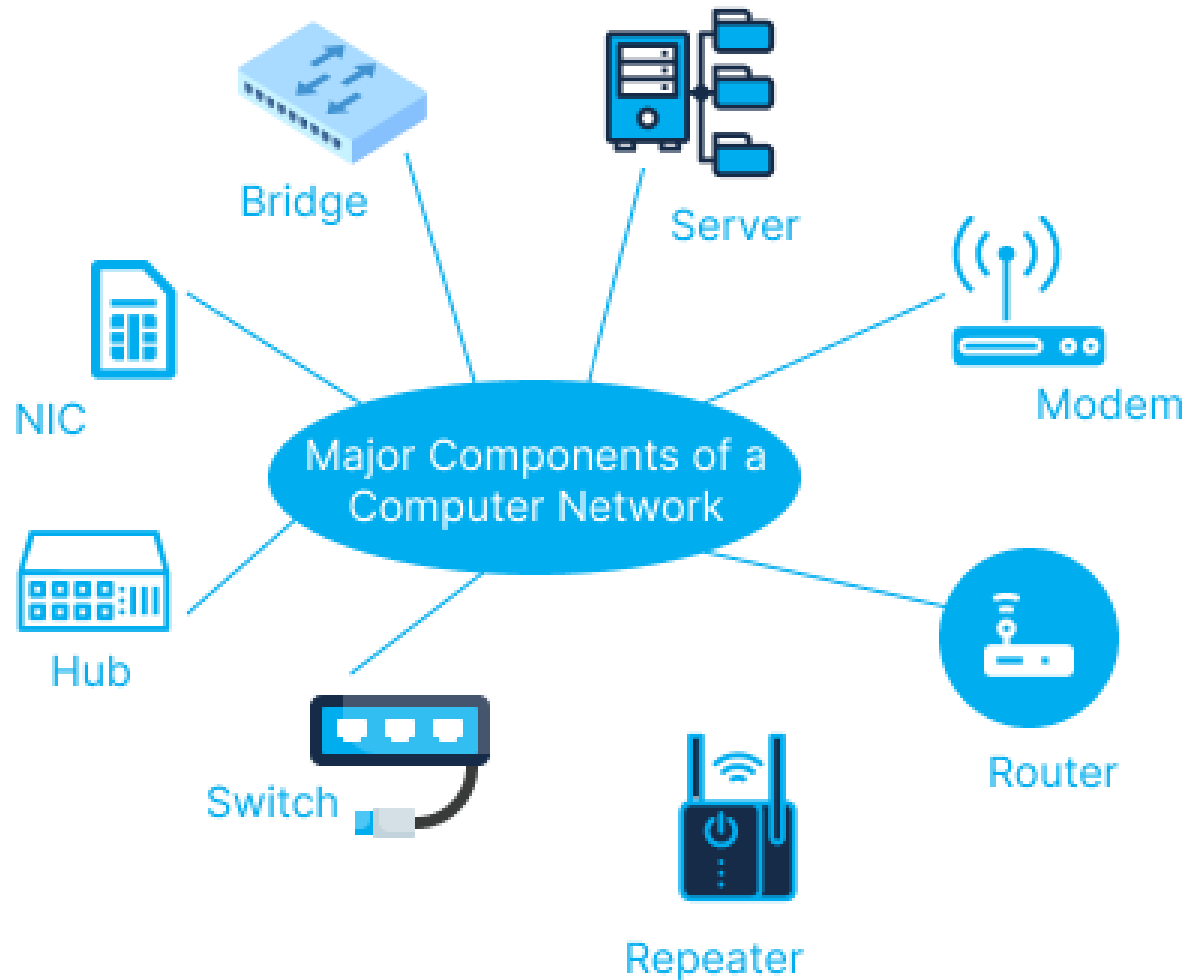

TYPES OF HARDWARE

Software

- Software consists of computer programs that instruct the execution of a computer. Software can be defined broadly to include design documents, specifications, and testing suites. The history of software is closely tied to the development of digital computers in the mid-20th century.
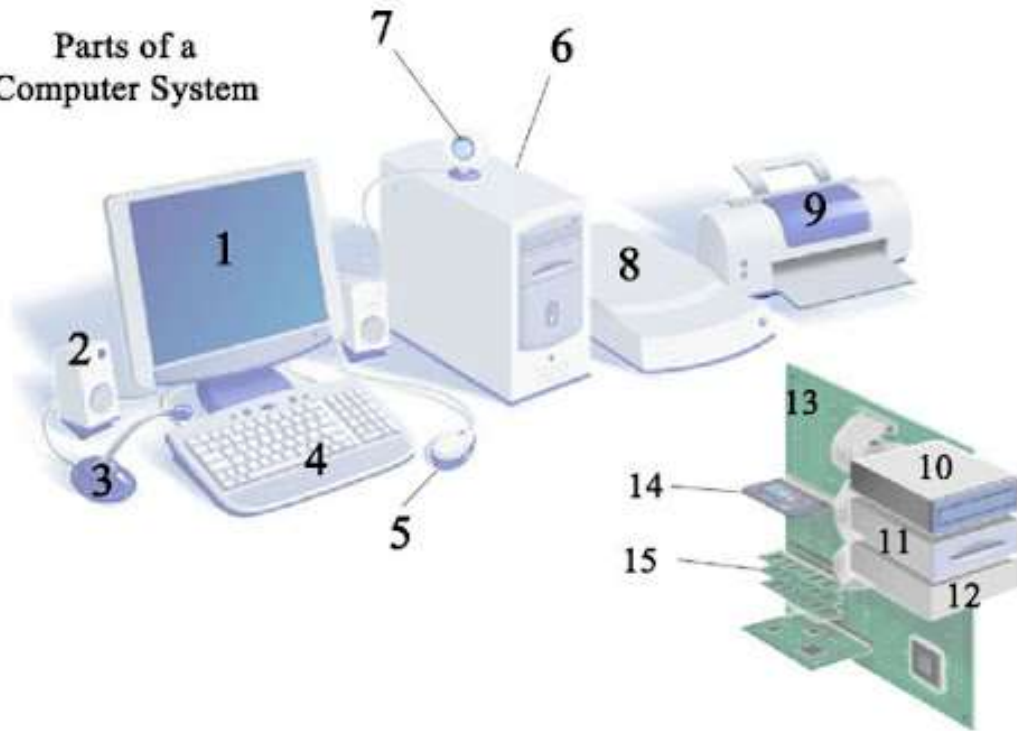
Communication Components

- Most computer systems use three of these lines: Data bus – Transmitting data from the CPU to memory and I/O devices and vice versa. Address bus – Carrying the address that points to the location the CPU wants to access. Control bus – Transferring control from one component to the other.

Parts of a Computer System

Assessment

(1-15) Label the parts of computer

Thank Youuu!!!