

PRACTICAL NO. 1

➤ AIM: -

Identify major components and sub-systems of Personal Computer by visual examination.

➤ EQUIPMENTS AND MATERIALS:

- Tool Kit
- CPU

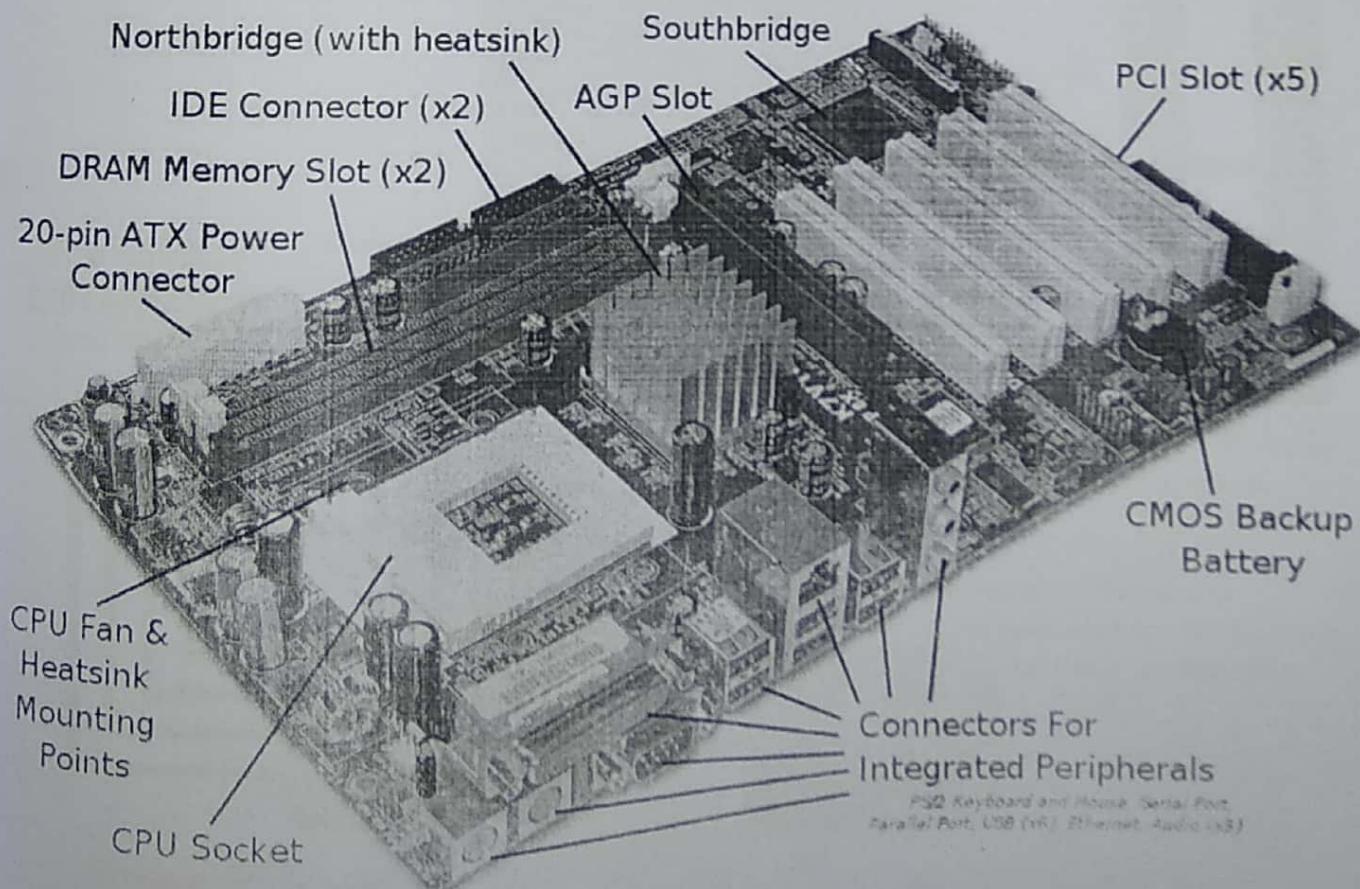
➤ THEORY: -

• MOTHERBOARD:

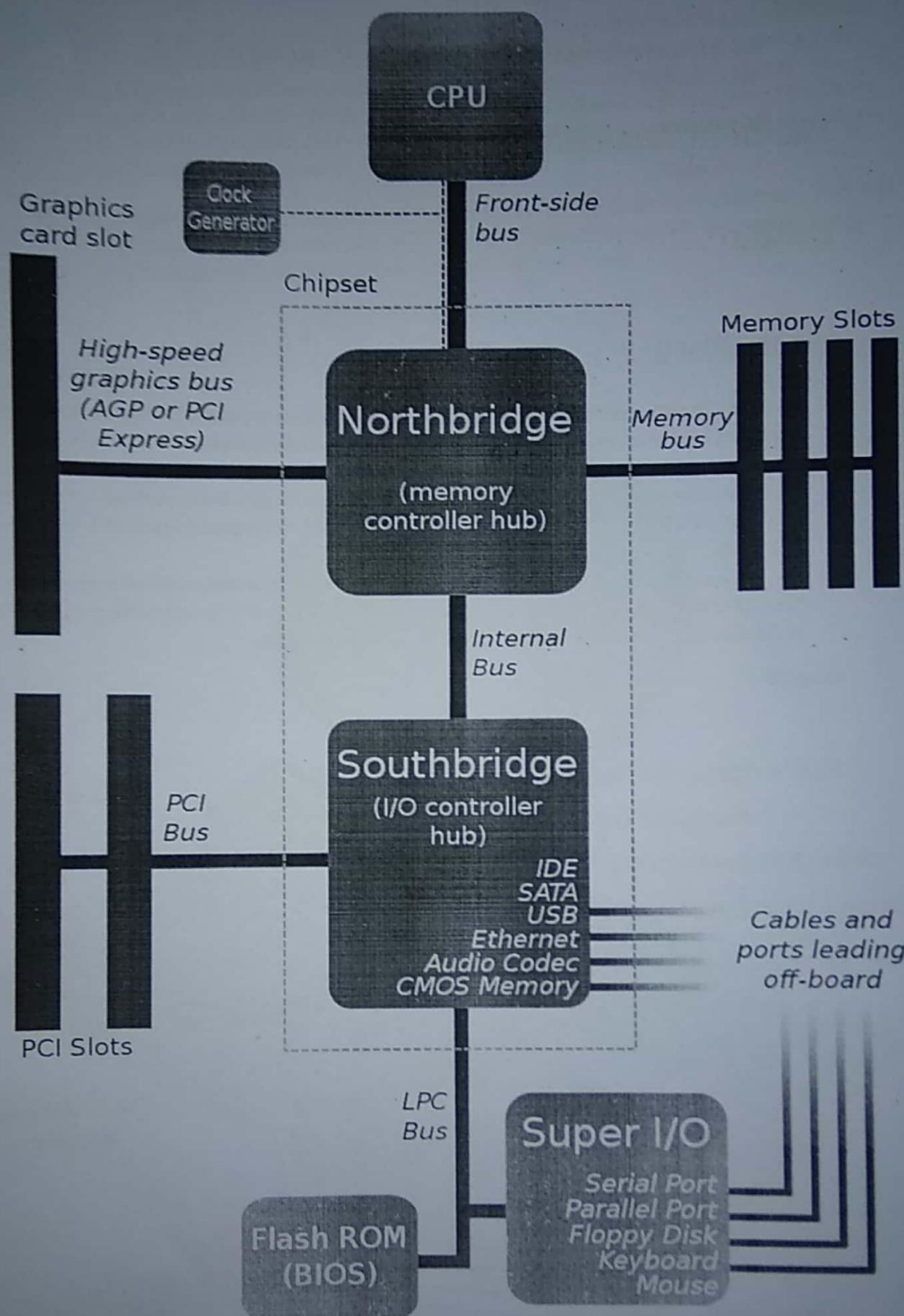
Functions:

1. The motherboard, also referred to as the main circuit board, is considered the home base of many important computer hardware elements, including the central processing unit (CPU), memory, sound cards and other peripheral items.
2. During use, the motherboard establishes vital electronic connections between these various hardware units to ensure that tasks undertaken by the user are completed successfully and efficiently.
3. The process of managing all these connections in real time is demanding on the motherboard. Because of this, cooling fans are often attached to motherboards to help control the temperature and ensure that all hardware remains protected from heat damage.

Diagram:



- Architecture:



- CMOS BATTERY:

Functions:

1. CMOS (complementary metal-oxide-semiconductor) is a chip on the motherboard that contains BIOS configuration, date, time and other information that the computer needs during startup. Normally, this information would be lost when the computer is shut down or loses power for some reason (dead battery, power failure, etc.). The CMOS battery supplies power to the CMOS chip, even when the computer is shut down. This battery is usually a watch type batter which can supply power for a year or more.
2. One of the most common signs that your CMOS battery is failing is your computer being unable to keep time and date even after being reset in the BIOS. Sometimes you will see error messages during boot such as, "CMOS checksum error" or "CMOS read error".

Diagram:

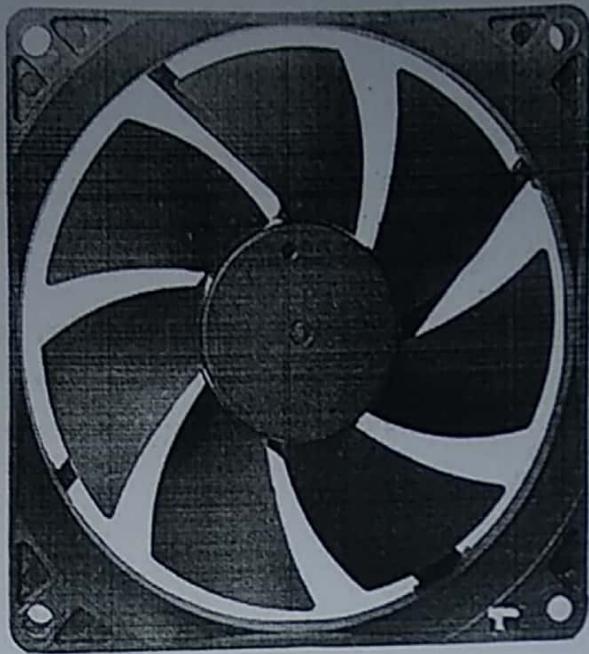


- COOLING FAN:

Functions:

1. A cooling fan is made to flow cooler air over hot areas in a computer and then exhaust it outside the computer. It could be an intake fan, exhaust fan, and sometimes an internal fan to cool something specific.
2. Fans cool the CPU, more powerful GPUs, and sometimes the RAM, Hard Disk Drives and occasionally the I/O chip parts on a motherboard. The Power Supply normally has a fan built into it. And even when liquid cooling is used, it eventually needs to have a fan move air through a radiator to get rid of the heat.

Diagram:



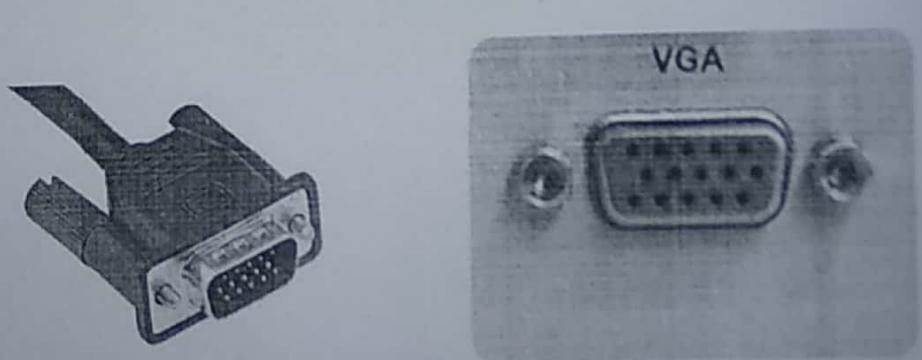
- **Ports:**

VGA:

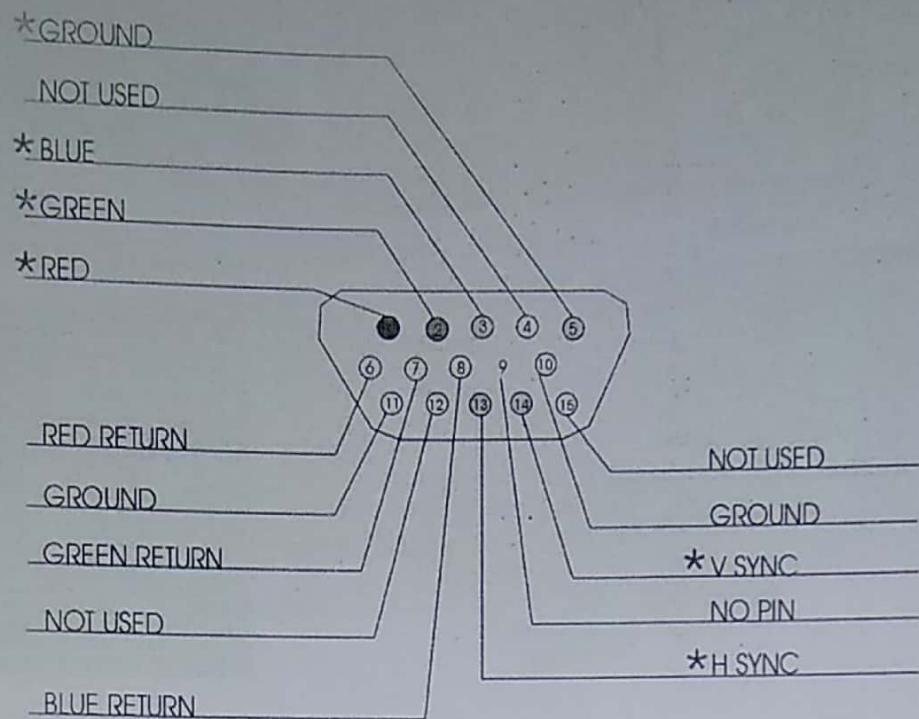
Functions:

1. Connect one end to: computer monitor, television (PC input port)
2. Connect other end to: VGA port on computer

Diagram:



Standard VGA Cable Pinout

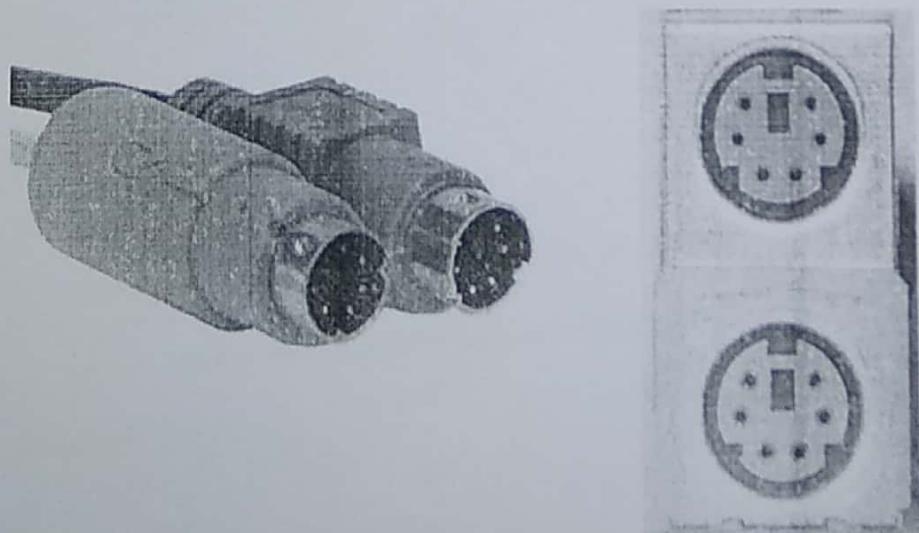


PS2:

Functions:

1. Connect one end to: PS/2 keyboard, PS/2 mouse
2. Connect other end to: PS/2 ports on computer
 - Purple PS/2 port: keyboard
 - Green PS/2 port: mouse

Diagram:

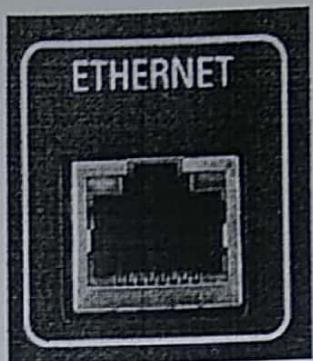
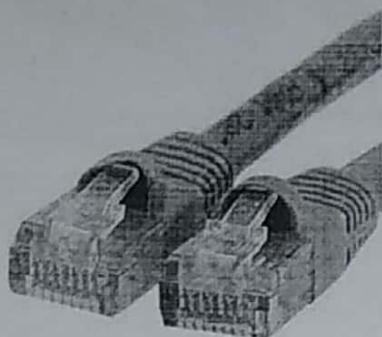


Ethernet:

Functions:

1. Connect one end to: router, network switch
2. Connect other end to: Ethernet port on computer

Diagram:

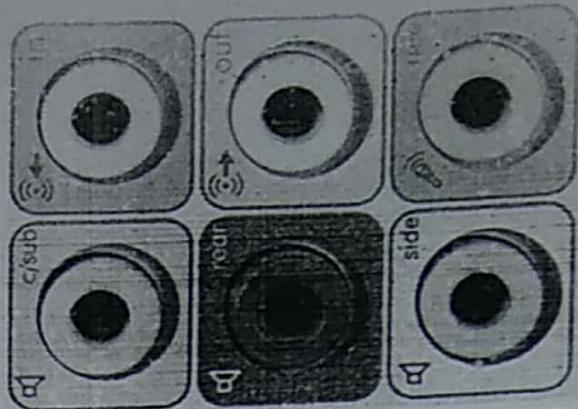
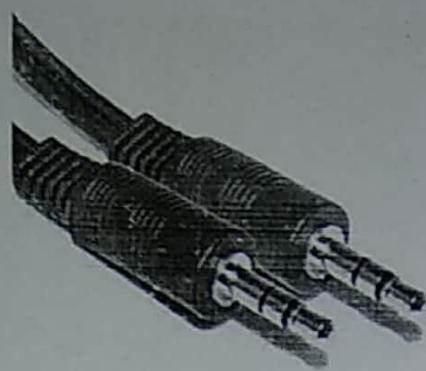


Audio:

Functions:

1. Connect one end to: computer speakers, 3.5mm headphones, 3.5mm microphone
2. Connect other end to: audio ports on computer
 - Green audio port: computer speakers or headphones
 - Pink audio port: microphone
 - Blue audio port: MP3 player, CD player, DVD player, turntable, electric guitar etc (line-in port to play and record sounds from the above devices)

Diagram:



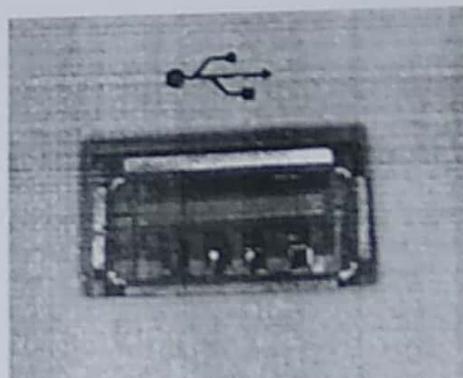
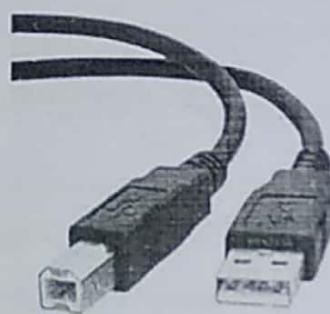
Port	2-Channel	4-Channel	6-Channel	8-Channel
Blue	Line In	Line In	Line In	Line In
Lime	Line Out	Front Speakers	Front Speakers	Front Speakers
Pink	Mic In	Mic In	Mic In	Mic In
Orange			Center/Subwoofer	Center/Subwoofer
Black		Rear Speakers	Rear Speakers	Rear Speakers
Grey				Side Speakers

USB:

Functions:

1. Connect one end to: USB device
2. Connect other end to: USB ports on computer

Diagram:

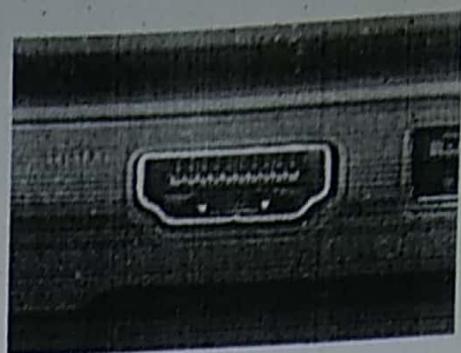
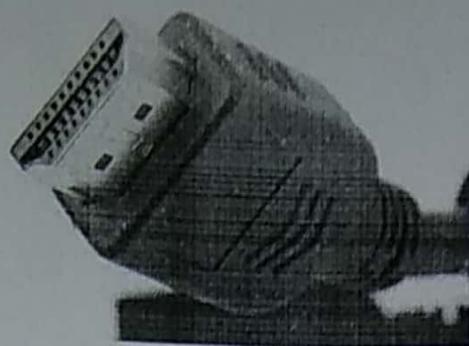


HDMI:

Functions:

1. Connect one end to: computer monitor, television
2. Connect other end to: HDMI port on computer

Diagram:

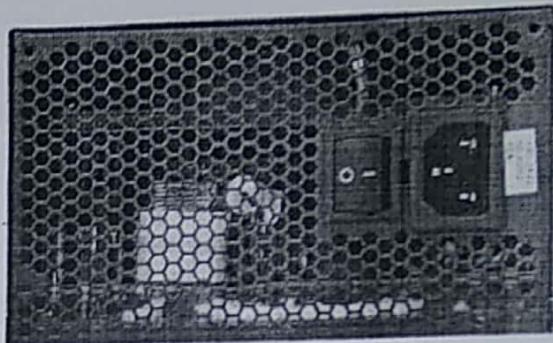
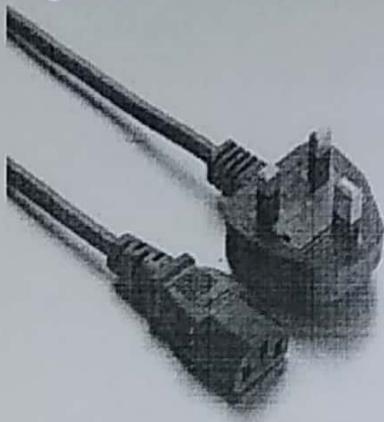


POWER:

Functions:

1. Connect one end to: AC power socket
2. Connect other end to: computer monitor

Diagram:

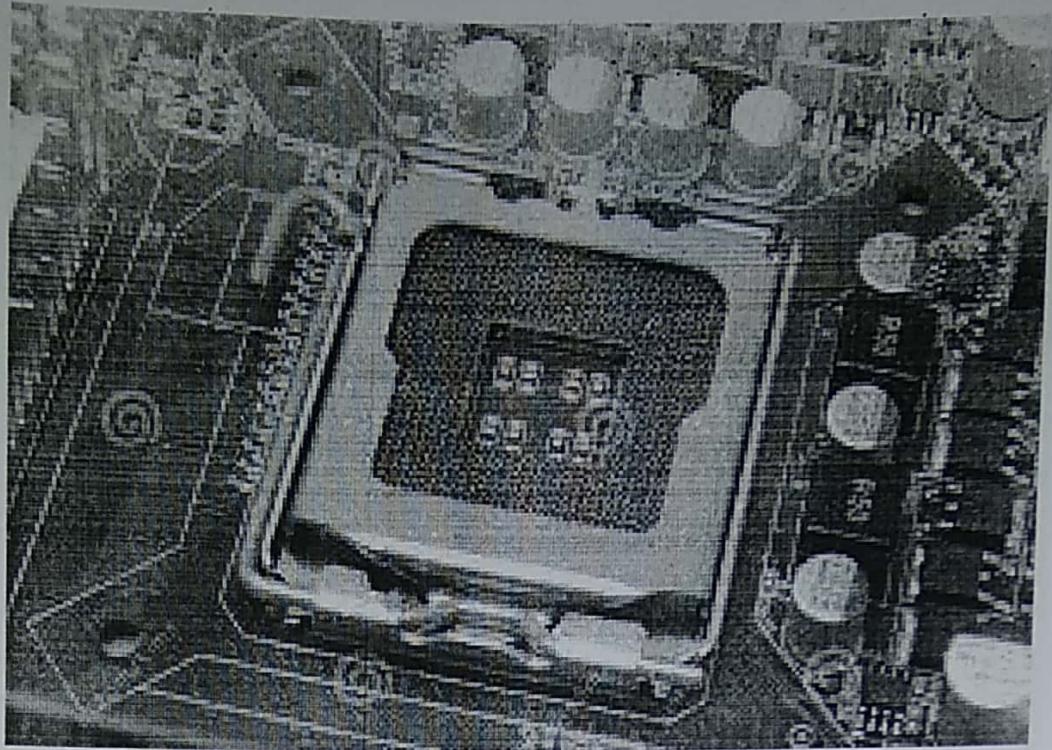


- **CPU Socket:**

Functions:

1. A CPU socket is a mechanical connection.
2. Its main function is to serve as a connection that holds the CPU and allows it to communicate with the motherboard.

Diagram:



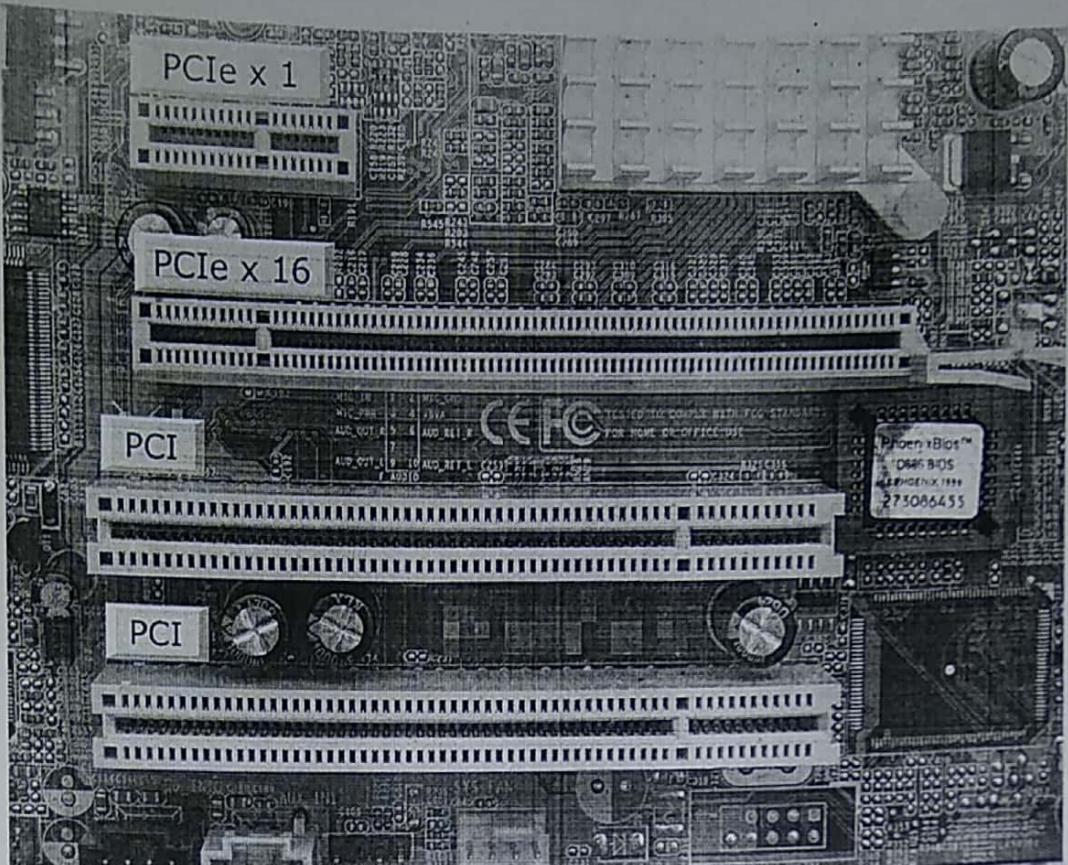
- **Slots:**

A **slot** is a computer processor connection designed to make upgrading the processor much easier, where the user would only have to slide a processor into a slot.

Types:

1. **PCI Express:** The best type of expansion slot to have in your PC is the PCI Express, also written as PCIe. Without boring you, the PCI Express type of expansion slot communicates with the motherboard, and therefore with the microprocessor, both quickly and efficiently.
2. **PCI:** The PCI slot is the most common form of internal expansion for a PC.
3. **AGP:** This type of expansion slot was specifically designed to deal with graphics adapters. In fact, AGP stands for Accelerated Graphics Port. Older PCs may sport this expansion slot, but the best video cards use PCI Express.
4. **ISA:** The most ancient type of expansion slot is the ISA, which stands for (get this) Industry Standard Architecture. That's because it never really had a name until another, better type of expansion slot came along. ISA slots hang around to be compatible with older expansion cards.

Diagram:

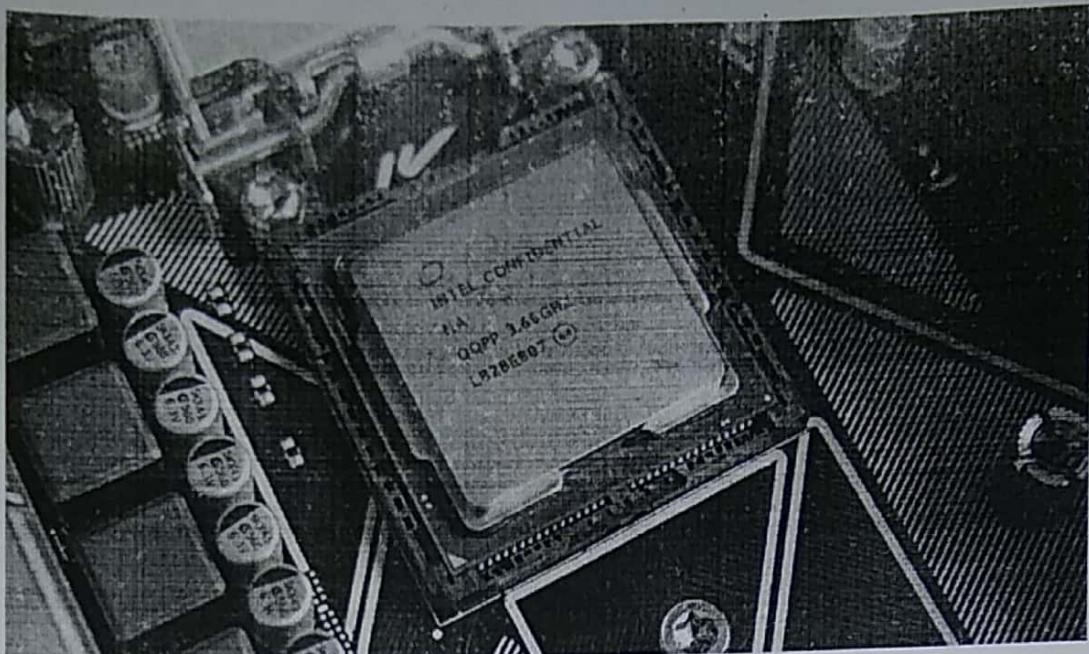


- **CPU Chipset:**

Functions:

1. The CPU still needs help before it can handle every specific input, output, and control signal that it exchanges with the computer memory, input, and output devices.
2. Each motherboard also has a set of Integrated Circuit Chips called a *chipset* that converts all these generic CPU signals to and from the instructions and data that each component expects.
3. Think of a chipset as a gatekeeper which aids the CPU in deciding what has to be done with each block of data.
4. It also directs the inputs and outputs to the right destinations at the right speeds in an appropriate, prioritized sequence.
5. One of the most important characteristics is what type of chipset is being used with what type of CPU for the particular compatible motherboard.
6. However, many motherboard manufacturers may offer several models that support the same CPU with various chipsets.

Diagram:

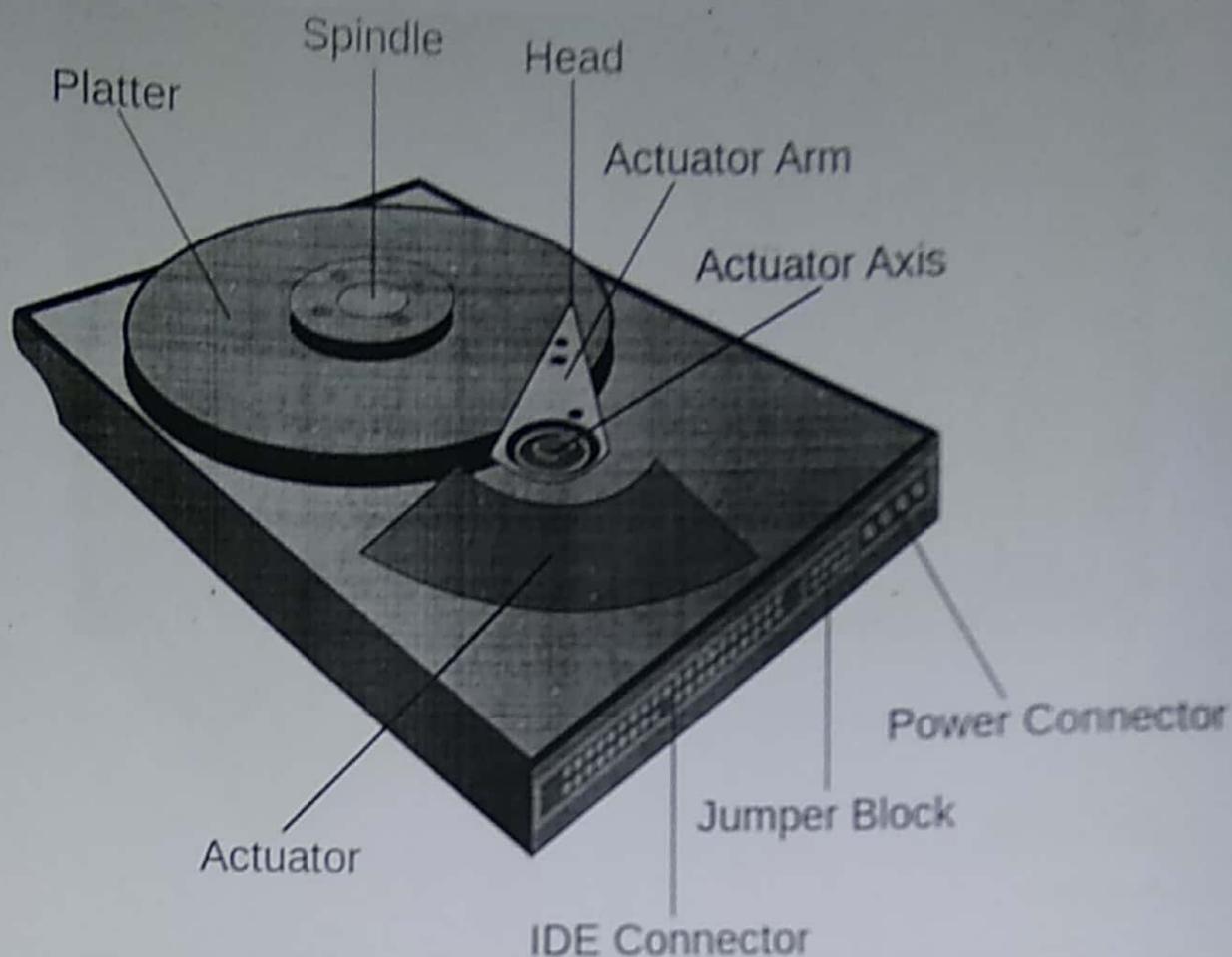


- **HARD DISK:**

Functions:

1. Hard Drive is short for Hard Disk Drive (HDD), which describes a device with a rotating disk and a head that reads information from the disk as it rotates. The HDD is used as storage in a computer, which means that when information is written to it, the information stays there even if the computer is turned off. So things like the operating system (e.g. Windows, Ubuntu, OS X) and programs (Photoshop, Word, Chrome) are stored as information on the HDD.
2. When a computer wants to run a program, it reads information from the HDD and writes it to 'memory' (often referred to as Random Access Memory or RAM) so that it can access it faster. Information in RAM can be retrieved by the processor much more quickly than from the HDD, but information in RAM is 'volatile', meaning it does not retain information once you power it down.
3. The whole process is like taking vegetables out of the fridge (HDD) and putting them on the counter (RAM) so that you (the processor) can chop them.
4. In today's computers, the HDD is ever more frequently replaced by a Solid State Drive, which has no moving parts (no rotating disk or head), giving it much faster 'read' speeds at the expense of being more expensive per unit. However, it still serves the same purpose as HDDs, so to be general, we refer to both HDDs and SSDs as storage.

Diagram:

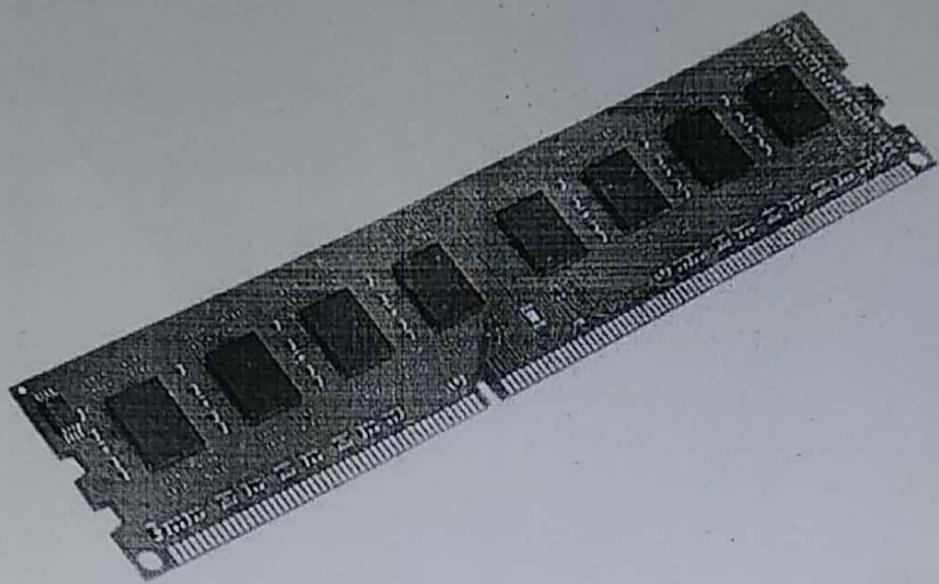


- **RAM:**

Functions:

1. Random-access memory (RAM) is a type of computer data storage. A RAM device makes it possible to access data in random order, which makes it very fast to find a specific piece of information. Certain other types of storage are not random-access. For example, a hard disk drive and a CD will read and write data in a predetermined order. The mechanical design of these devices prescribes that data access is consecutive. This means that the time it takes to find a specific piece of information can vary greatly depending on where it is located on the disk.
2. RAM devices are used in computer systems as the main memory. RAM is considered volatile memory, which means that the stored information is lost when there is no power. So, RAM is used by the central processing unit (CPU) when a computer is running to store information that it needs to be used very quickly, but it does not store any information permanently.
3. Present-day RAM devices use integrated circuits to store information. This is a relatively expensive form of storage and the cost per unit of storage is much higher than for devices like a hard drive. However, the time to access data is so much faster for RAM that speeds outweighs cost. A computer, therefore, uses a certain amount of RAM for fast-access, temporary storage of information and a much larger amount of non-random, permanent mass storage, like a hard disk drive. For example, a typical computer system may have two to eight GB (gigabytes) of RAM, while the storage capacity of the hard disk drive can be several hundred GB or even one TB (terabyte).

Diagram:

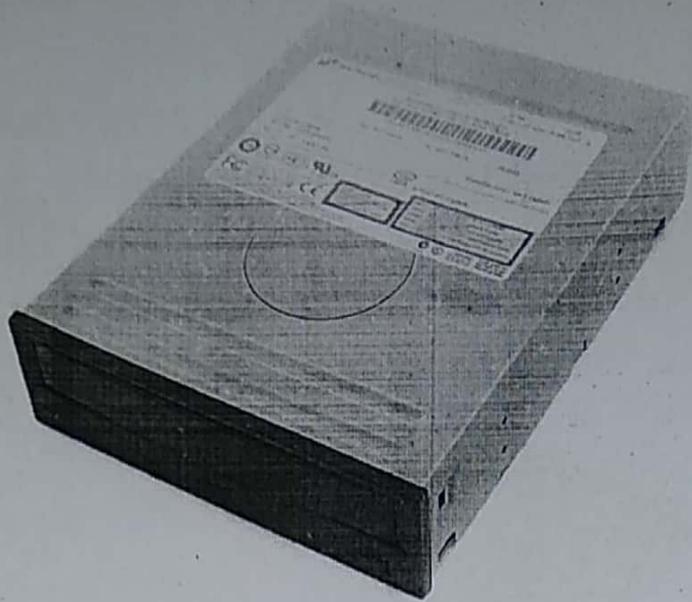


- **CD-ROM:**

Functions:

1. An acronym for Compact Disc Read-Only Memory, a CD-ROM is a storage medium for digital data. CD-ROMs can hold 650 MB or 700 MB.
2. CD-ROMs are non-writeable, meaning they have data already burned into them, which cannot be erased or written over, and no additional data can be added.
3. The main functions of a CD-ROM drive involve reading data on a compact disk and writing data on the same.
4. This drive also makes it possible to boot a computer from a cd with a bootable installation.

Diagram:

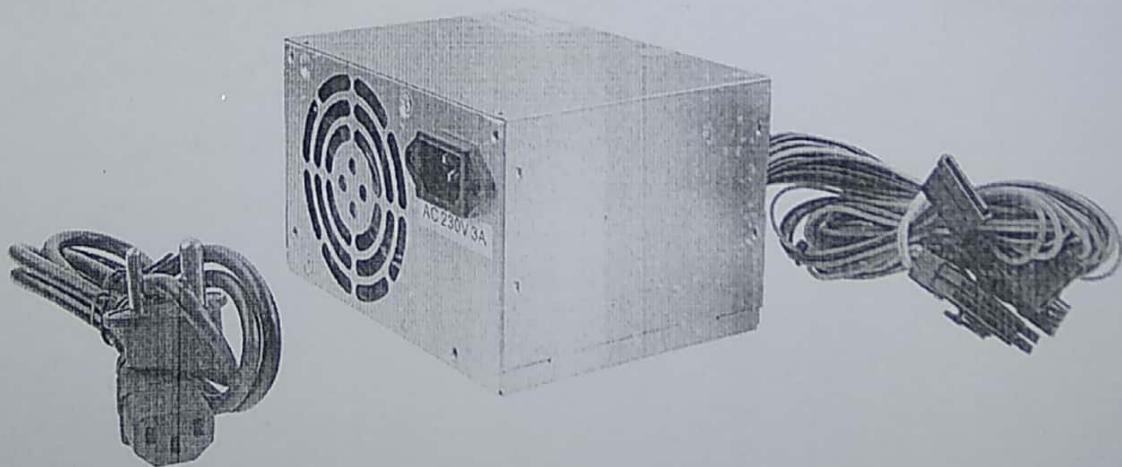


- **SMPS:**

Functions:

1. SMPS stands for switch-mode power supply. Its job is to convert wall-voltage AC power to lower voltage DC power. Most computer chips in modern computers require power in the general neighborhood of 1.2-3.3V, with some older devices requiring between 5-12V DC.
2. The SMPS uses an inductor to store energy in a magnetic field, and then by breaking the circuit, uses the reverse voltage spike from the collapsing magnetic field to store the energy in a capacitor at a lower voltage. A feedback circuit adjusts the switching rate to maintain the desired DC voltage at the output based on the present load. This is called a buck converter. A slight reconfiguration of the circuit results in a boost converter, which is used when the source voltage is lower than the desired output voltage.

Diagram:



➤ QUESTIONS FOR LEARNING:

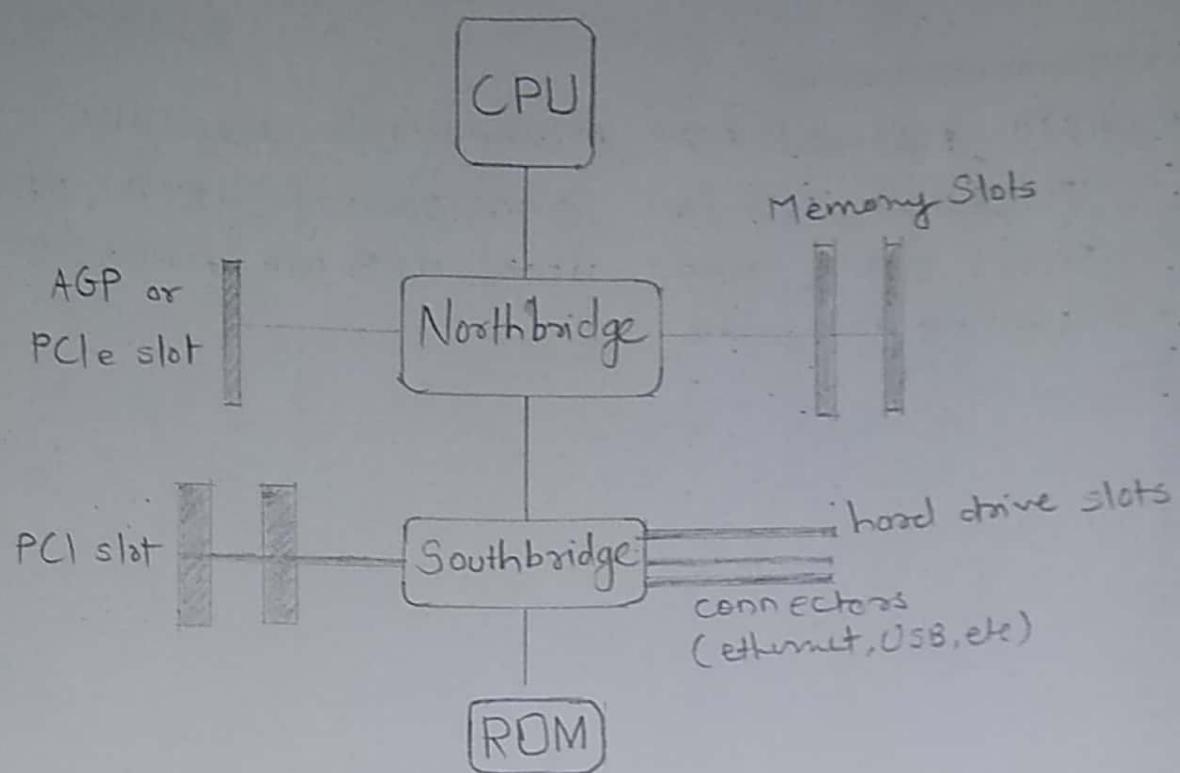
1. List the components of Motherboard.

→ RAM, ROM, CD-ROM, Microprocessor, Hard disk, CPU chipset, PS2 port, CMOS Battery, SATA, PATA, Power cable, SMPS, HDMI, USB port, Audio Jack, cooling fan, etc.

2. What is the use of SMPS?

- i. Maintain tool industries.
- ii. Security System.
- iii. Support supplies with PLC's
- iv. Used in battery charger
- v. Converts alternate current to direct current

3. Describe the architecture of Motherboard.



A motherboard is the main printed circuit board found in general purpose computers & other expandable systems.

Motherboard has main components, which are
Internal - PCI slots, AGP, ISA slot, CPU socket,
CMOS, etc.
External - PS/2 connectors, USB ports, Game ports, etc.

➤ Conclusion:

We have identified and understood the various component and their subsystem with each part, by visual examination, by assembling and disassembling the CPU.

					Teacher's sign

❖ PRACTICAL NO. 2

➤ AIM:

Identify the components that needed to convert a PC into a "multimedia PC".

➤ EQUIPMENT AND MATERIALS:

Personal Computer

➤ THEORY:

➔ Define "Multimedia"?

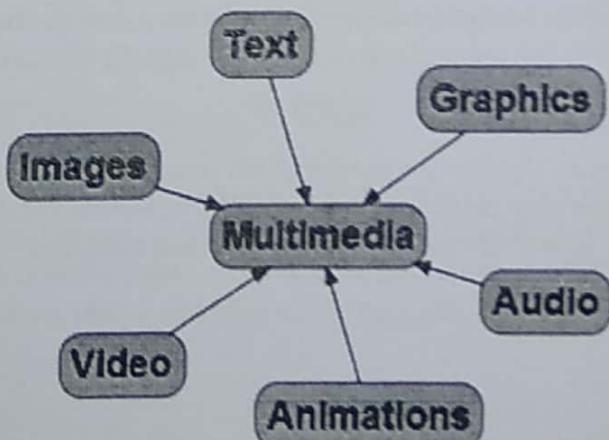
- Multimedia can have many definitions these include:

Multimedia means that computer information can be represented through audio, video, and animation in addition to traditional media (i.e., text, graphics drawings, images).

- A good general definition is:

Multimedia is the field concerned with the computer-controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally.

A *Multimedia Application* is an Application which uses a collection of multiple media sources e.g. text, graphics, images, sound/audio, animation and/or video.



List of Hardware components that needed to convert PC into Multimedia PC:

1. GRAPHICS CARD
2. SOUND CARD
3. PRINTER
4. SCANNER
5. WEB CAMERA
6. JOYSTICK
7. SPEAKERS

▪ GRAPHICS CARD:

A graphics card, also called a video card or a display card, is a circuit board in a computer with specialized hardware optimized for displaying high-quality graphics at a high rate of speed. Most modern computers include them, and while they're sometimes associated with video gamers looking to get the most fun out of their games, they're also useful for professional applications like using Adobe Photoshop to edit photos or editing business videos.



Fig.Graphics Card

▪ SOUND CARD:

The sound card functions as an audio processor for your computer. Analog or digital signals come into the input of the card and are digitally interpreted as algorithms which are in turn interpreted as

Waveforms and produce a sonic signal in the output of the computer sound card. The sound card is an installed, running device on your computer system, with programmed hardware properties and separate device drivers. The sound card controls all audio on the computer.

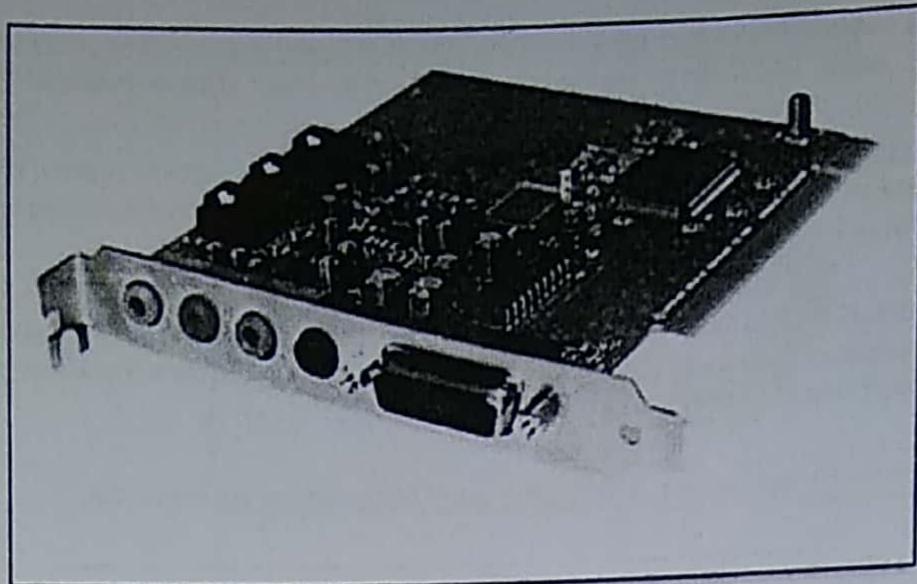


Fig. Sound Card

▪ **PRINTER:**

The function of a printer is to turn digital data into printed media. This could be text, or it could be graphic output. One of the earliest printers to come with personal computers was the dot matrix printer.

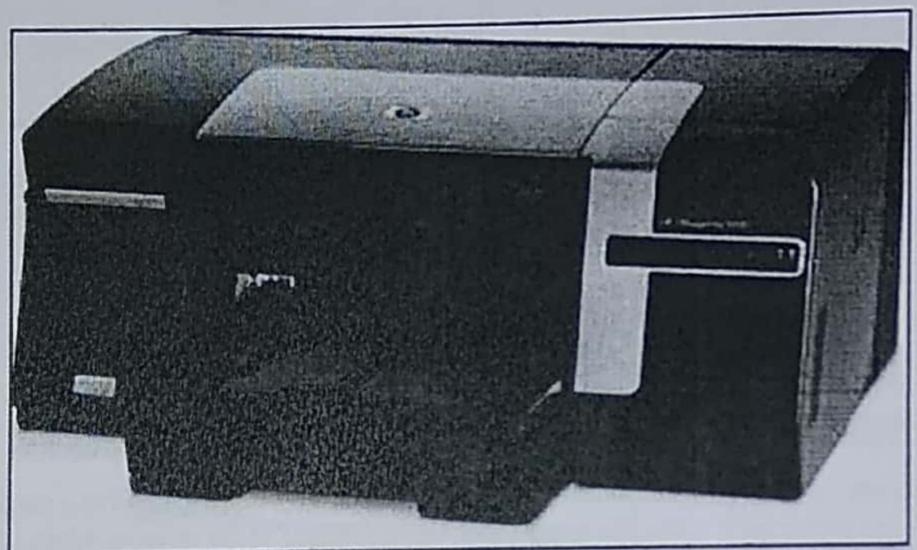


Fig. Printer

There are two types of printers: impact and non-impact. Impact printers strike the paper with ink to leave behind an impression. Dot matrix printers are an example of printers that impact the paper a line at a time. Non-impact printers create an effect on paper without an impact. An example is the inkjet printer, which sprays ink from a cartridge while the paper rolls by it. Laser printers use lasers to attract ink to paper.

▪ **SCANNER:**

A scanner is a digital device that converts films, documents and photographic prints to digital images. It scans documents, which can be sent to a computer, printer, flash drive or email address.

Scanned files can be stored on a computer's hard drive, flash drive or shared network folders. An operator can send scanned documents to a client computer using web services. A flatbed scanner equipped with a fax feature can send a fax to more than one destination.

A flatbed scanner with printing capabilities can serve as a home printer, allowing the user to make adjustments to the document. Scanners with optical character recognition software, known as OCR, can scan documents and convert them to editable text.

A scanner can even scan 3D objects such as cloth, shells and coins that are somewhat flat.



Fig. Scanner

▪ **WEB CAMERA:**

A webcam – short for ‘web camera’ – is a digital camera that’s connected to a computer. It can send live pictures from wherever it’s sited to another location by means of the internet. Many desktop computer screens and laptops come with a built-in camera and microphone, but if yours doesn’t, you can add a separate webcam at any time.

There are various types. Some are plugged into computers through USB ports, but others are wireless (wifi). Other features might include:

- an integral microphone
- the ability to pan and tilt
- in-built sensors that can detect movement and start recording
- a light that, when on, will let you know that the camera is in use.

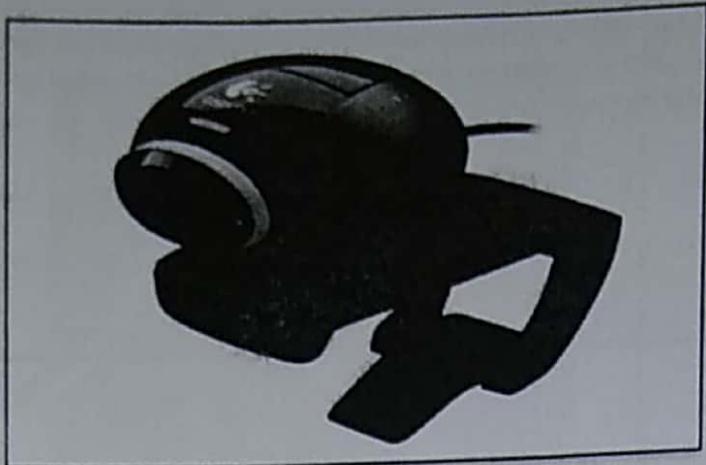


Fig. Web Camera

▪ **JOYSTICK:**

Joystick is a lever that moves in all directions and controls the movement of a pointer or some other display symbol. A joystick is similar to a mouse, except that with a mouse the cursor stops moving as soon as you stop moving the mouse. With a joystick, the pointer continues moving in the direction the joystick is pointing. To stop the pointer, you must return the joystick to its upright position. Most joysticks include two button called *triggers*. Joysticks are used mostly for computer games, but they are also used occasionally for CAD/CAM system and other application.



Fig. Joystick

▪ **SPEAKERS:**

Loudspeaker is an electro mechanical transducer that converts an electrical signal into sound. The term loudspeaker can be applied to any of the individual devices or drivers or the complete system consisting of an enclosure incorporating one or more drivers.

Functions

When the sound of any instrument or voice reaches us but the source is blocked from our view, we will be able to determine whether it is coming from the loudspeaker or live.

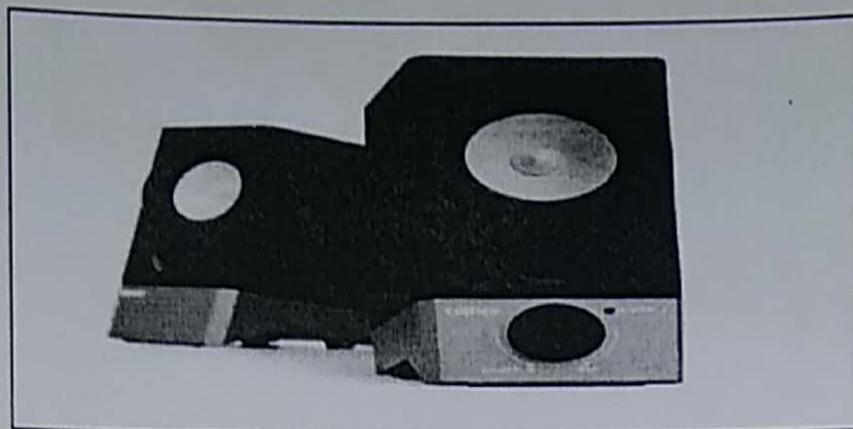


Fig. Speakers

❖ List of software component that needed to convert PC into Multimedia PC:

1. ADOBE READER
2. MICROSOFT
3. WEB BROWSERS
4. ANY OTHER SOFTWARES

▪ **ADOBE READER:**

Adobe Reader is a free program created and distributed by Adobe Systems. It is used to open PDF documents. PDFs can be a wide variety of files, such as images, text documents, forms, books, or any combination of these. They are cross-platform, meaning each PDF will look the same on a Windows computer as it will on a Mac.

Adobe Reader cannot create PDFs -- it can only open them. If you want to create or edit a PDF, you will need to get Adobe Acrobat, which unlike Adobe Reader, is not free.

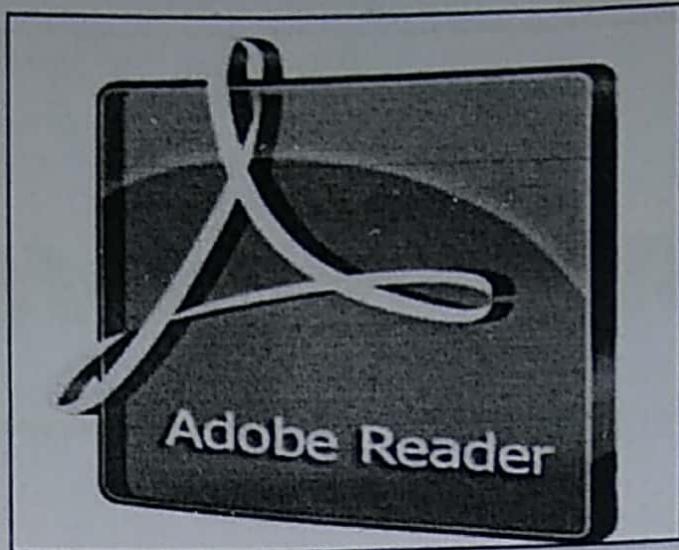


Fig. Adobe Reader

- **Microsoft:**

Microsoft is a US-based technology company. It was founded by Bill Gates and Paul Allen in 1975 and quickly grew to become the largest software company in the world. Microsoft Windows is the world's most popular desktop operating system and Office is the most popular productivity suite. Below is a list of some of

the software, hardware, and cloud services provided by Microsoft.

Microsoft Windows is the world's most popular desktop operating system and Office is the most popular productivity suite. Below is a list of some of the software, hardware, and cloud services provided by Microsoft.

Software

- **Windows** - operating system for desktop computers, laptops, and tablets
- **Office** - productivity suite including Word, Excel, PowerPoint, and Access
- **Outlook** - email and calendar software
- **Visio** - diagramming and vector drawing program
- **Visual Studio** - multi-platform software development IDE for building apps
- **Skype** - video conferencing application
- **Halo** - popular series of video games For xbox.



Fig. Microsoft

WEB BROWSER:

A **web browser** (commonly referred to as a **browser**) is a software application for accessing information on the World Wide Web. When a user requests a particular website, the web browser retrieves the necessary content from a web server and then displays the resulting web page on the user's device.

A web browser is not the same thing as a search engine, though the two are often confused.^{[1][2]} For a user, a search engine is just a website, such as Google Search, Bing, or DuckDuckGo, that stores searchable data about other websites. However, to connect to a website's server and display its web pages, a user must have a web browser installed.

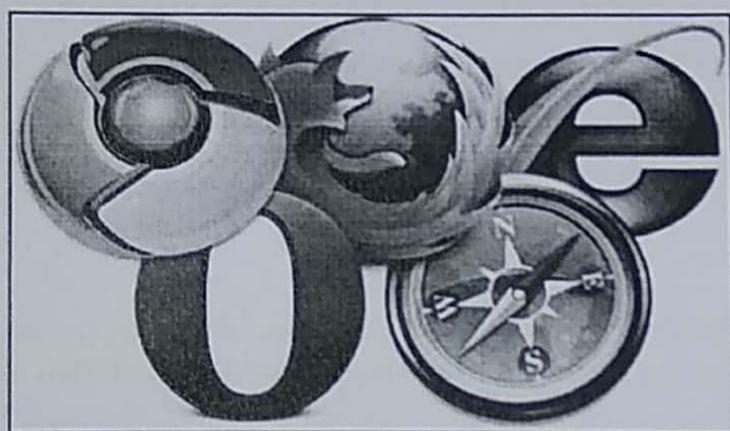


Fig. Web Browser

➤ QUESTIONS FOR LEARNING:

1. Difference between "PC" and "Multimedia PC".

Multimedia PC	PC
i. Multimedia PC required more space as compared to PC	i. PC is required less space as compared to multimedia PC
ii. Cost is high	ii. cheap and suitable price.
iii. Multimedia PC requires more hardware as compared to PC	iii. less no. of hardware required in PC.

2. List the components which are required to make a "multimedia PC"?

→ Speakers, webcam, scanner, graphics card, printer, joystick, etc.

3. Is there is a need of hardware and software components to make a "Multimedia PC"? YES or NO? Explain your answer in brief?

→ Yes, there are lots of hardware & software to convert a simple PC into Multimedia PC.

To make simple PC into multimedia PC, it requires graphics card, sound system and software to edits in video and photos.

CONCLUSION:

We have identified all the necessary components which needed to convert a simple PC into a multimedia PC.

					Teacher's sign

❖ PRACTICAL NO. 03

- **AIM:** Assemble and Disassemble a PC with a view towards upgrading PC's by motherboard replacement and substitution of major components.
- **Equipment and Materials:** -
 - Personal Computer
 - New Motherboard
- **Theory:** -

Steps to assemble a PC:

Step 1: Gather all the components and tools for assembling a PC.

Step 2: Install the Processor and RAM to the motherboard.

Step 3: Install the IO shield plate to the cabinet.

Step 4: Attach the motherboard to the cabinet with the help of tool kit.

Step 5: Install CPU fan to the processor.

Step 6: Install the Hard disk in the hard disk slot given in the cabinet and connect it with SATA cable.

If you running out of storage you can add another hard disk in the another slot.

Step 7: Install the CD/DVD drive in the given cabinet slot for CD/DVD slot.

Step 8: Install the SMPS and connect the power cable to motherboard, CD/DVD drive and Hard disk.

Step 9: If you required any external card you can install it in the PCIe slot.

Ex:- NIC card, Graphic card, Sound card, etc.

Steps to disassemble a PC:

Step 1. First turn off the computer.

Step2.Unplug all the cables that are attached to the PC.

Step 3. Remove side and front panel.

Step 4. Remove the SMPS and all the cables.

Step 5: Remove the CD/DVD ROM carefully with the help of toolkit.

Step 5. Remove hard disk drive. Suppose the Hard disk is not working properly make sure all pins are not rusted and all the cables are in a good condition also check the pins slots are dusted.

Step 6. Remove external card.

Step 8: Unscrew the motherboard and remove it.

Step 7. Remove the RAM (If your PC giving a shot beep then the fault is in your RAM).

Step 8. Remove CPU fan.

➤ Questions for Learning:

1. Different types of failure in Hard disk.

+ Logical failure :-

- i Hard drive freeze
- ii Overheating of hardware
- iii Malware, virus, software bugs, etc

2. Mechanical failures :-

- i. Components stops functioning due to stress and wear.
- ii. Due to read and write heads
- iii actuator arm & spindles of a hard drive moves ~~fast~~ while simple operations

2. Which kind of material used in making processor?

→ Processor are built with three major materials i.e. Silicon, Copper and Plastics.

Silicon are ~~semiconductors~~ semiconductors in the field of electronics.

Copper is also good conductor used to make processor on motherboards.

Plastic is used to insulate wires and provisions of RAM, memory capacitors.

3. When you hear a beeping noise from the CPU verify which component is defected?

→ In most cases whenever we hear beeping sound , then RAM is defected and oft if the RAM is not defected then there's more components which gets defected like, memory, graphics card, processor failure, display memory, etc.

Conclusion:

To upgrade the PC's by using motherboard replacement and substitution of major and powerfull components, we have been through all the possible choices and steps by visualizing the assemble and disassemble of CPU of the PC.

					Teacher's sign

❖ Practical no. 4

➤ Aim: -

Identify the hardware layout of Desktop computer and laptops.

➤ Equipment and Materials: -

- Laptop
- Pc (personal computer)
- Tool kit

➤ Theory: -

DESKTOP COMPUTER

What is Desktop computer?

A desktop computer is a personal computing device designed to fit on top of a typical office desk. In 1964, the first desktop computer, the **Programmer 101**, was unveiled to the public at the New York World's Fair. It was invented by **Pier Giorgio Perotto** and manufactured by **Olivetti**. The first desktop computer was the **Hewlett Packard 9100A**, introduced in 1968. Since then, there have been many millions of desktop computers released and used throughout the world.



Fig : Desktop Computer

Advantages of Desktop computer:

- Most of the IT hardware parts are upgradable.
- Cheaper option compared to laptops.
- Easier to repair, since many IT hardware components like CPU, RAM, Audio, Graphics cards etc. are separate parts and can be detached for repair.
- Desktop computers often have more life than laptop computers
- A large number of hardware components, allowing one to customize or upgrade his computer as he wishes
- A large number of hardware components, allowing one to customize or upgrade his computer as he wishes

Disadvantages of desktop computer:

- Heavy to carry and move to another place.
- Consumes plenty space on your desk.
- So many cables running into the PC i.e power, video, audio, etc.
- Must be plugged into power outlet all the time to use.
- High power Desktop PCs produce noise
- Needs a separate monitor, keyboard and mouse

Hardware components of Desktop computer:

- Motherboard
- Processor
- RAM
- Hard-drive
- Cabinet (without Power Supply)
- Power Supply

- Monitor
- Keyboard & Mouse

Laptops

What is Laptop?

A laptop computer, sometimes called a notebook computer by manufacturers, is a battery- or AC-powered personal computer generally smaller than a briefcase that can easily be transported and conveniently used in temporary spaces .The laptop was invented by Adam Osborne in 1981. It was called "Osborne 1" and cost \$1,795.

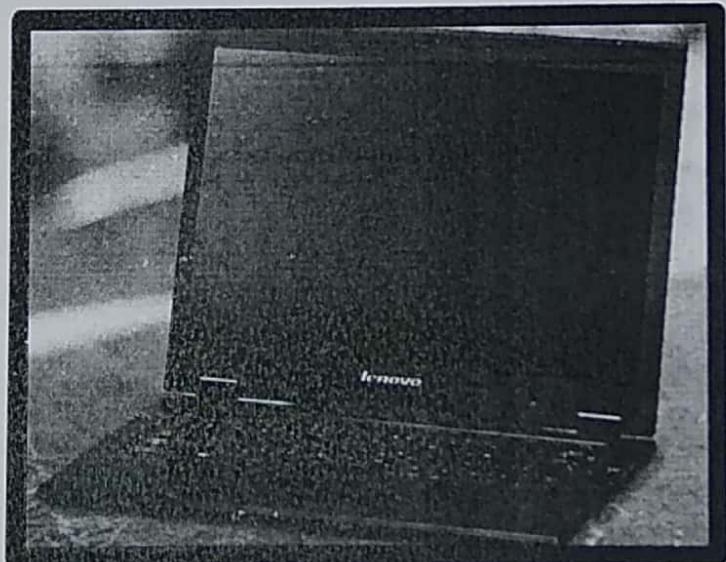


Fig : Laptop

Advantages of Laptops:

- **Accessibility:** User can access information and files in diverse location , increasing productivity uptime and information availability.
- **Consolidation internal memory :** Data can be saved to one hard drive and accessed at will.
- **Connectivity:** WiFi and mobile data networks provide laptop with near-constant internet connections.
- **Noice :** Notebook PCs are optimized to be quieter than desktop model.

Disadvantages of Laptops:

- **Performance :** Laptop do not offer the same computing power as desktop ,largely due to scaling.
- **Durability :** Generally speaking, Laptop components deteriorate more quickly than desktop equipment . Since laptops have all component in a single chassis , broken component are not easily replaced .
- **Security :** Laptops are valuable items which are frequent target of theft . Utilizing public networks increases the risk of hacking and date theft.

Hardware Layout of Laptops and Desktop Computer

Sri.no	Component	Laptop	Desktop computer
1.	Hard Drive	Laptop HDD measure up at 2.5 inches in dimension. Laptop hard	Desktop HDD are usually 3.5 inches in dimension. Desktop hard drive have disk speed 7,200 RPM.

		have disk speed 5,200 RPM.	
2.	RAM	Laptop RAM is smaller and comes in SO SIMM (small outline DIMM)	Desktop RAM Comes in Dual in-line memory model(DIMM).
3.	Processors	Laptop processors have nearly caught up to desktop processors, but are still limited when compared to desktop processors. Gaming laptops can have an equal performance, but have a much higher price.	Desktop processors are a little bit larger in size, but this also means the desktop processors can be more powerful than laptop processors. New, advanced processors on the market are often available in desktop computers first.
4.	Keyboard	Smaller laptop with the 14" and 15" dimension screen have smaller keyboard and don't features a number pad on the right side. Larger laptop with 17" dimension screen do have larger keyboard and larger keyboard and may include a number pad , but the laptop are bulkier and heavier. It is because keyboard is in-build in it.	Desktops can make use of full-size keyboard , including a number pad. There are really no limitation .It is connected as output device.
5.	Mouse	Mouse is in-built in mechanism is called touchpad .	In desktop computer mouse is connected as output device
6.	Display Size	The rang of display size of laptop starts from 10" inches to 17" inches in dimension	The range of display is beyond the 19" inches in dimension.

➤ QUESTIONS FOR LEARNING:

Q1. What is the touchpad technology ?

→ A ~~pointer~~ sensorised pad which is controlled by pointing on a specialised surface of pad.

It translates the motion and position of a user's finger to that sensorised pad.

Q2. Is Laptop is more efficient than Desktop computer? 'Yes' or 'No' explain?

→ No, I would like to prefer desktop over laptop. You can get much better performance on desktop even if they have same parts.

When laptops and desktops are even matched in performance, desktops are much more significantly less expensive.

you'll get stuck or confused with
your laptop to upgrade to new model
but desktop can be easily upgraded

Q3. Why Laptop repairing is not easy?

- Because, the components are so small and fragile to handle while repairing.
you have to take more care during laptop repairing as compared to desktop.

➤ Conclusion:-

Using ~~the~~ all of this information, we have identified the layout, specs performed on both the devices which we can say the desktop are much better than the laptops.

					Teacher's Sign.

❖ Practical No. 5

➤ AIM: -

Install and configure hard disk drive.

➤ APPARATUS: -

- Tool Kit.
- Hard Disk.
- CPU.

➤ THEORY: -

○ **Steps to install hard disk.**

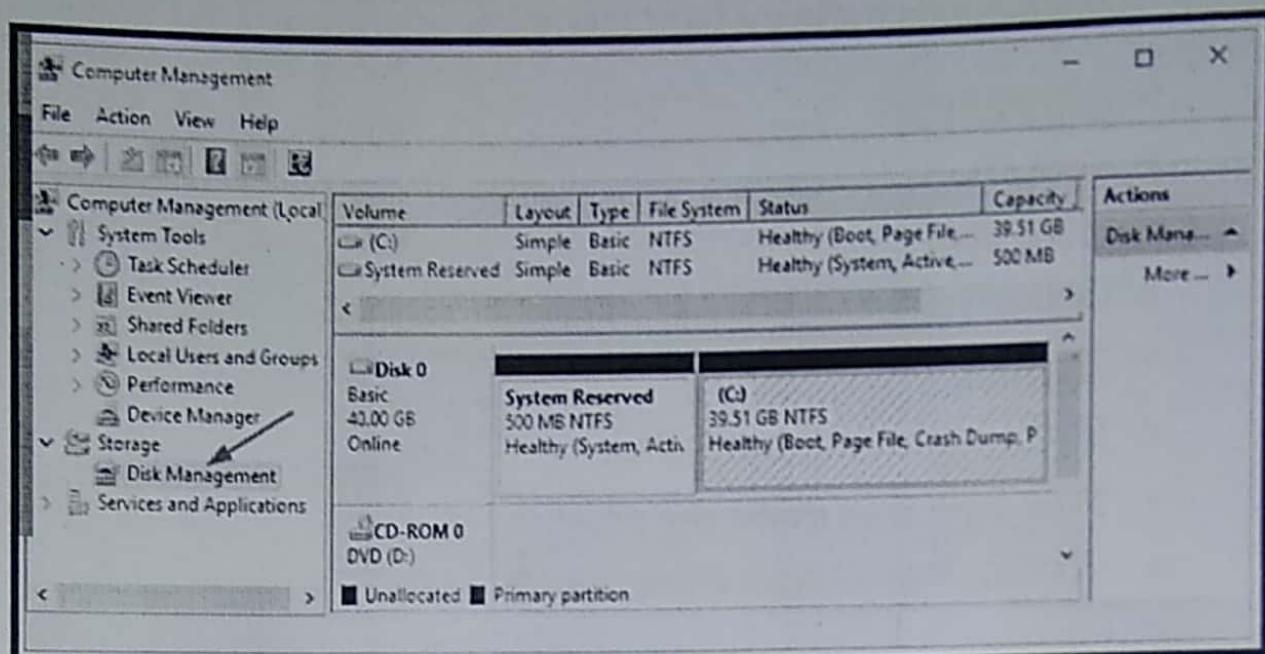
- **STEP 1 :-** Shut down the pc.
- **STEP 2 :-** open the cabinate with the help of tool
tool kit.
- **STEP 3 :-** Mount the drive in chassis.
- **STEP 4 :-** connect the cable to the drive .
- **STEP 5 :-** Connect the power cable the drive.
- **STEP 6 :-** Restart the system and you will find the new hard
Disk.

○ **Steps to configure hard disk.**

- **STEP 1 :-** *Open the Computer Management tool.*
Open the start menu. "Computer Mangament"
In search bar of the Start menu and press enter.

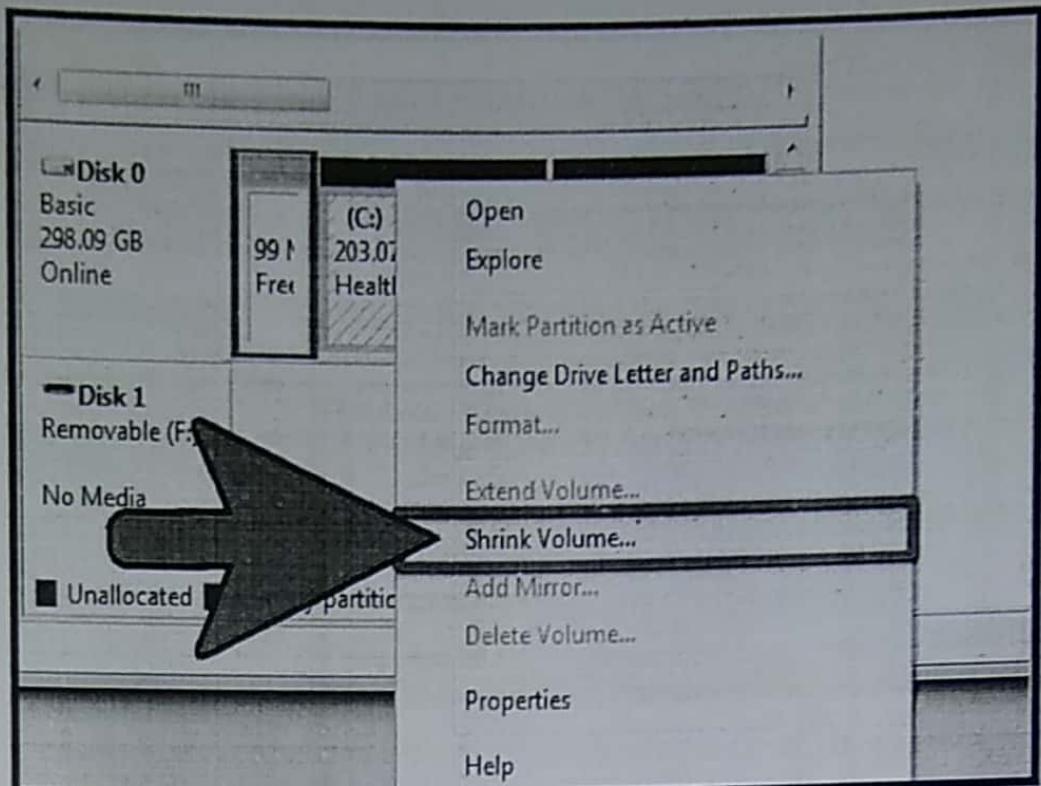
- **STEP 2 :- Select the Disk Management tool.**

Click on Disk Management on the left side of the window and you should see all of the disks



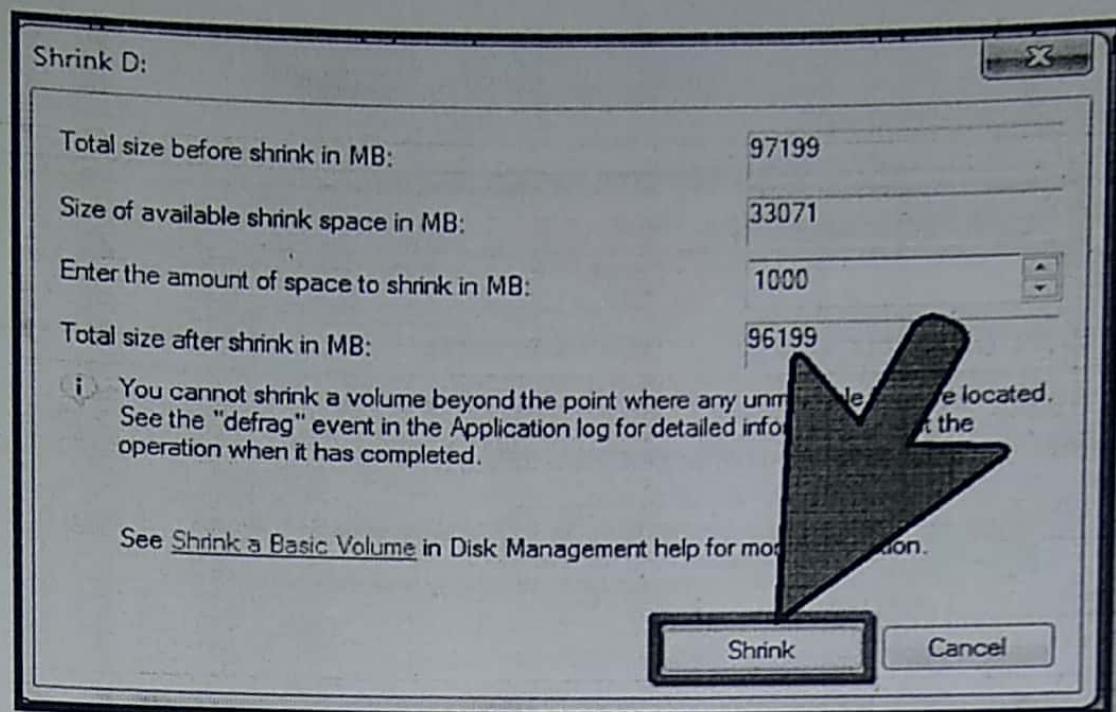
- **STEP 3 :- Make some space for the new partition.**

Right-click on the partition you wish to re-size select the **Shrink Volume** option.



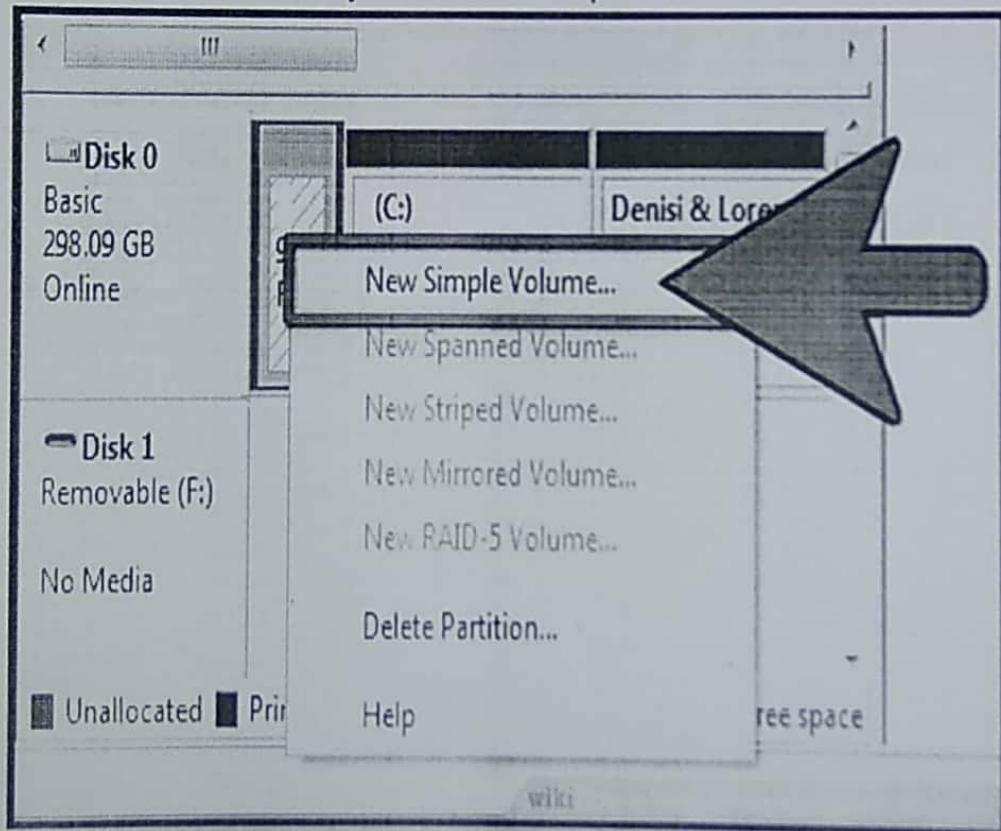
- **STEP 4 :- Shrink the drive.**

Enter the size you wish to shrink your drive to in megabytes (1000 MB = 1GB). Then click on the **Shrink** button.



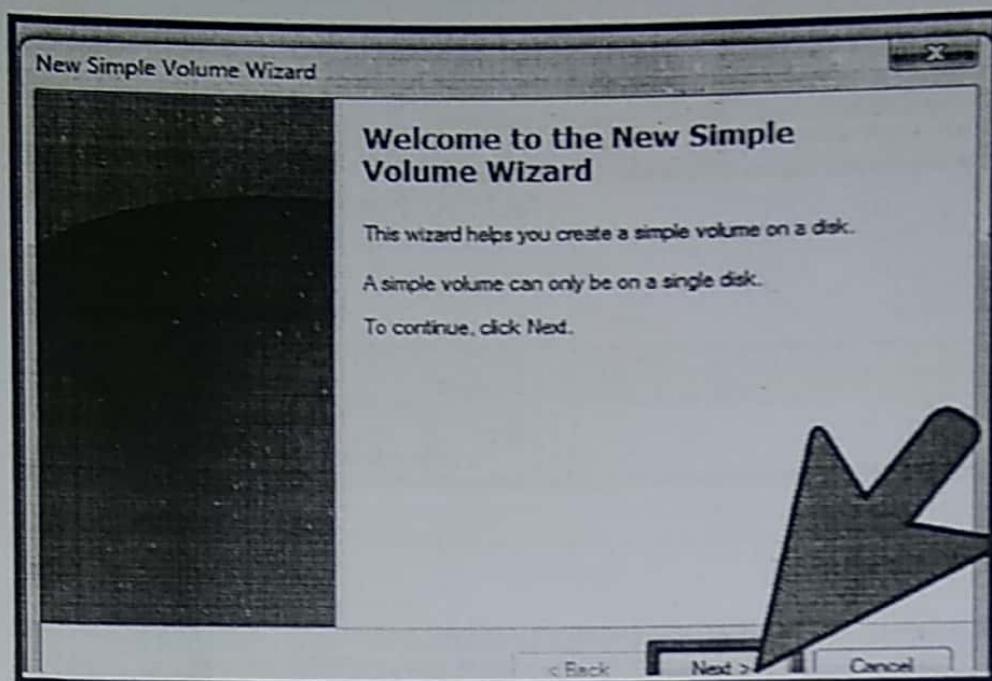
- **STEP 5 :- Create a new volume.**

You should now see a new unallocated partition in your *Disk Management* window. Right-click on the **unallocated** partition and select the **New Simple Volume** option.



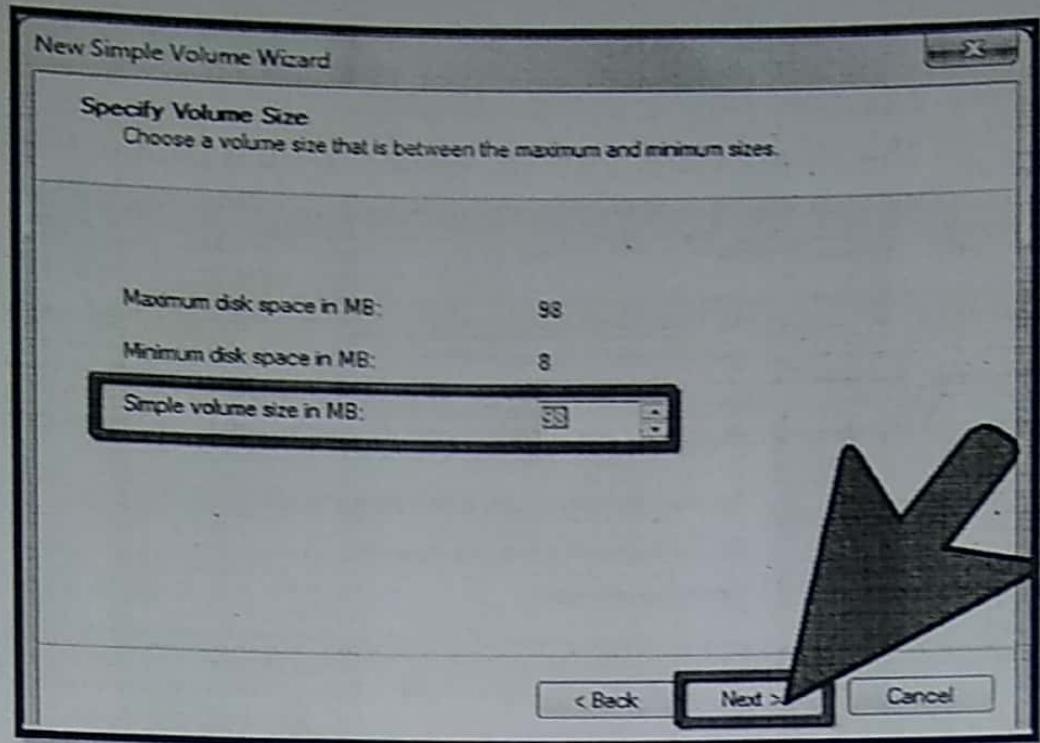
- **STEP 6 :-** *The New Simple Volume Wizard.*

The New Simple Volume Wizard should popup. Click on the **Next** button to continue.

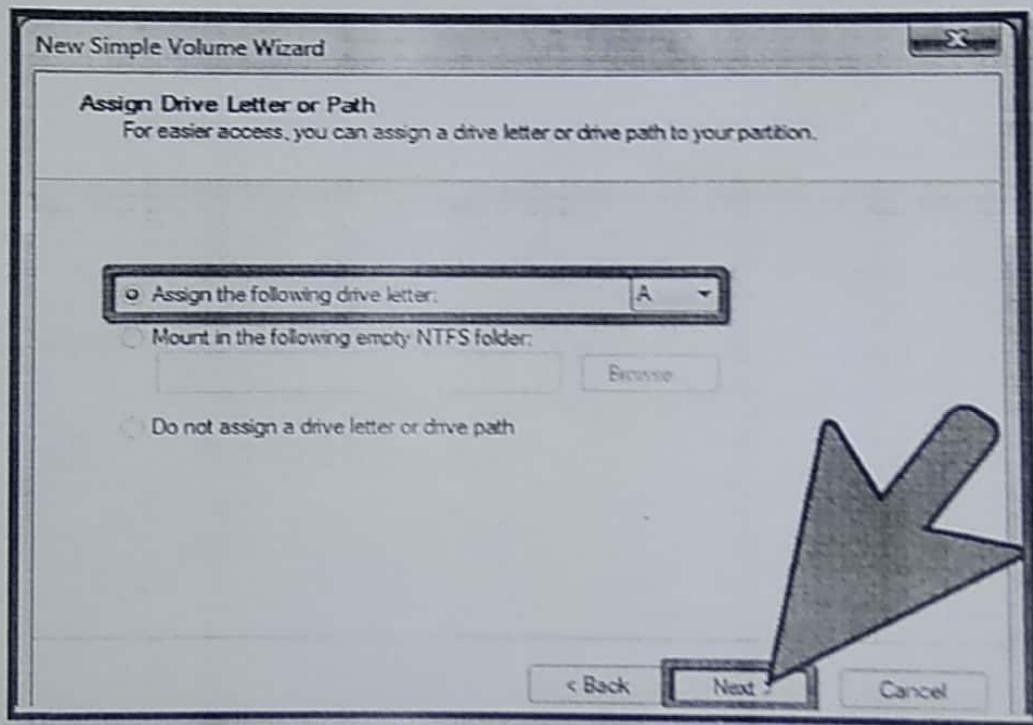


- **STEP 7:-** *Enter size of new partition.*

Enter the amount of memory you wish to allocate for your new partition and click on the **Next** button.

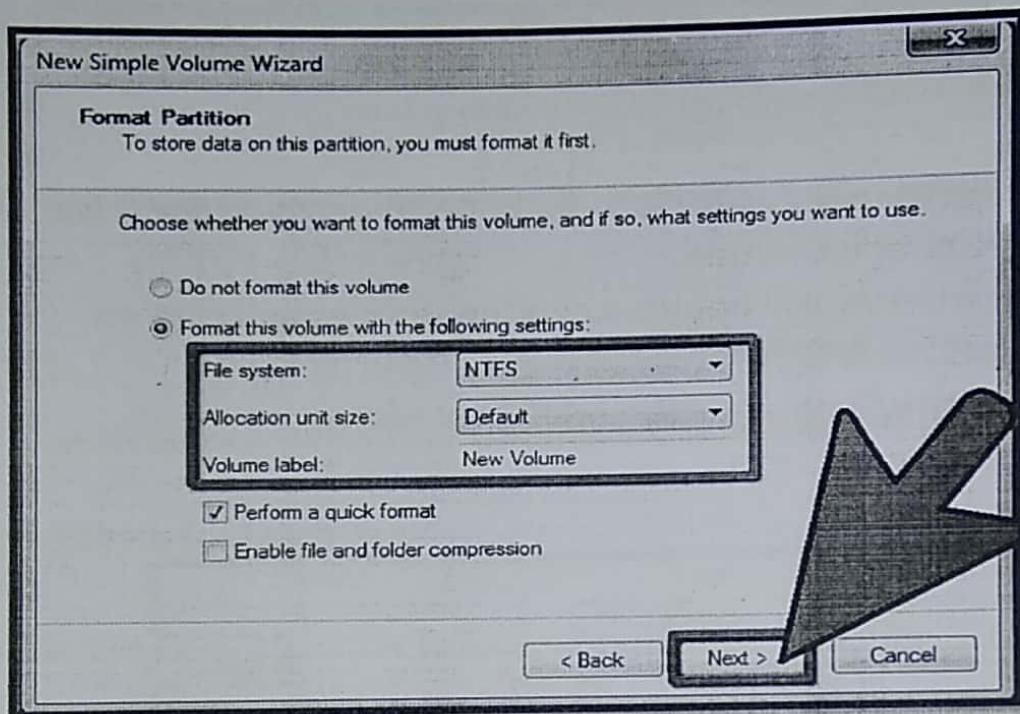


- **STEP 8 :- Give the new volume a letter name or path.**
Select from the menu, a letter name for your new partition and click on the “Next” button.



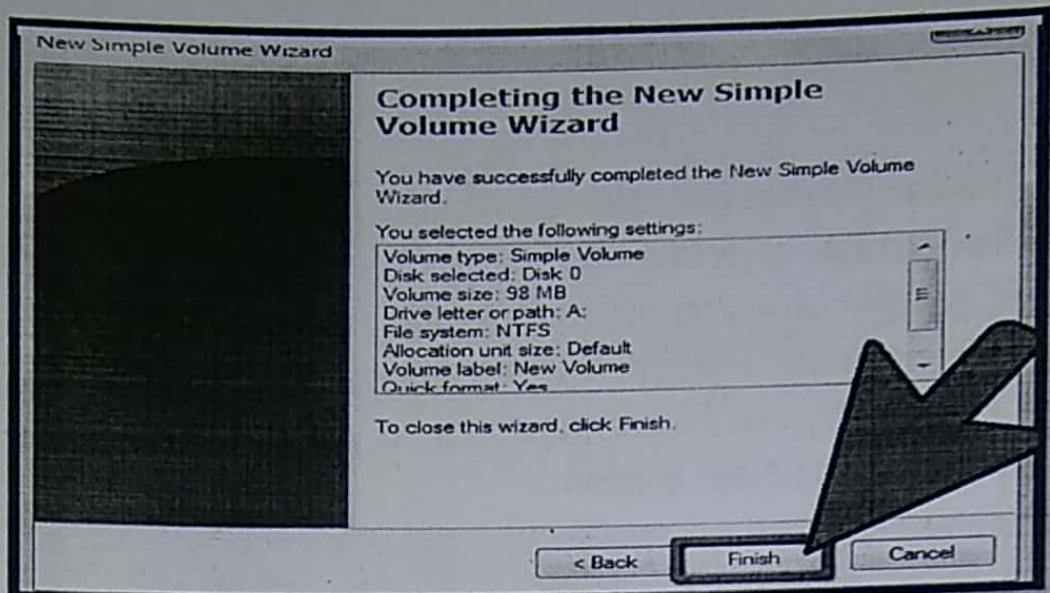
- **STEP 9 :-** *Settings for the new volume.*

- Click on the *Format this volume with the following settings:*
- For **File System**, select **NTFS**
- For **Allocation unit size**, select **Default**
- For **Volume Label**, type the name you wish to give your new drive.
- Click on the *Perform a quick format*
- Then click on the **Next** button



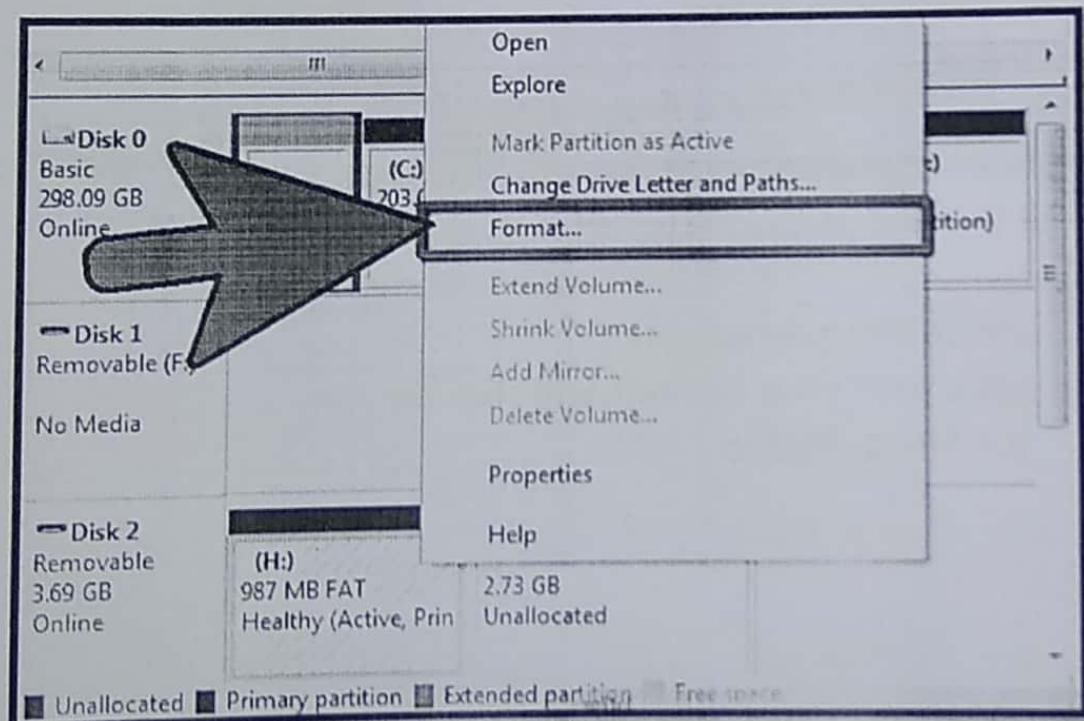
- **STEP 10 :-** *Create the new volume.*

Look over your settings and click on the **Finish** button



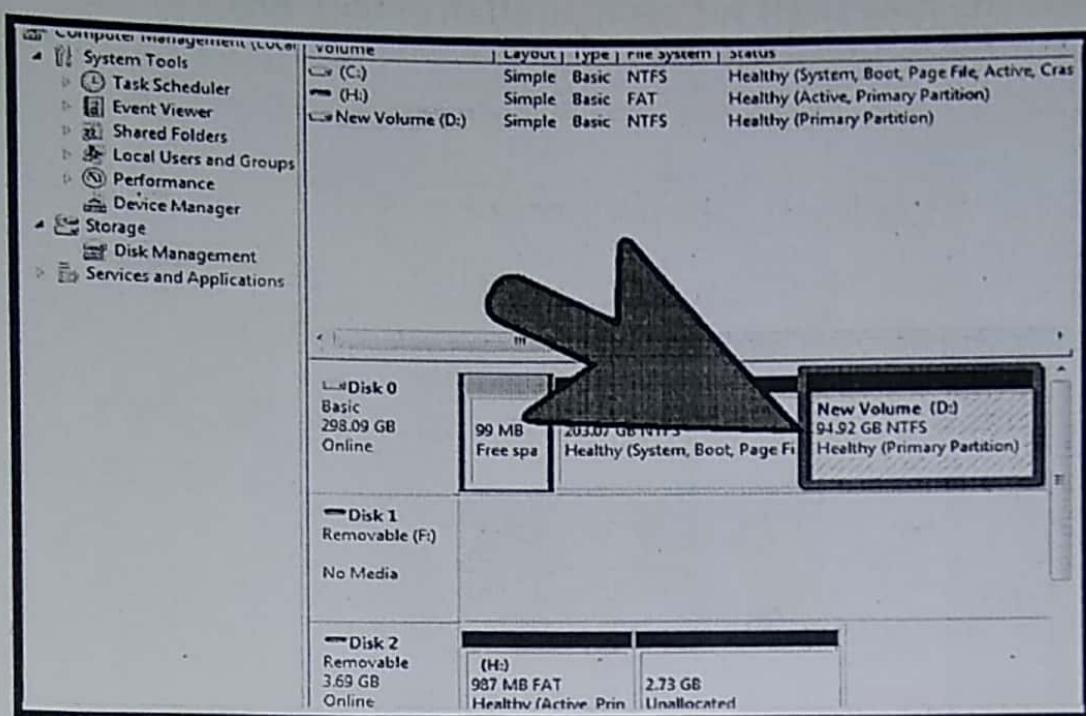
STEP 11 :- Format the new volume.

- You will get a popup asking you to partition your new drive. Click on the **Format disk** button.
- A new window will popup. Keep the settings and click on the **Start** button.
- A warning will popup. Click on the **OK** button.



- **STEP 12:- Check new volume.**

If everything was done correctly, you should now see your new drive in the *Disk Management* window.



➤ Questions for learning :-

1] Draw the flow chart for installation process hard disk.

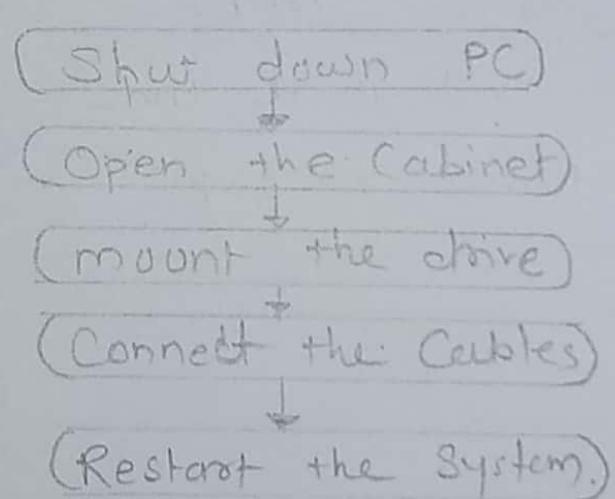
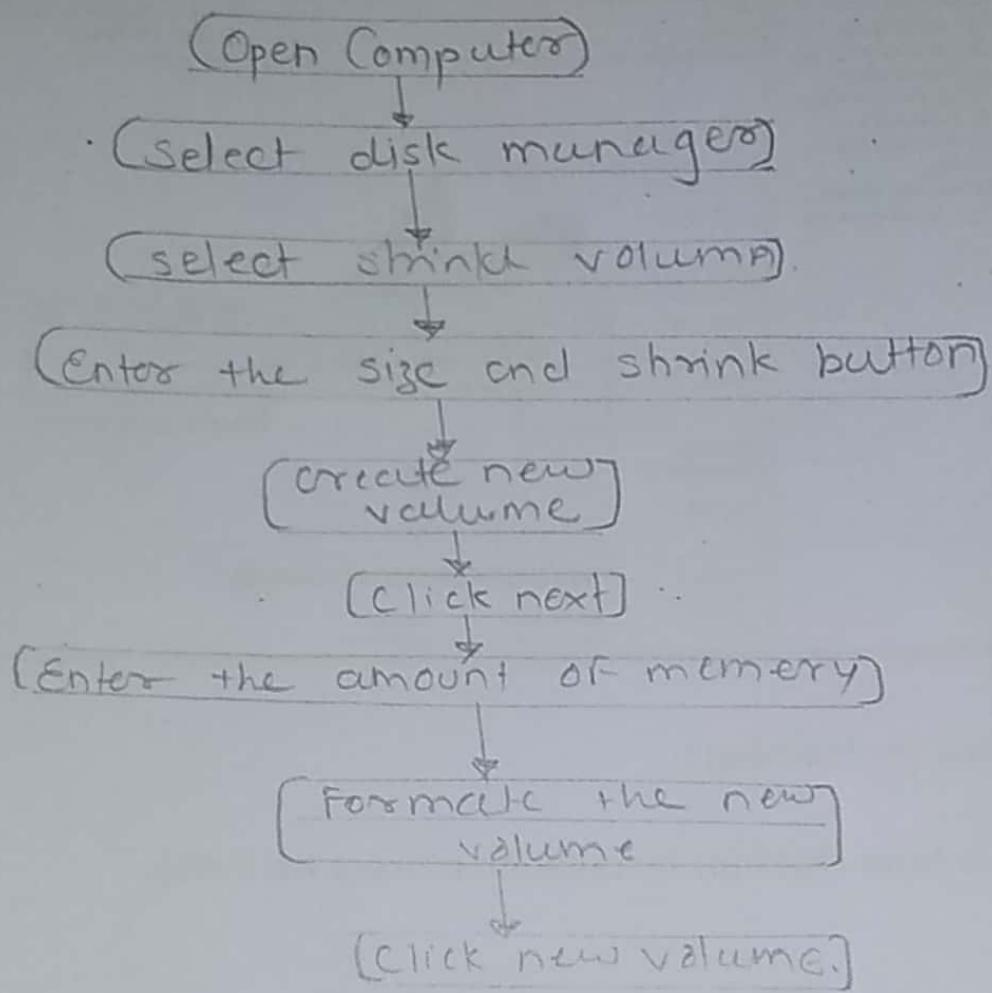


Fig. 8 Flow Chart for installation process of hard disk.

2]:- Draw the flow chart for configuration of hard disk.



Conclusion:-

we have ~~not~~ studied the steps of installation of hard drive as well as how to configure it also studied.

					Teacher's sign

PRACTICAL NO. 6

➤ AIM:-

Install and configure CD-ROM drive, Sound card and video card.

➤ EQUIPMENT AND MATERIAL:-

- Tool kit
- CD-ROM
- Sound Card
- Video Card
- CPU

➤ THEORY:-

• CD-ROM:

INSTALLATION:

STEP 1: First make sure your PC is completely powered down.

STEP 2: After shut down turn off the internal power off and take out the cable (remove the Ac power cord).

STEP 3: Remove the panel and remove set aside any screws that fasten the cover or panel to the computer case and then remove the cover (open the computer case).

STEP 4: Look for existing CD drive and unplug the power and data cables.

STEP 5: Remove the screws from the CD drive and then remove it from the chassis.

STEP 6: if you want to install another optical drive, remove the drive bay cover.

STEP 7: Adjust the jumpers on the back of the drive. Most of the "Master" as the default setting.

If the CD/DVD drive will be an extra one, set the jumper setting to "Slave".

STEP 8: Slide the CD/DVD drive into the drive bay on the computer.

STEP 9: Move the cables back, but do not disconnect them.

STEP 10: Connect the data and power cables to the CD/DVD drive.

- For IDE drives, align pin 1 (the red edge) to the connector on the CD/DVD drive. Then connect the 4-pin power connector to the drive.
- For SATA drives, align the notch to the connector on the drive. Then connect the SATA power connector (the long one) to the drive.
- If there is little space, connect the cable before fully securing the drive into the bay.

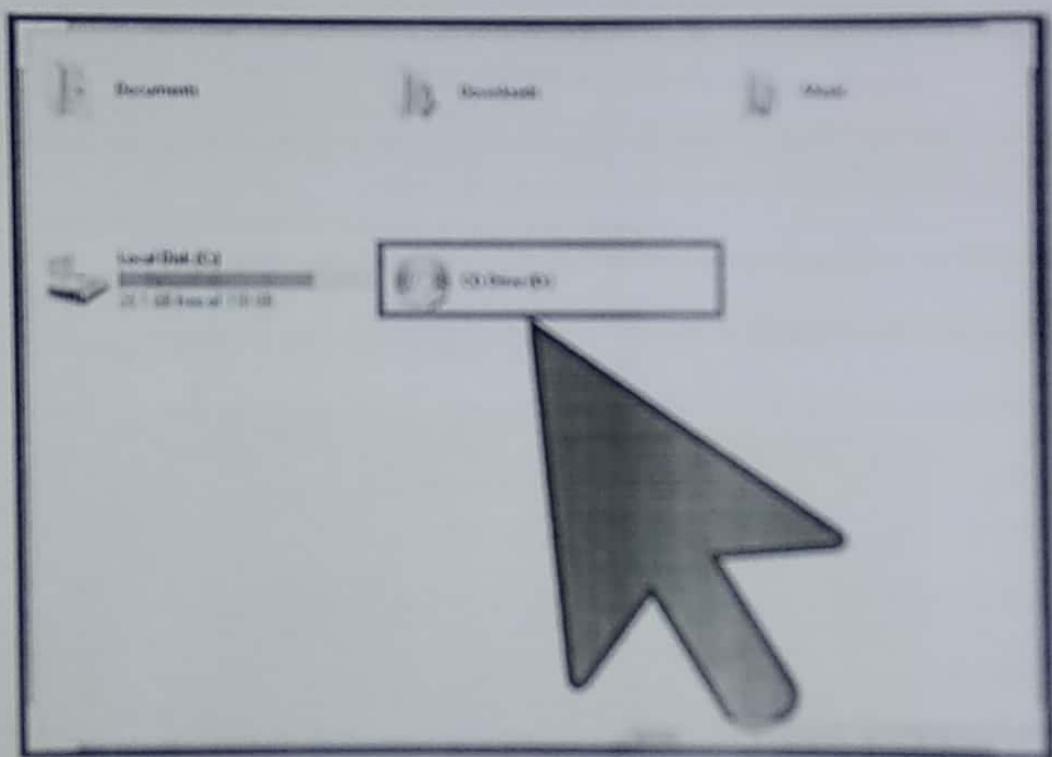
STEP 11: Connect the audio cable to the drive.

- It runs from the drive's audio-out pins to the CD-in connector on your sound card.

STEP 12: Close the computer case.

STEP 13: Turn on the computer. Your computer's BIOS should recognise the new CD/DVD drive...

- Windows will install the drivers required for the operation of the new CD/DVD drive.
- Open My Computer and you will see the drive.



- Sound card:-

Installation:

Step 1: Familiarize yourself with the new sound card to be attached by reading its accompanying documentation or instructions.

Step 2: Prepare the screwdriver and sound card and clear the intended work area.

Step 3: Shut down the computer and unplug the power cord. Also, remove any wires or jacks (like speaker wires and keyboard jack) attached to the computer.

Step 4: Carefully position the computer on its side (if computer casing is a tower type).

Step 5: Wear an anti-static wrist band or rub hands on a metal part of the casing to remove static electricity.

Step 6: Remove screws and case cover and carefully set in an undisturbed area.

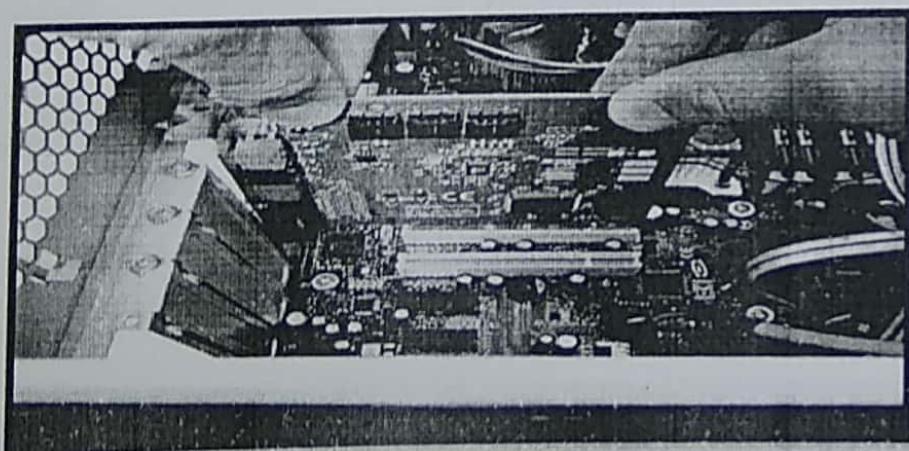
Step 7: Locate the sound card to be replaced. A computer can have either an internal sound card or 'on board card' which is attached to the motherboard and cannot be removed.

If the sound card is attached to the motherboard, continue to **Step 9**.

Step 8: Remove the old sound card by removing any screws (one may be screwed onto the board or computer casing) and by carefully unplugging any wires like the CD-ROM connector. Gently rock the sound card from left to right to loosen it.

Slowly pull the sound card with a direct upward force.

Step 9: Insert the new sound card on the same slot or locate another motherboard slot, remove the slot protector, and insert the new sound card.



- Plug the CD-Rom connector to the sound card.

Step 10: Make sure that the sound card is fit snugly and place screws to hold the sound card into place.

Step 11: Replace the casing cover and connect all computer wires and plugs.

Step 12: Turn on the computer to test the new sound card. Installation of the new sound card device may be required. Follow installation directions.

Step 13: Test music files and game sounds. Insert an audio or music CD into the drive and test again.

Step 14: If satisfied with sound card performance, power down the computer and replace computer cover or screws.

Configuration:

Step 1: Select the virtual machine and select Player > Manage > Virtual Machine Settings.

Step 2: On the Hardware tab, select Sound Card.

Step 3: Configure one or more sound card settings.

Option	Description
Connected	Connects or disconnects the sound device while the virtual machine is running. You can also use the Devices menu and select the drive to connect or disconnect.
Connect at power on	Automatically connects the sound device to the virtual machine when you power on the virtual machine.
Use default host sound card	The virtual machine uses the default sound card in the host system.
Specify host sound card	Selects which sound card to use if you have more than one physical sound card on the host system.
Enable echo cancellation	Enables echo cancellation for the sound card.

- Click OK to save your changes.

Video card:-

Installation:

Step 1: Turn off your PC, unplug it, and remove your computer's case.

- Your computer should have either a PCI-Express 16x or AGP slot for your card. The card won't fit into the wrong slot, so you can't go wrong.
- (But don't confuse your computer's thin memory slots for its video card slot.)

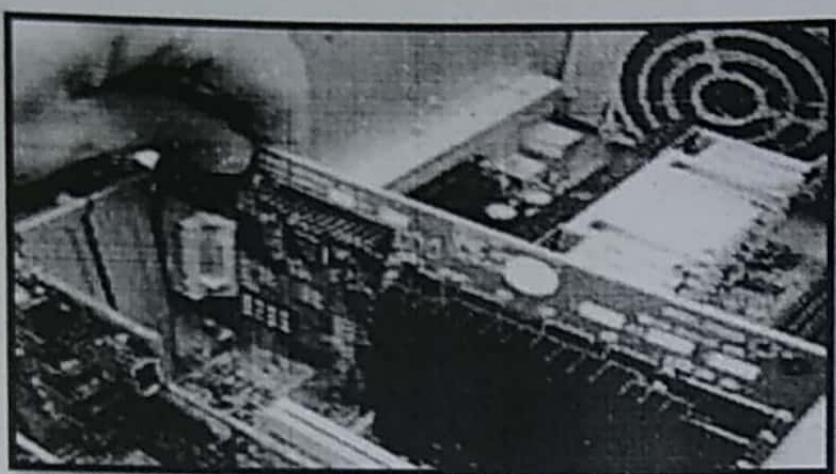
Step 2: With a small screwdriver, remove the screw holding in the old card or the metal cover.

- Don't lose that screw! You need it to secure the new card in place.

Step 3: If you're replacing an old card, pull it up and out of the slot (left).

- If you're not replacing an old card, remove the metal cover from the back of your computer (right).

Step 4: Hold the card by its edges and position it over the correct slot.



- The edge with the shiny metal bracket should face toward the back of your computer. (That shiny bracket replaces the cover, if you removed one.)

Step 5: Line up the tabs and notches on the card's bottom with the notches in the slot. Push the card slowly into the slot.

- You may need to rock the card back and forth gently. When the card pops in, you can feel it come to rest. Don't force it!

Step 6: If the video slot has it, bend out the flexible plastic retaining clip that fits over a tab on the end of the video card.

- When the card fits into the slot, release the clip, letting it hold the card in place.

Step 7: Secure the card in the slot with the screw you removed in Step 3, then plug the computer back in, turn it on, and see whether Windows recognizes and installs the card.

- Windows usually recognizes newly installed cards and sets them up to work correctly.

Step 8: If everything's working, put your PC's cover back on.

- If something goes wrong, turn off your computer, unplug it, and make sure you've seated the card correctly.

Step 9: Visit the manufacturer's Web site to download and install the latest drivers.

- Card manufacturers, especially video card manufacturers, constantly update their drivers to fix bugs.

Configuration:

Configuration for NVIDIA

Step 1: Right Click on the Windows Desktop.

Step 2: Select Nvidia Control Panel.

Step 3: Select 3D Settings -> Manage 3D Settings.

Step 4: Select Program Settings.

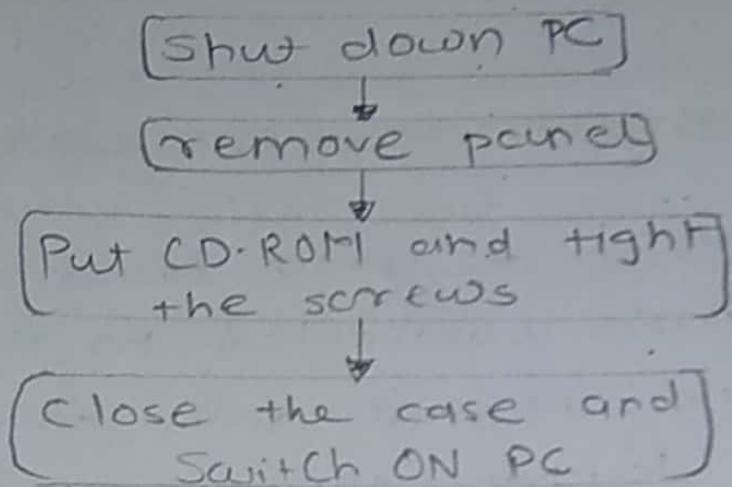
Step 5: Under 1. Select a program to customize or add it manually if it is not on the list.

Step 6: Under 2. Select the preferred graphics processor for this program: select High performance NVIDIA processor.

Step 7: Select Apply.

QUESTIONS FOR LEARNING:

1. DESCRIBE THE FLOW CHART FOR CD-ROM.



2. STATE THE LOCATION OF CD-ROM, SOUND CARD, VIDEO CARD IN PC'S AS WELL AS IN LAPTOPS.

→ CD-ROM is located in a cabinet of front side of a CPU and in laptop, it locates at right bottom right side of the keyboard. Sound card is on PCI slots in PC and in laptop, it is directly connected to USB port or install on PCMCIA slots.

video card is located on AGP slots in PC and in laptop, it is located at PCMCIA.

**3. IS SOUND CARD AND VIDEO CARD ARE PRE-INSTALLED IN LAPTOP OR NOT,
EXPLAIN?**

→ NO, There are only sound and audio jack ports connected to the motherboard and no internal sound cards. but in some laptops there are video card as they efficiently uses for the user.

CONCLUSION:

Installation and configuration of CD-ROM drive, sound card and video card are studied in this practical by various steps and instructions.

					Teacher's sign

❖ PRACTICAL NO. 7

➤ **AIM:** -

Install Scanner, Modem, Laser Printer.

➤ **EQUIPMENTS:** -

Scanner

Modem

Laser Printer

Tool Kit

PC

➤ **THEORY:**

• **Steps to install a scanner**

Before you can scan documents into your computer with a scanner, you need to install the scanner driver so that your scanner and computer can communicate. Start by connecting the scanner to your computer's USB port.

Step 1 : Turn the scanner. If you're not using a Plug and Play device or Windows doesn't have the driver for that device, you see the Found New Hardware message.

Step 2 : Click the Found New Hardware message, click Yes, This Time Only, and then click Next again. You only need to do this step if you don't permit Windows 7 to automatically connect to Windows Update. Otherwise, you don't see the Found New Hardware Wizard.

Step 3 : If you have a CD for the scanner, insert it in your CD drive and click Next. Windows 7 searches for your scanner driver software and installs it.

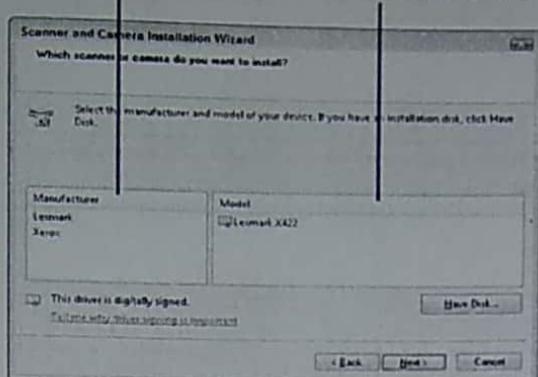
Step 4 : Choose Start→ Control Panel and type scanners in the Search box. Windows returns a set of links.

Step 5 : Click the View Scanners and Cameras link. The Scanners and Cameras window appears.

Step 6 : Click the Add Device button and then click Next. The Scanner and Camera Installation Wizard window appears. When you click Next, the next screen of the wizard appears.

Select a manufacturer

Then select a model



Step 7 : Click a Manufacturer in the list on the left and then click a model in the list on the right. Now it's just a matter of following the wizard directions based on the model of scanner you choose and whether you have a manufacturer's disc (a CD- or DVD-ROM). If you don't have a disc, Windows can help you download software from the Internet.

Step 8 : When you reach the end of the wizard, click Finish.

The installation is complete.

• Steps to install Modem

Step 1 : Check that you have the equipment you need. Before you get started, check that you have all the proper equipment. If you purchased or leased your modem from CenturyLink, then you have a kit that includes:

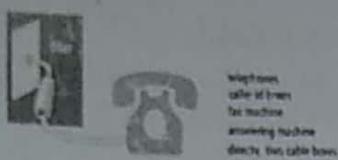
- (1) Modem
- (1) Power cord for your modem
- (1) Green phone cord
- (1) Yellow Ethernet cable
- (1) Activation letter
- (1) Installation guide
- (1) Envelope
- A device to connect to the Internet

Step 2 : Plug it in

- Internet & phone (landline)

If you have phone service (not VOIP) and high-speed internet on the same line you need to install filters. They're very important to making sure you get the best possible results from your phone and internet connection.

Install a filter (not included in the modem kit) on each telephone jack except the jack that goes to the modem.



- Internet only (and VOIP)

If you don't have land line phone service with CenturyLink, walk around the house and unplug all equipment that is connected to the same line as your internet.

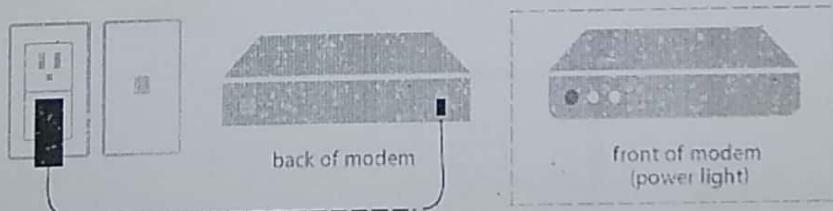
Disconnect all devices connected to your line, except the modem.



Step 3 : Find a good spot for your modem. Where you decide to place your modem can affect its performance. As with most electronic equipment, pick a place that has good air circulation and that won't get too hot. If electronic components get excessively hot, they typically don't work well and may break.

Keep the modem away from other wireless devices and heat like cordless phones, microwaves, computer monitors, wireless video cameras, windows, bluetooth devices, reflective surfaces (e.g. windows, mirrors, water), large amounts of water (e.g. fish tank, water cooler), concrete, metal partitions, fixtures, or ceilings.

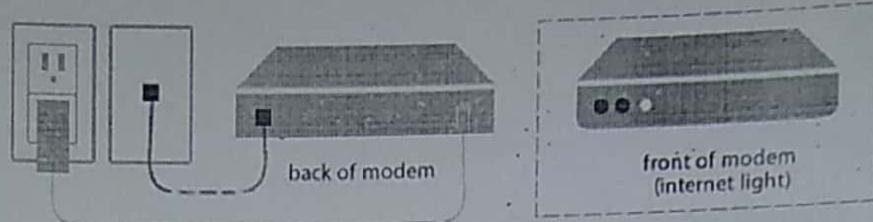
Step 4 : Connect the power cord. plug in the power cable that came with your modem.



- Plug one end of the power cord into a power outlet.

- Plug the other end of the power cord into the back of the modem.
- Wait 2 to 3 minutes for the power light to turn solid green.
- If the power light does not turn solid green troubleshoot the power light.

Step 5 : Connect the phone cord. Plug in the green phone cord that came with your modem.

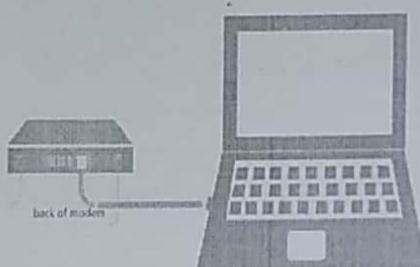


- Plug one end of the phone cord into the phone jack in the wall.
- Plug the other end of the phone cord into the 'DSL' port on the modem. (the green port)
- Wait 4 to 6 minutes for the DSL light to turn solid green.
- If the DSL light does not turn solid green troubleshoot the DSL light.

Step 6 : Connect to your modem

- **Ethernet**

If you want to use an Ethernet connection use the yellow cable that came with your modem.



- Plug one end of the cable into your device (your device should be powered 'ON').
- Plug the other end of the cable to one of the yellow ports on the back of the modem.
- The Ethernet light should turn green.
- If the Ethernet light does not turn green, troubleshoot the Ethernet light.

- **Wireless**

If you want to connect wirelessly, find the SSID and Key/Passphrase on the bottom of the modem.



Step 7 : What color is your internet light?

- It's green

You're FINISHED!



If your internet light is green, you are on the internet.

- It's orange

Time to activate your service!



If your internet light is amber/orange, open up a web browser and complete the internet activation.

To activate your service, go to a computer that is connected to the modem and open a web browser, such as Internet Explorer, Chrome or Firefox.

When you open the browser, you'll see the welcome screen. You'll know that you're in the right place when you see the CenturyLink logo and a message that reads "Welcome. Let's get started." Follow the on-screen instructions.



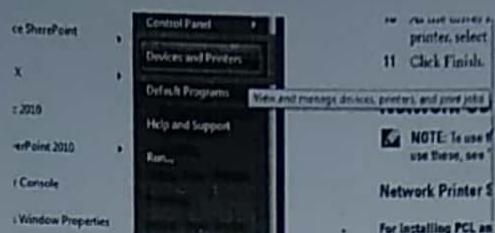
- It's neither

Check out the [modems lights page](#) to see what your next step is.

- **Steps to install laser printer**

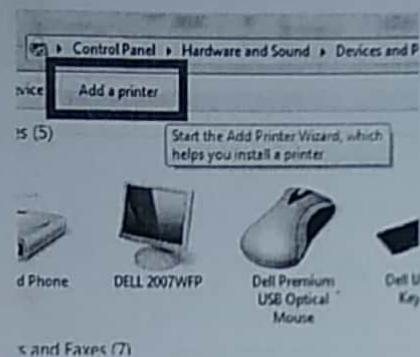
Step 1 : Click on the Start Menu

Step 2 : Click on Devices and Printers

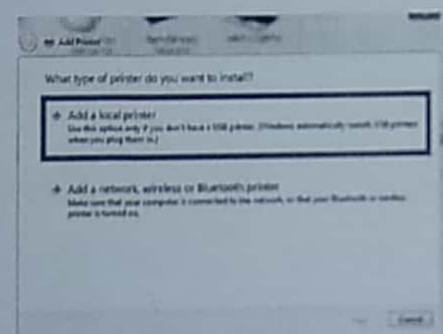


Step 3 : The Devices and Printers Window will open

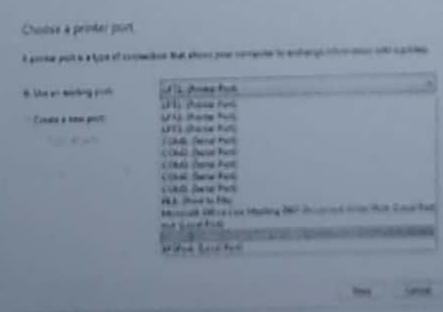
Step 4 : Click on Add Printer



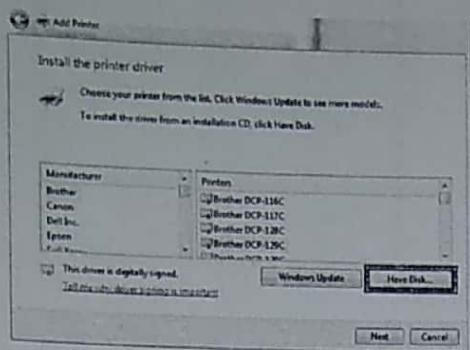
Step 5 : Click Add a Local Printer, and then click Next



Step 6 : When asked to select a printer port, Select USB001 (Virtual Printer Port for USB) and click Next



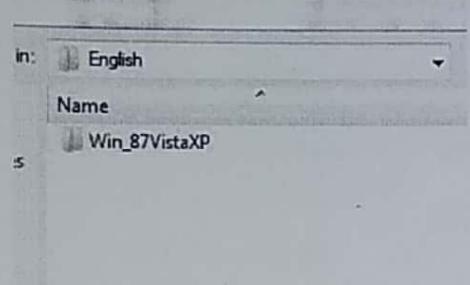
Step 7: Click 'Have Disk' and then Click Next



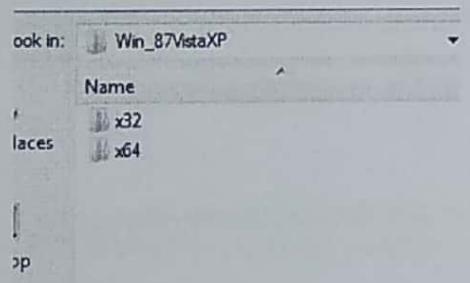
Step 8 : Click Browse and then navigate to the location you unzipped the Driver file to and double click to open

Step 9: Double click the desired Language Folder to open

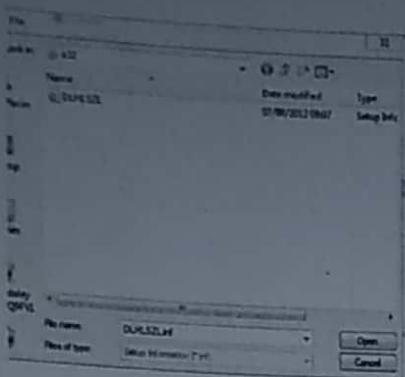
Step 10: Double click the Win7 Folder (this may be the same folder for all OS)



Step 11: Double Click 32x or 64x, depending on whether your Windows 7 OS is a 32 bit or 64 bit OS

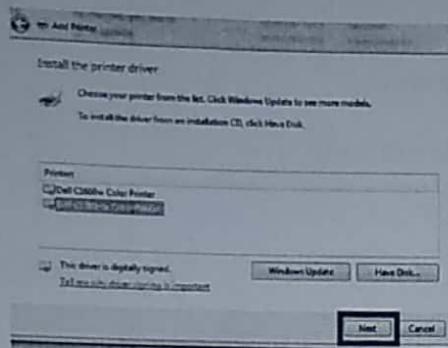


Step 12 : Select the .inf file and click Open



Step 13 : Click OK

Step 14 : Highlight the correct Printer and click Next



Step 15: Select Replace the Current Driver and click Next

Step 16: Click Next again (after adding Printer name if you wish to change the name).

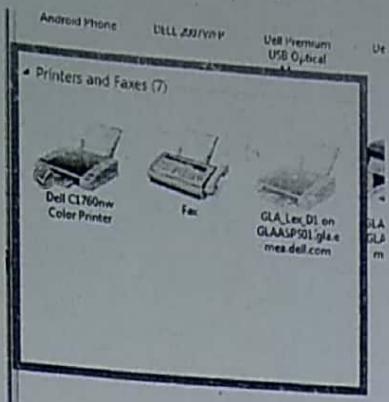
Step 17 :The Printer should now install.

Step 18 :There will be an option to share the printer. If this is a local Printer select DO Not Share and click Next

Step 19: Click Print a Test Page

Step 20:The Test Page should now be sent to the Printer and the Installation should be complete.

Step 21 : Verify that the Printer is now added in the Devices and Printers Window



Question for learning :

Q1. What is modem and scanner?

Ans. Modem - It is a network in which modulator and demodulator circuitry carries signals for encoding and decoding the digital information.

Scanners - A device that captures images and content from photographic prints, postcards, similar sources for editing and displaying purpose.

Q2. Write the steps to install laser printer?

Ans. To install laser printer follow the steps :-

1. Click on start menu.
2. Select devices & printers
3. Select add printer
4. Select local disk and click next
5. Open browser and navigate.
6. double click on desired language folder
7. double click on folders.

8. select 32x or 62x.
9. Select ~~inf~~ files
10. Click on open and verify the printer.

Q3. List the steps to install modem.

Ans.

1. Connect coaxial cable to cable output
2. Connect other end to power cable into electrical output of modem
3. put the modem in right place
4. Connect the modem to the router

➤ Conclusion:

Using all the instruction and steps we have studied that how to install modem, laser printer and scanner. Also we get to know that the proper use of scanner, modem and laser printers.

					Teacher's sign

❖ PRACTICAL NO. 9

➤ AIM: -

Identify most typical kinds of hardware failures in an IBM class- PC
when presented with a faulty PC.

➤ EQUIPMENTS AND MATERIALS: -

- IBM –Class PC

➤ THEORY: -

• Hardware Failure:

The hardware in a computer is the physical and touchable components of the system. The typical hardware components of any computer include the keyboard, mouse, speakers, RAM, cords and anything else in the computer that the owner can touch.

Hardware problems are common with a wide range of computers because any broken piece, damaged area or minor annoyance with the hardware affects the entire computer. Hardware failures may result from a hard drive with bad sectors, causing the operating system to not be able to read data from the hard drive. A failing motherboard can cause a system failure because the computer is not able to process requests or operate in general. A bad processor can and usually causes a system failure because the computer cannot operate if the processor is not working properly or at all. A bad RAM chip can also cause system failures because the operating system is not able to access data stored on the RAM chip.

component	Types of failure	Possible Reasons	Prevention/ troubleshooting
1. Hard disk drive	<ul style="list-style-type: none">• Not detecting the OS• Not detecting the partitions• Losing files without notice• Computer crashes• Takes long time to access files• Blue screen of death	<ul style="list-style-type: none">• Excessive heat• Water damage• Lightning or power surges• Loose connections• Damaged cables	<ul style="list-style-type: none">• Checking physical connections• Keep away from magnetic devices

2. RAM	<ul style="list-style-type: none"> • Unable to boot your computer • Randomly restarts without any reason • Displays an annoying blue screen • Your attempts to install an application fails repeatedly without any reason 	<ul style="list-style-type: none"> • Power surges can lead a severe damage • Excessive heat • If memory module may have faulty 	<ul style="list-style-type: none"> • Keep it cool • Frequently clean memory module and RAM • Change the RAM if required
3. Processor	<ul style="list-style-type: none"> • Computer freezes during work • Boot up and shuts down quickly • Not even boot up indicates a post test is running • Displays "system abort" blue screen 	<ul style="list-style-type: none"> • Overheating • Voltage surges may damages the processor 	<ul style="list-style-type: none"> • Use a good quality CPU cooler and clean it regularly • Use a voltage stabilizer for more care
4. CMOS battery	<ul style="list-style-type: none"> • Incorrect time and date setting • Getting errors like "CMOS checksum error" or "CMOS read error" • Not detecting mouse ,keyboard or other devices sometimes • PC occasionally turn offs and doesn't starts 	<ul style="list-style-type: none"> • Outdated CMOS battery • Improper installation of CMOS battery 	<ul style="list-style-type: none"> • Change the CMOS battery if required
5. SMPS	<ul style="list-style-type: none"> • Suddenly PC restarts while using heavy games or softwares • Noisy fan • Freezing of PC 	<ul style="list-style-type: none"> • Continuos voltage fluctuations • Improper power supply from mains • Dirt,dust particles in SMPS • overheating 	<ul style="list-style-type: none"> • Clean the fan vents using soft brush or low pressure vacuum • Cleaner • Use UPS to get rid of continuos voltage fluctuations
6. ATX connector	<ul style="list-style-type: none"> • CPU not starting • PC not booting 	<ul style="list-style-type: none"> • Damaged cables • Damaged socket pins • Dirt ,dust particles inside 	<ul style="list-style-type: none"> • Clean the connector and socket regularly

7. PCI slot	<ul style="list-style-type: none"> • PCI cards not working • for eg. ethernet card ,sound card 	<ul style="list-style-type: none"> • Defected PCI slot may result in failure. • PCI card may be defected. 	<ul style="list-style-type: none"> • Try to clean the slot by low pressure vacume cleaner.Try to change the slot for PCI card. • If it not works then you need to change the card.
8. PCI express	<ul style="list-style-type: none"> • Video quality may get lowered if the Video card if not working properly. 	<ul style="list-style-type: none"> • May be due to bad connection between card and slot due to dirt,dust. • Slot may get damaged. • Video card may be defected. 	<ul style="list-style-type: none"> • Try to clean the slot with low pressure vacuum cleaner. • Try to change the slot for video card. • If it not works then may be you need to change the video card.
9. USB port	<ul style="list-style-type: none"> • Unable to detect the USB devices. • Keyboard or mouse connected to USB may not work properly. 	<ul style="list-style-type: none"> • USB ports may get damaged due to dirt or dust. • It may be permanantly damaged due to some reason. 	<ul style="list-style-type: none"> • Try to change the USB port.
10. Audio ports	<ul style="list-style-type: none"> • Audio quality is not good as required. • Unable to hear audio . • Mic doesn't work. 	<ul style="list-style-type: none"> • Audio ports may get damaged due to dirt or dust. • It may be permanantly damaged. 	<ul style="list-style-type: none"> • Clean the ports regularly with low pressure vacuum cleaner. • If it is permanantly damaged then you may need to install external audio card.
11. Ethernet port	<ul style="list-style-type: none"> • Internet connection gets lost suddenly. • Internet does not works. • Slow connection. 	<ul style="list-style-type: none"> • Ethernet port may damaged. • It may get spoil due to dirt or dust. 	<ul style="list-style-type: none"> • Clean the ethernet port and the connector regularly with low pressure vacuum cleaner. • If it does not work anymore then you may

			<ul style="list-style-type: none"> need to add extra ethernet card.
12. VGA port	<ul style="list-style-type: none"> Monitor blinks frequently. Vertical or horizontal lines may be seen. Dead or stuck pixels. Incorrect resolution. Random shutoffs. 	<ul style="list-style-type: none"> VGA cable is damaged. There may be dirt or dust inside the VGA socket or connector. 	<ul style="list-style-type: none"> Clean the VGA socket and connector regularly with low pressure vacuum cleaner. Try to change the VGA cable if it doesn't work anymore.
13. PS /2	<ul style="list-style-type: none"> Unable to detect the keyboard or mouse. Keyboard or mouse suddenly stops working. 	<ul style="list-style-type: none"> Socket pins may get damaged. It may get spoil due to dirt or dust. Cable may get damaged. 	<ul style="list-style-type: none"> If pins are damaged try to fix it gently. Clean the socket and connector regularly.
14.AC supply port	<ul style="list-style-type: none"> Unable to start the CPU. CPU suddenly stops when doing some work. 	<ul style="list-style-type: none"> Socket pins may get damaged. Socket or connector may get spoil due to dirt or dust. 	<ul style="list-style-type: none"> Try to clean the socket and connector by low pressure vacuum cleaner. If it not works then you may need to change the AC supply cable.
15. Cooling fan	<ul style="list-style-type: none"> CPU is heating constantly. unable to hear the voice of cooling fan. 	<ul style="list-style-type: none"> Fan may get spoil due to dust or dirt. Cable may get damaged. 	<ul style="list-style-type: none"> Try to clean the cooling fan and its connector with low pressure vacuum cleaner.

➤ QUESTIONS FOR LEARNING :

1.What are the reasons for CPU failure ?

ANS:

- i How long it have been working , it must have it's limits of working time.
- ii Overheating CPU's components.
- iii Overclocking , over stressing your processors.
- iv high voltage can render a CPU.

2.How to troubleshoot the problems related to monitor ?

ANS :

- 1. Be sure that monitor has ~~no~~ power.
- 2. check the cables connection of CPU to monitor.
- 3. disconnect all devices except mouse and keyboard.
- 4. unplug and plug the power cable in the interval of 20 to 30 seconds.

2. What are the failures that can occur by processor failure?

ANS:

- i. freezing of computer
- ii. Running software gets immediately off and monitor also.
- iii. Blue screen
- iv. Indicating post test is running.

➤ Conclusion:

Using Faulty PC, we studied all the failures and their troubleshoot problem related to the hardware in IBM class. We ~~went~~ went through all the possible problem and failure which may be occur during working on PC and ~~attin~~ in all situation with their troubleshooting measures.

					Teacher's sign

❖ PRACTICAL NO.10

➤ AIM: -

TROUBLESHOOT FOLLOWING:

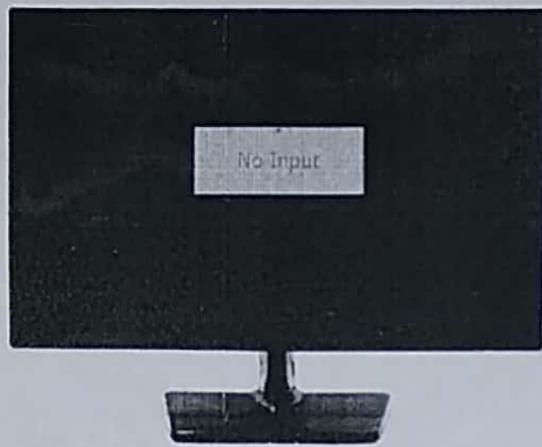
- a) Problems related to monitor
- b) Problems related to processor
- c) Problems related to keyboard and mouse
- d) Problems related to printer

➤ EQUIPMENTS AND MATERIALS: -

- a) Monitor
- b) Processor
- c) Keyboard and mouse
- d) Printer

➤ THEORY: -

- Troubleshoot problem related to monitor



• Steps to Fix the Computer Display Problem:

Check for loose electrical and VGA cables. Remove the electric cord from the back of the monitor, then put it back in place. Remove the VGA cable from the computer and monitor and put it back in place. Make sure the connection is tight. If you're using a cable extender, remove it. If the cable is damaged, replace it.

Plug the monitor's electric cord into a different outlet. If you're using a UPS or surge protector, plug it directly into a wall outlet. If the power adapter is failed, try replacing it.

Attach the monitor to a different computer. If the monitor still doesn't work, replace the monitor's cable. Make sure the cable is less than 5 feet long. If it still doesn't work, the monitor will need to be replaced or repaired. If it works with no problem on the other computer, troubleshoot your video card.

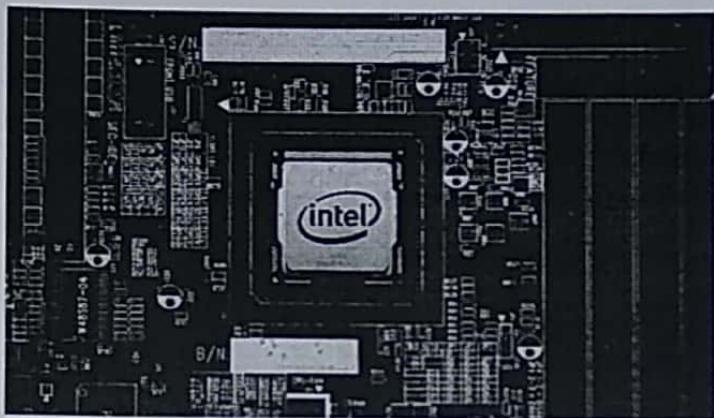
Unplug your computer from the monitor and power outlet. Remove the cover. Pull the video card out of the slot on the system board. Push it back into place. Be sure the connection is secure.

Reinstall the video card drivers. Download a new version of the drivers from the manufacturer's website if necessary.

Right-click a blank area of your Desktop. Choose "Properties" from the display menu. Click the "Settings" tab. Try different screen resolutions to resolve the problem.

Determine whether the problem is caused by electrical interference. Electrical interference will make the monitor appear jumpy or wavy. Move any speakers, radios, fan.

- **Troubleshoot problem related to Processor**



- **Keep an eye on processor temperature.**

It's impossible to say what a "normal" temperature is, because so much depends on the particular processor and CPU cooler, the case and cooling fans you use, the ambient room temperature, and so on. As a rule of thumb, with the processor at idle in a standard mini-tower case, we consider a processor temperature under 35 C to be good; the 35 C to 40 C range to be acceptable; and anything over 40 C to be a good reason to improve the cooling by using a better CPU cooler and/or better case fans.

- **Keep the system clean.**

Blocked air vents can increase processor temperature by 20 C (36 F) or more. Clean the system as often as is necessary to maintain free air flow. If your case has an inlet air filter, check that filter frequently and clean it as often as necessary.

- **Use a good CPU cooler.**

CPU coolers vary greatly in efficiency (and noise level). Although the CPU cooler bundled with a retail-boxed processor is reasonably efficient, replacing it with a good aftermarket CPU cooler can reduce CPU temperature by 5 to 10 C (9 to 18 F). Make sure that the processor surface is clean before you install the CPU cooler, use the right amount of a good thermal compound, and make sure that the heatsink is clamped tightly against the processor.

- Upgrade the case.

In most systems, the processor is the major heat source. A TAC (*Thermally Advantaged Chassis*) case provides a duct (and sometimes a dedicated fan) to route waste CPU heat directly to the outside of the case, rather than exhausting it inside the case. In our testing, using a TAC-compliant case routinely lowered CPU temperatures by 5 to 10 C (41 to 50 F) relative to running that CPU in a non-TAC case.

- Position the system properly.

As amazing as it sounds, changing the position of the case by only a few inches, and in some pretty non-obvious ways, can make a major difference in system and processor temperature.

- Troubleshoot problem related to Printer



- Printer does not have power indicator

First, make sure that the printer is turned on. When a printer is on, it should have some light or LED (usually green) indicating it's receiving power.

If you do not have any indicator light, make sure the printer is connected to a working power outlet by verifying each end of the power cable. Next, press the printer power button.

If after performing the above steps the printer still does not display a power status indicator light, your printer may have a serious internal hardware issue. We suggest contacting the printer manufacturer for repair or replacement.

- Cables not connected properly

Your printer should have two cables connected to it: the power cable and the data cable. Make sure the power and data cables (parallel cable or USB cable) are connected to both the printer and computer.

- Printer error (orange or blinking light)

After your printer has completed its initial startup, you should see a solid colored light. If the indicator is orange or blinking, often this is an indication of a printer error. A paper jam or an issue with the ink or toner cartridge can cause the error.

As there are not standards for all printers, if you see a blinking light, visit the manufacturer's website or review the printer manual for specific error details.

- No paper or paper jam

Without paper, your printer cannot print. Make sure there is paper loaded into the printer paper cartridge or tray. Next, verify that no printer paper is jammed or partially fed into the printer. If you suspect paper is stuck somewhere it shouldn't be.

Troubleshoot problem related to keyboard and mouse: -

- Troubleshoot problem related to keyboard:-



The keyboard is not functioning

Step 1: Verify the connection

If the keyboard is not functioning at all, make sure that it is connected correctly to the computer. Check all the keyboard's plugs to make sure that there are no loose connections. Connect the keyboard to your computer by using a different USB port.

Step 2: Download and install the latest keyboard software

Step 3: Manually reinstall the drivers

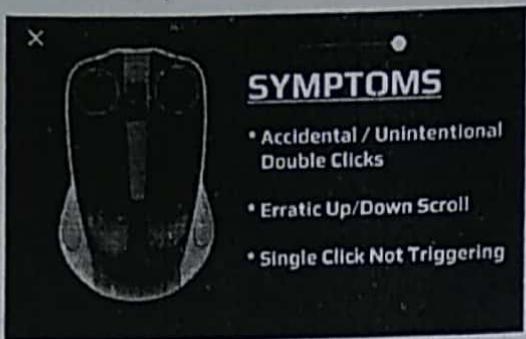
The keys do not strike correctly

If the keys do not strike correctly, make sure that the keyboard is free of dust, dirt, and foreign matter.

The wrong characters are typed

If the wrong characters are typed when you use the keyboard, follow the steps in the "The Keys Do Not Strike Correctly" section to clean the keyboard that are described under "The Keys Do Not Strike Correctly" earlier to make sure that no obstructions under the keys are causing this issue.

- **Troubleshoot problem related to mouse: -**



Hardware

Check your cables, connections and ports. A bad wiring, faulty USB or PS/2 port or bad IR wireless receiver could be the cause of your troubles. Try other devices on your ports to make sure they are working properly.

Is The Mouse Pointer Movement Not Smooth?

If the cursor movement of your mouse is not smooth, it is most likely caused by a dusty sensor area or a dirty surface on which you use the mouse.

Is Your Mouse Cursor Frozen?

It happens that the mouse cursor just freeze and stops working. In the kind of situations, the problem is usually cause by an overworked computer rather than a faulty mouse. Try to close some applications running in the background of your computer.

Do You Struggle Double Clicking Properly?

Here again, we are not speaking about a proper issue but just an adjustment problem. Same as for the speed of the cursor movement, go to the mouse options into the control panel but this time, click on the « Button » tab. There you will be able to choose the speed level of the double click feature.

➤ QUESTIONS FOR LEARNING:

1. Write the steps to fix the monitor problem.

- i check all the cables ^{wheather they} are not loose.
- ii Check VGA cable on another desktop where VGA is not defected.
- iii Simply turn the monitor off and turn it back on.
- iv take look through monitors settings
- v If none of the troubleshooting steps does not work on this, then it likely that the monitor is bad condition and will need to be replaced.

2. How to troubleshoot the problems related to processor?

- i Use the motherboard monitoring program or reboot the system.
- ii Run BIOS setup
- iii Check the filter frequently.
- iv Check all the peripherals, memory & graphic adapter.

V check CPU fan, replace it if necessary

VI. Update BIOS from manufacturer.

VII. Set motherboard for proper core processor voltage.

3. Difference between troubleshooting related to mouse and printer.

Mouse

- i. check cable connection and ports
- ii. check the USB is ~~not~~ faulty or not.
- iii. Dusty sensor can cause problem
- iv. Be sure about the mouse pad is not dusty.

Printer

- i. make sure the proper connection of cables.
- ii. make sure that you have sufficient papers in the printer
- iii. sometime paper get stuck into the window during printing, so put papers in proper manner

➤ Conclusion:

We have studied all the troubleshooting problems and their stepwise procedure related to monitor, processor, keyboard and mouse and printer. We have seen all the possible solution to solve the problems and get the devices recovered from it successfully.

					Teacher's sign

Practical No. 11

Aim:- Install antivirus software

Questions for Learning:-

- + What happens if a virus infects without an antivirus?
 - A virus is a software program which is used to replicate itself and spread to other machines. If a virus infects a computer, then it slows down the performance of the infected computers. sometimes it may occur data loss and all of the function in computer doesn't work well.
-
2. How to install an antivirus program on a computer?
 - To install the antivirus program on a computer, follow the steps below:
 - I. Purchase the program from retail store.
 - II. Insert CD and DVD into the computer's disc drive.
 - III. Installation process should start automatically with a window.
 - IV. Follow the steps provided into that window.
 - V. Close all install window after completion of installation process.
 - VI. After installation, sometimes you need to update that program.

Q & A Session

5. What are some examples of antivirus programs?

- i. Bitdefender family Pack.
- ii. Trendmico.
- iii. Norton 360.
- iv. AVG.
- v. Avira
- vi. McAfee.
- vii. Watchdog.

Conclusion :- In this practical we find that antivirus are used to defense our PCs and other devices. and don't leave your devices & PCs ground without antiviruses.

Practical No.12

Aim :- Prepare the checklist for preventing maintenance of computer hardware.

Questions for Learning :-

- + Why do we need preventive maintenance for computer hardware?
- we need preventive maintenance for our computer hardware because of decreased equipment downtime, conservation of assets, improve safety, improve efficiency, to improve reliability. we also have to update our PCs security and we have to verify all of our backup data and a monthly preventative maintenance can be good for our PCs.

2. List different preventive maintenance for computer hardware?

- - i. Regular cleaning of components in computer.
 - ii. updating drivers for hardware.
 - iii. Wipe the case and clear it's ventilation ports
 - iv. keep a neat clean keyboard and mouse.
 - v. A periodic checkup for PC.

Right Joints

Conclusion: we have learned that all the components in computer hardware is the collection of physical components that makes our PCs work and we have to make sure that they work properly by doing these maintenance.

and while trying to a
consuming method or a
method of its
program and application software
programs that are ill or wrong

addressing the program will be bad &

Practical No. 14

Aim :- Perform Preventive Maintenance of a computer system.

Questions for learning :-

1. Why do we need preventive maintenance for computer system.

→ i. To prevent data loss.

ii. To better performance.

iii. To fix security

iv. Preventive maintenance for computer system will ensure a long lifespan.

2. What is the importance of preventive maintenance of computer system?

→ i. Always have a backup.

ii. Never download any file from untrusted sites.

iii. Use an anti-virus solution or programs.

iv. Secure Internet Explorer.

v. Keep your system updated.

3. List different preventive maintenance for computer system.

→ i. Clean the cabinets.

ii. Swipe CD and DVD drives

iii. Updating security

iv. Update software regularly

v. Cleaning the keyboard and mouse.

Conclusion

Conclusion :- In this practical, we have studied about preventive maintenance of computer system, its importance and why we need to maintain our computer system. All the different preventive measurement taken in this practical.

We found that in preventive maintenance we can easily troubleshoot the system. This also help to increase the life of the system and prevent it from damage.

Practical No. 15

Aim:- Identify hardware substance in e-waste and different ways of e-recycling.

Questions for Learning :-

+ Explain and enlist the hazardous substance.

→ Hazardous substance present almost all the computerised devices. Also we need to handled them with care. Some of them can be radio-active or irritant. This are some of them:

- i acids
- ii glues
- iii Arsenic
- iv Barium
- ✓~~v~~ Beryllium
- VI Cadmium
- VII Lead
- VIII Mercury

2. Identify different ways of e-recycling.

-
- + Picking Shed - sorting all the items manually.
 - II. Disassembly - process of dismantling.
 - III. Reduction Process - shredding the parts.
 - IV. Over band Magnet - to remove magnetic material.
 - V. Separation of non-metallic substances from metallic substances.

Fit old Ineffec^{tive}

3. Explain different ways to reduce e-waste.
- i. Donate or sell working old electronics devices.
 - ii. Recycle via a Retailer.
 - iii. Organize your electronics
 - iv. Buy environmentally friendly electronics.
 - v. Reuse large electronics.

Conclusion :- we have studied hazardous substances in e-waste and different ways of reducing e-waste. Also we distinguish between the substances we can be recycled or reuse. Or the substances which not be recycled.

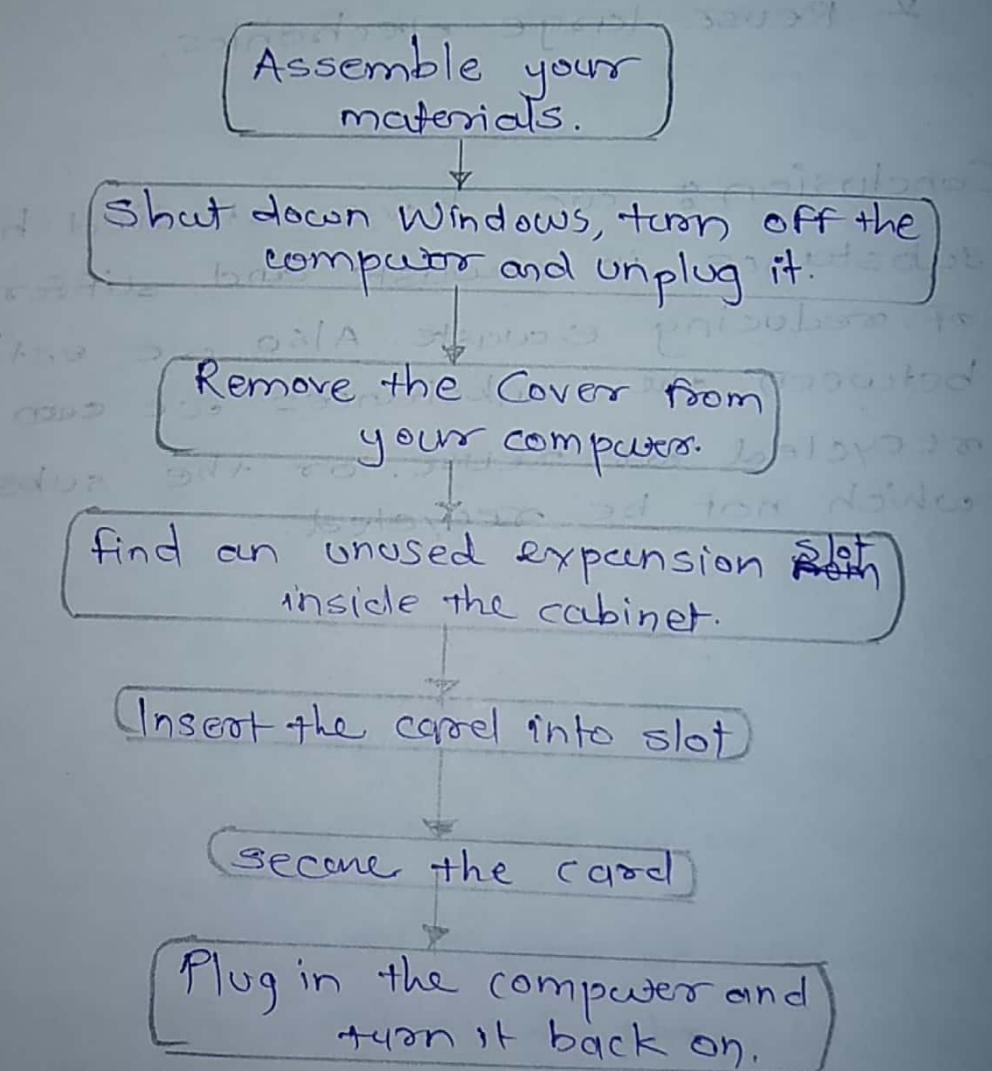
bromine & lead
are good for earth

Practical No. 17

Aim:- Install and troubleshoot a network card in a PC.

Questions for Learning:-

1. Draw a flowchart for Installation process of the network card.



2. Describe the function of a Network card.

- i. It works as a middleman in a computer network.
- ii. It used to connect a computer to network.
- iii. One the function is to frame the transmission to process each bit.
- iv. to attached storage devices to network through ethernet cables.
- v. Having network card would allow you to connect other computer or allow you to transmit data through the network.

Conclusion :- In this practical, we learned how to install a network card and its functions, its software setup and also how to setup jumpers and how to attach internal or external cables.