

**DR. BRR GOVERNMENT
DEGREE COLLEGE
JADCHERLA**



**DEPARTMENT OF
COMPUTER SCIENCE &
APPLICATIONS**

Academic Year: 2022-23

Workshop

on

“Computer Hardware and Network”

NOTICE

Date: 16-05-2023

All the B.A/ B.Com/ B.Sc Students are here by informed you that the Department of Computer Science and Applications is going to organize a one Day Workshop on the topic “**Computer Hardware and Network**” from 18-05-2023. Those who are interested can participate the workshop.

HOD


PRINCIPAL

Introduction:

A computer is a combination of two terms Hardware and Software. The physical components of a computer are called hardware. Pieces of hardware may be categorized according to the functions each performs: input, process, output, and storage. Your PC (Personal Computer) is a system, consisting of many components. Some of those components, like Windows XP, and all your other programs, are software. Software is the source of interaction between the user and the computer. It represents programs, collection of several sets of instructions, which allow the hardware to run properly. The stuff you can actually see and touch, and would likely break if you threw it out a fifth-story window, is hardware.

CONTENTS :

- 1.1 Computer Hardware
 - 1.1.1 Central Processing Unit
 - 1.1.2 Input Devices
 - 1.1.3 Output Devices
 - 1.1.4 Storage Devices
- 1.2 Network System
 - 1.2.1 Types of Networks
- 1.3 Computer Software
 - 1.3.1 System Software
 - 1.3.2 Application Software
- 1.4 Summary
- 1.5 Review Questions

OBJECTIVES: To impart the skills needed to assemble a PC, PC troubleshooting, installation of system/application software. Student can prepare cables for LAN, assign IP's to machines.

After studying this unit, you will be able to:

- Explain the concept of Computer Hardware
- Discuss the Input and Output Devices
- Describe network system
- Explain the concept of Computer Software

1.1 Computer Hardware:

Hardware of a computer is made up of complex electronic circuits. For a user the details of the circuitry are not important. However, the hardware units with which a user has to interact must be clearly understood. For convenience, the hardware of a computer can be classified in the following categories:

1. Input Devices
2. Output Devices
3. Central Processing Unit (CPU)
4. Memory or Storage
5. Motherboard

Let us discuss each of these hardware components:

1. **Input Devices:** The form in which data is available to a user is not always in the same form as is accepted by computer hardware. Input devices are hardware equipment that receive data and instructions from users, convert the data and instructions into a form that can be processed by the computer and passes the same to the computer. Hence, if you have to enter employees' names into the computer you do not have to write it on a piece of paper and shove the paper inside the computer. You will need some input device for this.

Example: A keyboard is an example of input device.



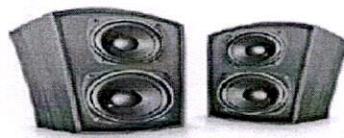
Common Input Devices of Computer

2. **Output Devices:** The result, produced by a computer after processing, is not always in user readable form. An output device is hardware equipment that translates this non-readable result into a form understood by the users.

Example: A VDU (Visual Display Unit) or monitor is an example of output device.



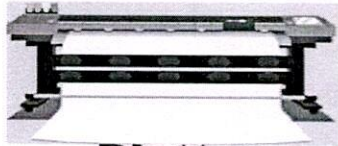
Monitor



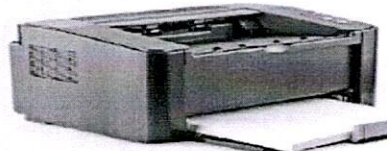
Speaker



Headphones



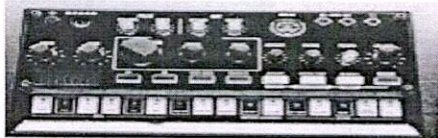
Plotter



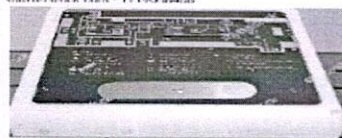
Printer



Projector



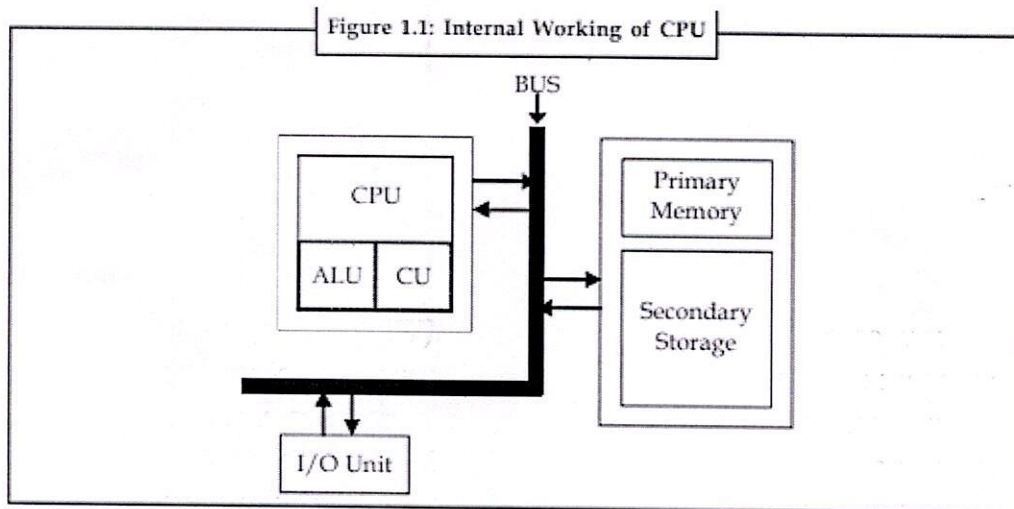
Speech synthesizer



Braille reader

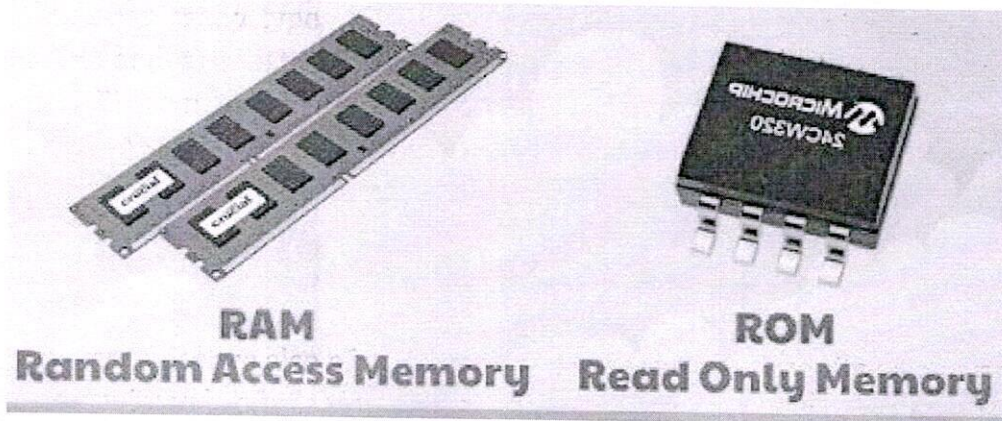
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3. **Central Processing Unit (CPU):** Central processing unit is to computer what brain is to our body. It is the master organ of a computer. No computer can exist without a CPU. It is composed of two simpler hardware units - Arithmetic Logic Unit (ALU) and Control Unit (CU). CU controls all the activities of other hardware units while ALU performs all the calculations. Computer CPUs are very fast in their calculations and swift in control.

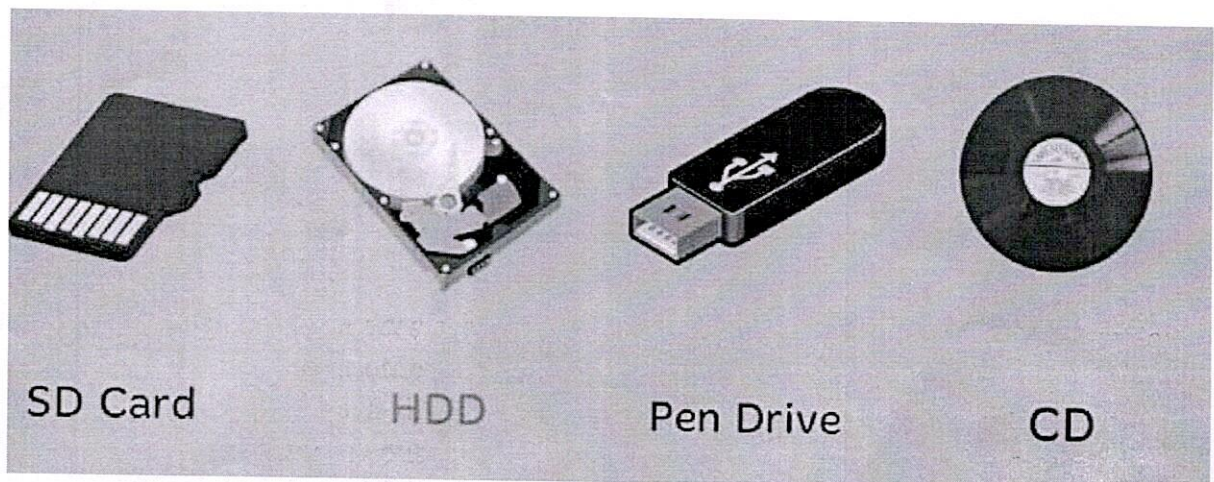


4. **Memory or Storage:** This hardware is the place where a computer stores all the data and instructions given to it. The results of the processing are also stored here. A computer has many types of memories. Some memories are directly connected to the CPU and are extremely fast as far as storage and retrieval of data is concerned. These memories are called primary memory - RAM (Random Access Memories) and ROM (Read Only Memories) belong to this category of memories. The CPU takes data and instructions stored only in the primary memories.

Primary memories are also of various types. The one that loses its contents when power is switched off is known as volatile memory such as RAM. Some memories retain the data and instructions stored on them even after the power is switched off such as ROM. These memories are known as non-volatile memories.



Secondary storage devices are placed outside the system unit and can be carried from one system to another allowing portability of data and instructions. Floppy disks or diskettes, hard disks and CD-ROM are some of the secondary storage devices. Input devices, output devices and secondary storage devices are not directly connected to the CPU and hence are known as peripheral devices or simply peripherals



1.2 Network System

The worldwide system of computer networks is the Internet, a network of networks. Via the Internet, computers on the network can access other computers on the network. The Internet allows data to be moved from one computer to another.

The network system manages how data is transferred from one computer to another and how different components of a network system work together. Figure 1.18 illustrates the network components needed for a computer to communicate to other computer via the Internet

Types of Networks

Computer networks are of three types:

1. Local area networks (LAN)
2. Metropolitan area networks (MAN)
3. Wide area networks (WAN)

We shall discuss each of these in detail.

1. Local Area Network (LAN)

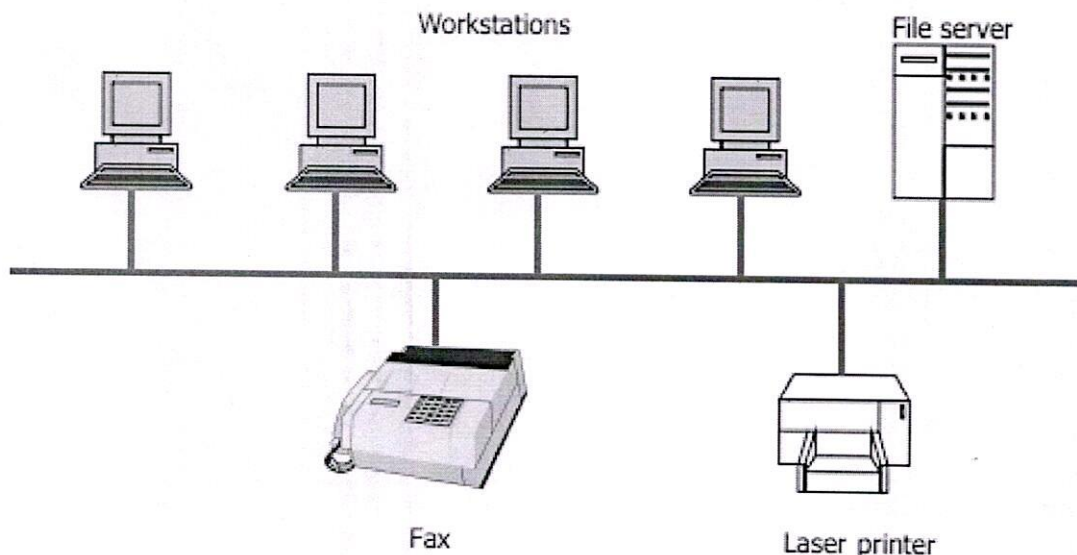
A Local Area Network (LAN) is a group of computers and associated devices that share a common communications line or wireless link and share the resources of a single processor or server within a small geographic area usually within an office building. Usually, the server has applications and data storage that are shared in common by multiple computer users. A local area network may serve as few as two or three users (for example, in a home network) or as many as thousands of users.

LANs have become commonplace in many organizations for providing telecommunications network capabilities that link end users in offices, departments, and other work groups. In summary, a LAN is a communications network which is:

- Local i.e. one building or group of buildings
- Controlled by one administrative authority
- Assumes other users of the LAN are trusted
- Usually high speed and is always shared

Some applications performed by a LAN are as follows:

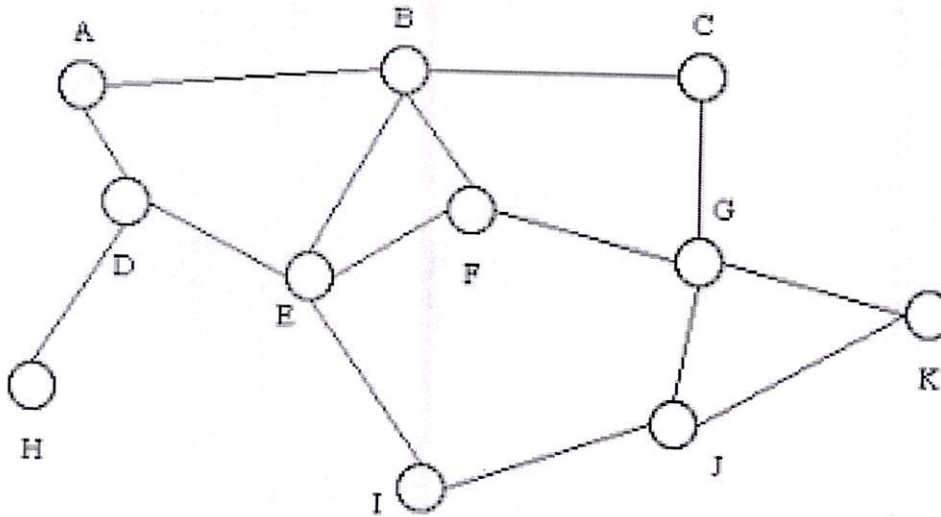
1. File transfer and access
2. Accessing the internet
3. Providing Management Information System.



2. Wide Area Network (WAN)

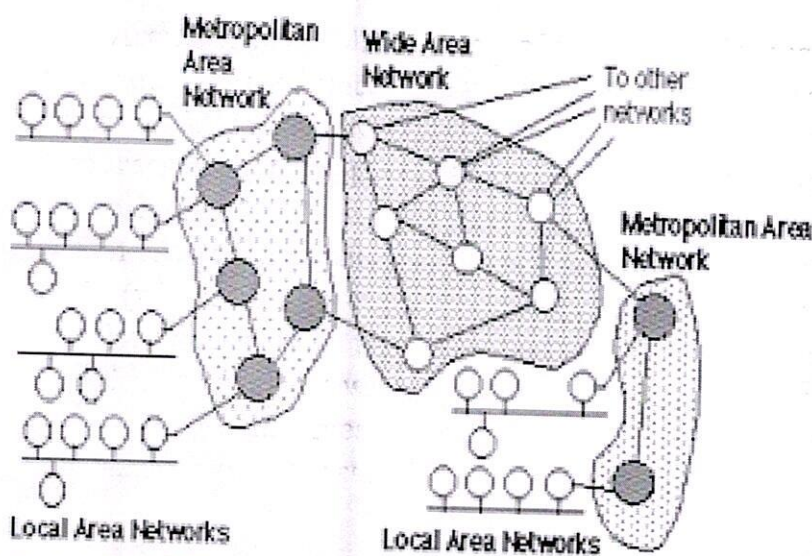
Wide Area Network (WAN) is a telecommunication network which covers a large geographical area, and uses communications circuits to connect the intermediate nodes. A wide area network spans a wide geographical area such as a state or country. Numerous WANs have been constructed, including public packet networks, large corporate networks, military networks, banking networks, stock brokerage networks, and airline reservation networks. WANs are used for many different purposes. Some are designed as a communications backbone for a large distributed organisation. Other WANs focus on particular transaction packages. Many WANs are used to transfer and consolidate corporate data, such as daily transaction summaries from branches. Some WANs are very extensive, spanning the globe, but most do not provide true global coverage. A major factor which influences WAN design and performance is the requirement of lease communications circuits from telephone companies or other communications carriers.

Transmission rates are typically 2 Mbps, 34 Mbps, 45 Mbps, 155 Mbps, 625 Mbps or sometimes even more. A WAN system is shown in the figure 1.20. This connects a number of End Systems and a number of Intermediate Systems to form a network over which data may be communicated between the End Systems.



3. Metropolitan Area Network (MAN)

A Metropolitan Area Network (MAN) is one of a number of types of networks. A MAN is a relatively new class of network; it serves a role similar to an ISP, but for corporate users with large LANs. It is a network that interconnects users with computer resources in a geographical area larger than that covered by even a large local area network (LAN) but smaller than the area covered by a wide area network (WAN). The term is applied to the interconnection of networks in a city into a single larger network (which may then also offer efficient connection to a wide area network). It is also used to mean the interconnection of several local area networks by bridging them with backbone lines. This is sometimes referred to as a campus network. Large universities also sometimes use the term to describe their networks. A recent trend is the installation of wireless MANs.



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Student Attendance of Workshop

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9	210330064681029	K. Lavanya	Lavanya
10	210330064681031	M. Anitha	M. Anitha
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13	210330064681049	Y. Kavitha	Y. Kavitha
14	210330064681034	Nazreen Suthana	Nazreen
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18	210330064681046	V. Laxmi kanth	Laxmi kanth.
19	210330064681014	E. Rajitha	Rajitha
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21	210330064681007	B. Harshith	Harshith
22			

