* What is hardware?

“Hardware in computer is the physical parts of the computer that are visible and we can touch it.”

“OR”

“Hardware described as any physical component of a computer system containing of mother board, ICs, or other electronics.”

* What is the purpose of hardware?

“The purpose of computer hardware is to provide the physical structure for the electronic components of a computer system. Hardware provides the electrical connections for all of the parts inside a computer and allows them to communicate with each other.”

* List out two types of hardware.

“There are two types of hardware first External and second Internal.

External hardware devices include monitors, keyboard, mouse, case, printers, scanners, webcam, etc.

Whereas Internal hardware devices include motherboards, ICs, RAM, hard drives, etc.”

* What is core hardware?

“Core is physical hardware component. And core hardware reference to the minimum physical hardware requirements for a given application to run. Ther can be multiple core CPU and each CPU will independently perform operation from the others.”

* Do a practical of identifying hardware

“1.By touch

2.By vision ”

* What are the category of components in hardware?

“There are four main categories of components in hardware: Input, Processing, Storage, Output. We can also include communication devices.”

* Why category needed?

“These categories help us understand the different functions of hardware components and how they work together to perform tasks. Like…..

Input devices : For raw data input.

Processing devices: To process raw data instructions into information.

Output Devices : For spread or show data and information.

Storage Devices : For data and information store or keep.”

* Do a practical to identify the components which category they come.

“hardware : monitor,keyboard mouse,speaker,printer,Ram motherboard,hard disc, network adaptor

software: it is a program run on computer”

* What is input devices?

“A piece of equipment/hardware which helps us to enter data into a computer.”

* Why input device needed?

“It can allow the users to interact and add, edit additional data and instruction to the computer.”

* List out the input Devices.

“there are many input devices like Keyboard, Mouse, Joy Stick, Light pen, Track Ball, scanner, Graphic Tablet, Microphone, Magnetic Ink Card Reader, Optic Character Reader, Bar Code Reader, Touch Screen monitor Can be act as input device.”

* Do a practical to identify input devices and describe how it works.

“input devices : keyboard, mouse,scanner,joystick, Mic

It takes command from user”

* What are output Devices?

“An output device is any hardware device that is used to send data from a computer to another device or user”

* How does output device work?

“An output device, like a monitor or printer, shows or produces information from a computer. For example, a monitor displays text, images, and videos by using pixels that light up. A printer creates a physical copy of digital documents by transferring ink onto paper. They work by receiving data from the computer and converting it into a form that we can see or touch.”

* List out the output device.

“Here is a list of common output devices:

1. Monitor/Display

2. Printer

3. Speakers/Audio Output Devices

4. Projector

5. Headphones/Earphones

6. VR Headsets

7. Digital Projector

8. Interactive Whiteboard”

* What is motherboard?

“A motherboard is the main printed circuit board (PCB) inside a computer that holds and connects all the essential components. It provides a platform for components like the CPU (Central Processing Unit), RAM (Random Access Memory), storage devices, graphics cards, and more to communicate and function together. The motherboard contains various slots, connectors, and sockets where these components can be attached like pendrives, ethernet cable, WiFi/Bluetooth adapters, SSD (Solid State Drive), HDD (Hard Disk Drive) etc.”

* Why it is called motherboard?

“The motherboard is called that because it's the essential foundation of a computer, holding and connecting all vital components like a mother nurtures her children. It's the core, foundation, and lifeblood of the system.”

* What it is called if we remove all components from the motherboard?

“If you remove all the component from motherboard its called barebones”

* Describe types of motherboard.

“ATX (Advanced Technology eXtended),Micro-ATX,Mini-ITX,Extended ATX (E-ATX),Flex-ATX,Mini-STX,Nano-ITX,BTX (Balanced Technology eXtended) - Less common today,DTX (microBTX),Pico-ITX”

* Do a practical by identifying parts of motherboard.

“CPU Socket

RAM Slots

Expansion Slots

Chipset

SATA Connectors

ATX Power Connector

I/O Ports

BIOS/UEFI Chip

CMOS Battery

SMPS”

* Do a practical by describing the data flow in motherboard

“Data flows between the CPU, RAM, and peripheral devices via the motherboard's bus system.

Processor (CPU)

System Bus, control bus

Memory (RAM)

Chipset

Expansion Slots

Storage Devices (SATA)

Input/Output (I/O) Ports

BIOS/UEFI

* Do a practical by removing all removable parts from the motherboard.

“step 1:Power Down and Unplug

step 2:Open the Computer Case

step 3:Identify Removable Parts

step 4:Removing RAM Modules

step 5: Removing Expansion Cards

step 6:CPU Cooler (Optional)

step 7:Handle Components Carefully

step 8:Storage Devices and Other Connectors

* What is CPU.

“CPU also known as brain of computer, performs all the computational task, it only understands once and zeros.”

* Write the full form of CPU.

“Central Processing Unit”

* What are the types of CPU?

“Desktop CPU, Laptop CPU, ARM CPU, Server CPU, & Workstation CPU”

* What do we need to keep the CPU Healthy?

“Keep it cool using a Fan cooler or Liquid cooling and use it in specified voltages and apply a good thermal compound between cooler and CPU IHS(Integrated Heat Spreader).”

* Do a practical to remove processor and apply thermal paste in it and install it again.

“step 1:Prepare the thermal paste

step 2 :Power Down and Unplug

step 3:Remove CPU Cooler (if installed)

step 4:Unlock and Remove the CPU

step 5:Clean the CPU (if necessary)

step 6:Applying Thermal Paste

step 7:Reinstalling the CPU

step 8:Reattach CPU Cooler (if removed)

step 9:Closing Up

* Do a practical to Identify CPU and its Sockets.

The CPU is a chip on the motherboard, often under a heatsink/fan.

Look for manufacturer markings and model numbers on its surface.

CPUs have pins (PGA) or contacts (LGA) on their underside.

Identifying CPU Sockets:

step 1:Located on the motherboard.

step 2:Specific design to fit a particular CPU type/generation.

step 3: Count pins or contacts, note the socket's distinct layout for identification.

* What is monitor?

“Monitor is an electronic output device used to display information being entered and processed on a computer.”

* List out the types of monitor.

“CRT, LED, & LCD monitors,Amoled,Ultra Amoled,Super Amoled”

* Do a practical to identify monitor Technology.

“By Visual Inspection

By Display Settings

By Physical Characteristics:

like in LED it has small LED there in display can see it by magnifier”

* What are the Technologies used in monitor.

“TN Panels: Cheap and easy to manufacture

VA Panel: Costly than TN but cheaper than VA better viewing angles from TN

IPS Panels: Best in class monitor”

* Describe how does the crt monitor works?

“electron beams at a phosphor-coated screen, creating tiny colored dots that form images when the beams scan across the screen.”

* What is system bus?

“A system bus is a single computer bus that connects the components of a computer system, combining the functions of a data bus to carry information, an address bus to determine where it should be sent or read from, and a control bus to determine its operation.”

* List out the types of system bus.

“Address Bus

Data Bus

Control Bus”

* Describe the working of system bus.

“The system unit bus is like a data highway inside your computer. It carries information between different parts, like the processor, memory, and peripherals. It's like the communication system that helps these parts talk to each other and work together.”

* Do a practical to identify the system bus.

“we can see the thin line on mother board

Step 1:Check Documentation: Refer to the motherboard manual or specifications to identify the system bus type.

step 2:Inspect Motherboard: Look for labels or markings on the motherboard itself indicating the system bus type.

step 3:Online Research: Use the motherboard model to search online for specifications and details regarding the system bus.

step 4:BIOS/UEFI Settings: Access the BIOS/UEFI settings during system startup to find information about the system bus.

step 5:System Information Software: Use system information software to gather details about the motherboard, including the system bus type.”

* What is chipset?

“A chipset is like the traffic cop of your computer's motherboard, directing data flow between the processor, memory, and other components to ensure they work together smoothly.”

* What are the types of chipset?

“Northbridge Chipset

Southbridge Chipset”

* Which chipset does have direct contact with the cpu.

“northbridge”

* Do a practical to identify the chipset

“step 1:Check Documentation: Refer to the motherboard manual or specifications to identify the chipset information.

step 2:System Information Software: Use system information tools (e.g., CPU-Z, Speccy) to view detailed information about the motherboard's chipset.

step 3:Device Manager (Windows): In the Device Manager, expand the "System devices" category to find details about the chipset.

step 4:BIOS/UEFI Settings: Access the BIOS/UEFI settings during system startup and look for information about the chipset.

step 5:Online Search: Search online using the motherboard model to find specifications, which often include details about the chipset.”

* Describe how does the Northbridge chipset work?

“The northbridge handles the high-speed communication between the CPU, memory, and graphics card”

* What is memory?

“Memory is like your computer's short-term brain—it stores information that the processor needs to access quickly while the computer is running.”

* What are the types of memory?

“primary and secondary”

* Describe memory in detail.

“Memory is the electronic holding place for the instructions and data a computer needs to reach quickly. It's where information is stored for immediate use. Memory is one of the basic functions of a computer, because without it, a computer would not be able to function properly.”

* What are memory types

“random access memory (RAM)

read-only memory (ROM)

cache memory

virtual memory

hard disk drives (HDDs)

solid state drives (SDo a practical to identify memory types.

SDs).”

* Do a practical to install memories in system

“Step 1 - Gathering Supplies

Step 2 - Shut Down Your Desktop Computer

Step 3 - Unplug the Power Cable

Step 4 - Hold the Power Button for Five Seconds

Step 5 - Open the Case

Step 6 - Ground Yourself!

Step 7 - Remove Existing Memory Modules

Step 8 - Install Memory

Step 9 - Close the Computer Case

Step 10 - Plug the Power Cable in”

* Do a practical to identify main memory frequencies.

“step 1:System Information Software: Use system information tools (e.g., CPU-Z) to view detailed information about the main memory (RAM) frequencies.

step 2:Task Manager (Windows): In Task Manager, go to the "Performance" tab, click on "Memory," and check the "Speed" field for the RAM frequency.

step 3:BIOS/UEFI Settings: Access the BIOS/UEFI settings during system startup and look for information about the memory frequency.

step 4:Manufacturer's Documentation: Refer to the documentation or specifications provided by the RAM manufacturer or the computer system manufacturer.

step 5:Online Search: Search online using the RAM model or computer specifications to find details about the main memory frequencies”

* What is system unit?

“The system unit is the core component of a computer that houses essential hardware components like the motherboard, CPU (Central Processing Unit), RAM (Random Access Memory), storage drives, power supply, and other internal components.”

* How does system unit work?

“It works by coordinating the functions of these components, with the CPU performing calculations and executing instructions stored in memory, while the motherboard facilitates communication between all the parts.”

* What are the components and system unity?

“Components of the system unit include the motherboard, CPU, RAM, storage devices (like hard drives or SSDs), power supply unit (PSU), cooling system (fans or heat sinks), and expansion cards (such as graphics cards or network adapters).”

* Do a practical to identify system unit.

“step 1:Examine Labels: Check the labels on the external case of the system unit for model information.

step 2:System Information Software: Use system information tools (e.g., Speccy) to retrieve details about the system unit, including the model and specifications.

step 3:Look for Manufacturer Stickers: Check for stickers or labels on the case that may contain information about the system unit, including the model and serial number.

step 4:Access System Properties (Windows): Right-click on "This PC" (or "My Computer"), select "Properties," and find information about the computer model.

step 5:Check User Manual: Refer to the user manual or documentation that came with the system unit for identification details.

step 6:Online Search: Search online using any model information you find to gather more details about the system unit.”

* Do a practical to assemble and disassemble system unit

“step 1:Install Power Supply: Mount the power supply in the case and secure it.

step 2:Insert Motherboard: Place the motherboard in the case, aligning it with standoffs.

step 3:Install CPU: Insert the CPU into the motherboard socket and secure the retention mechanism.

step 4:Attach CPU Cooler: Mount the CPU cooler on the processor following manufacturer instructions.

step 5:Install RAM: Insert RAM modules into the motherboard's DIMM slots.

step 6:Connect Storage: Connect hard drives or SSDs to the motherboard and power supply.

step 7:Install Graphics Card: If applicable, insert the graphics card into the appropriate PCIe slot.

step 8:Connect Cables: Attach power cables, front panel connectors, and other necessary cables.

step 9:Check Connections: Ensure all components are securely connected.

step 10:Close Case: Seal the case, securing it with screws.

Disassemble System Unit:

step 1:Power Off: Shut down the computer and disconnect it from the power source.

step 2:Open Case: Remove screws securing the case panels and open the case.

step 3:Disconnect Cables: Unplug all cables connected to the motherboard, GPU, drives, and power supply.

step 4:Remove Graphics Card: If present, gently release the PCIe lock and take out the graphics card.

step 5:Disconnect Storage: Detach data and power cables from hard drives or SSDs.

step 6:Remove RAM: Press down on the RAM retention clips and remove RAM modules.

step 7:Detach CPU Cooler: Unmount the CPU cooler following the manufacturer's instructions.

step 8:Take Out CPU: Lift the CPU retention arm and carefully remove the CPU from the socket.

step 9:Uninstall Power Supply: Remove screws securing the power supply and disconnect it from the case.

step 10:Extract Motherboard: Unscrew the motherboard from the case and lift it out.”

* What is BIOS?

“BIOS (Basic Input/Output System): BIOS is firmware that initializes hardware components and facilitates the boot process by providing a low-level interface between the operating system and the computer's hardware.

it perform POST method first and than check all the test”

* What is the full form of bios

“Basic Input/Output System”

* Describe working process of BIOS.

“Power-On Self-Test (POST): BIOS conducts a series of checks on hardware components like CPU, memory, and storage devices during system startup.

Initialization: It initializes hardware, ensuring they're ready for use by the operating system.

Boot Sequence: BIOS locates and loads the boot loader from the storage device (such as a hard drive or SSD) to start the operating system.

Hardware Interaction: BIOS provides low-level control and communication between the operating system and hardware components.

User Configuration: It stores and allows users to access and modify settings like date/time, boot order, and hardware parameters in a BIOS setup utility.”

* Do a practical to reset bios when system is on.

“step 1:Access BIOS/UEFI: Restart the computer and repeatedly press the key to enter the BIOS/UEFI setup (common keys include Del, F2, F10, F12, Esc - check your motherboard's manual or screen prompt during boot).

step 2:Navigate to "Reset" or "Load Defaults": Inside the BIOS/UEFI, look for an option like "Load Setup Defaults," "Load Optimized Defaults," or "Reset to Default Settings." Navigate using arrow keys.

step 3:Confirm Reset: Confirm the action when prompted. This may involve pressing a key or selecting an option like "Yes" or "OK."

step 4:Save Changes and Exit: After resetting, find the option to "Save & Exit" or a similar phrase. Confirm and exit the BIOS/UEFI.

step 5:Reboot: Allow the system to restart. The BIOS settings will now be restored to their default configuration.”

* Do a practical of Hard resetting the BIOS.

“step 1:Power Off the Computer: Shut down the computer and disconnect it from the power source.

step 2:Locate the CMOS Battery:

Identify the CMOS battery on the motherboard. It is a coin-cell battery usually located near the CPU socket.

step 3:Remove the CMOS Battery:

Use a screwdriver or your fingers to gently remove the CMOS battery from its socket. Be careful not to damage the battery or surrounding components.

step 4:Wait for Some Time:

Allow the system to sit without the CMOS battery for about 5-10 minutes. This gives enough time for the CMOS memory to discharge and reset.

Step5 :Reinsert the CMOS Battery:

Place the CMOS battery back into its socket, ensuring it is properly seated.

Step 6 :Power On the Computer:

Reconnect the power source and turn on the computer.

Step 7 :Access BIOS/UEFI:

During the boot process, enter the BIOS/UEFI setup by pressing the designated key (common keys include Del, F2, F10, F12, Esc).

Step 8 :Load Default Settings:

Inside the BIOS/UEFI setup, navigate to the option that loads default settings. This could be labeled as "Load Setup Defaults," "Load Optimized Defaults," or similar.

Step 9 :Save Changes and Exit:

Confirm the reset and save changes before exiting the BIOS/UEFI setup.

Step 10 :Reboot:

Allow the system to restart. The BIOS settings will now be reset to their default configuration.”

* Do a practical of identifying BIOS chip from the motherboard

“On motherboard you can see it by small chipset with green label or with near CMOS battery

Also manufacture write the name on bios chip”.

* What is CMOS?

“Complementary Metal-Oxide-Semiconductor. In computing, CMOS refers to a technology used to create low-power integrated circuits found in various components of a computer system, including RAM, processors, and other devices.”

* What is the full form of CMOS?

“Complementary Metal-Oxide-Semiconductor”

* Describe the working process of CMOS

“it store time and user login credentials and also the time when user login and logout.

Maintain the time on computer

Storing BIOS Settings: When the computer is powered on, the BIOS (Basic Input/Output System) reads the configuration data stored in the CMOS memory.

Maintaining Settings: Users can access and modify BIOS settings through a setup utility. Changes made are stored back into the CMOS memory.

Stable Configurations: CMOS ensures the persistence of stable system configurations between power cycles, providing the BIOS with the necessary data to initialize hardware correctly during system startup.”

* Do a practical of identifying cmos.

“on motherboard we can see it by small battery type

Like in handwatch we can see the battery there also on motherborad we can see that types of battery”.

* Do a practical of installing cmos

“First locate the CMOS battery chipset

Than remove the older one with your hand

Than replace it with new one and close the work”

* How do we know that cmos is not working.

“Date/Time Reset: The system repeatedly resets date and time settings to default upon startup.

Error Messages: Prompting errors related to CMOS or BIOS settings during boot-up.

Hardware Recognition Issues: Failure to recognize hardware changes or incorrect hardware configurations.

Inability to Save BIOS Settings: Changes made to BIOS settings aren't retained after the system restarts.

CMOS Battery Warning: If the CMOS battery is drained or failing, a warning or error message about the battery may appear during boot-up.”

* What is boot process?

“The boot process is like waking up your computer. When you turn it on, the BIOS (Basic Input/Output System) starts, checking hardware and initializing key components. Then, it looks for the operating system on your storage (like the hard drive) and hands over control, allowing the OS to load and start your computer.”

* What is the first process of boot?

“Power-On Self-Test”

* What is the final stage in the boot process?

“User Login/Interface”

* Describe the boot process in Linux?

“GRUB (GRand Unified Bootloader).

LILO (LInux LOader) or Syslinux”

* What is SMPS?

“SMPS also know as PSU Power supply units converts AC to DC. Main function is to supply proper voltage to components usually 12V, 5V & 3V”

* What is the process of SMPS?

“The SMPS (Switched-Mode Power Supply) is a critical component in a computer that converts AC (Alternating Current) voltage from the power outlet into DC (Direct Current) voltage suitable for the computer's components.”

* Do a practical to install SMPS.

“step 1: off the switch

Step 2: replace old SMPS

Step 3: install new SMPS

Step 4: connect cables

Step 5 : ste up screws

On the switch

Check the all cables working”

* how many sata connectors are there in normal smps?

“24 pins connector”

* Do a practical to troubleshoot a smps without plugging it ot the system

“Check by vision like physical dama6

Fuse check not burnt of damaged

Check the capacitor

Also check for the loose connection like unstoppable pin

Last things is to check voltage”

* What is RAM?

“RAM, or Random Access Memory, is like your computer's short-term memory. It stores data that the computer is currently using or processing. When you run programs or open files, the data gets temporarily stored in RAM for quick access by the processor, allowing the computer to work faster.”

* What is the full form of RAM?

“Random Access Memory”

* What are the types of ram?

“DDR (Double Data Rate)

DDR2

DDR3

DDR4

DDR5”

* Do a practical to identify RAM

“by pin identify

DDR-184 pins

DDR2-240

DDR3-240

DDR4-288

DDR5-288

By also the capacitor “

* Do a practical to identify ram and install it in a proper system.

“step 1 :Locate RAM slots on the motherboard.

Step 2:Identify the type of RAM your system supports (e.g., DDR4).

Install RAM:

Step 3: Align the notches on the RAM stick with those on the slot.

Gently press down on both ends until the clips lock the RAM in place.

Ensure it's secure, and repeat for additional RAM sticks if needed.

* what are the types of devices?

“There are two types of devices

Input devices

It takes input from user

Output device

It give the desire out out result to the specific user”

* What are the types of cable?

“HDMI (High-Definition Multimedia Interface)

USB (Universal Serial Bus)

Ethernet

VGA (Video Graphics Array)

DisplayPort

Thunderbolt

Audio Cables

Power Cables

* What cables are used to connect printer?

“USB Cable

Ethernet Cable,”

* What was the first cable founded by Apple for data transfer?

“Apple Desktop Bus (ADB) cable”

* Do a practical to identify sata cables.

“We can define SATA cables by pin normal sata cables has 7 pins and older version sata has 15 pins. 7 horizontal pins, four pins arranged in two pairs for data and 3 ground pins”

* Do a practical to identify and install the cables in the system.

“First step: we need to check sata calves pin and than we can attache it with motherboard

second steps: is to verify the pins is it 7 pin connector or a 15 pin connector”

* Why expansion card needed?

“Increased Functionality

Upgradability

Customization

Compatibility”

* why expansion slot needed?

“Enhanced Functionality

Flexibility and Customization

Upgradability

Compatibility”

* what are the types of expansion card?

“Graphic cards

Sound cards

Network interface cards

Storage controller cards

Capture card

USB/FireWire Expansion Cards

Expansion Cards for Specialized”

* Do a practical to identify the types of expansion slots

“PCI, PCIe (PCI Express), and AGP (Accelerated Graphics Port) are common types of expansion slots on motherboards. They allow you to add extra components like graphics cards, network cards, or sound cards to enhance your computer's capabilities

We can identify by their pins and names”

* Do a practical to install the Graphics card

“step 1: We need graphic card and the AGP slot on motherboard for that

step 2:

gently attache the graphic card with AGP slot than only check for proper arrangement

last step is to check on monitor the graphic card successfully attached or not”

* Do a practical to install LAN card

“LAN card same as the graphic card we can use it when we need to use internet in out system computer.

step 1: identify slot

step 2: on PCIe connect as we connect graphic card than check it for verification”

* What is O/I ports available

“USB

Ethernet Port

HDMI

VGA (Video Graphics Array)

Audio Ports

Thunderbolt Port

DisplayPort

Serial and Parallel Ports”

* Do a practical to identify the O/I ports.

“We can identify by the readable text or by small images near that port design by manufacturers

Like on HDMI port near it we see the logo

Also we can identify by pins and different port like on HDMI only HDMI port can be connect”

* List out the I/O ports available

“USB

Ethernet Port

HDMI

VGA (Video Graphics Array)

Audio Ports

Thunderbolt Port

DisplayPort

Serial and Parallel Ports”

* Do a practical to identify the I/O ports

“We can see the back panel of motherboard we can see the board

Like HDMI , KEYBOARD AND MOUSE PORT, ETHERNET PORT,USB PORT,MIC PORT, SPEAKER PORT,JACK PORT”

* What is the role of BIOS in I/O?

“The main use of BIOS is to act as a middleman between Operation systems and the hardware they run on”

* What is the role of I/O in CMOS?

“The Input/Output (I/O) settings in CMOS (Complementary Metal-Oxide-Semiconductor) control how the computer communicates with external devices. They manage data transfer between the computer's central processing unit (CPU) and peripherals such as keyboards, mice, and storage devices.”

* Why laptop is used widely now a days?

“Laptops are popular nowadays because they are portable. They let you do almost everything a regular computer does, but you can carry them around easily. You can work, watch movies, play games, or connect to the internet from almost anywhere with a laptop. Their flexibility and portability make them a preferred choice for many people who need to work or do things on the go.”

* Describe the working process of laptop?

“Powering On

Booting Up

Load Interaction

starting System

User Interaction

Hardware & Software Interaction

Processing Data

Display and Output

Saving and Storing

Shutting Down”

* What is storage?

“Storage is like a digital locker inside a computer where you keep your files, photos, videos, and programs safe. It's where the computer saves everything you want to keep for later use.”

* List out types of storage.

“Hard Disk Drives (HDD)

Solid State Drives (SSD)

External Hard Drives

USB Flash Drives

Memory Cards

Cloud Storage”

* Do a practical to identify types of storage.

“HDD

SSD

Memory card

Tape drive

we can define them base on their look

ssd is smaller than hdd and memory card more smaller than the ssd and the tape drive used different material like old video cassette ”

* Do a practical to disassemble and assemble the storage.

“Disassembling:

Power Off: Shut down the computer and disconnect it from the power source.

Remove Cables: Disconnect all cables connected to the storage device.

Open the Case: If the storage device is internal, open the computer case using appropriate tools.

Identify the Storage Device: Locate the storage device you want to disassemble.

Unscrew and Disconnect: Carefully unscrew any screws securing the storage device and disconnect any cables connected to it.

Remove the Device: Gently slide or lift the storage device out of its slot.

Assembling:

Prepare the Storage Device: Ensure the storage device is in good condition and clean if necessary.

Position the Device: Place the storage device in its designated slot, aligning it correctly.

Connect Cables: Reconnect any cables to the storage device securely.

Secure with Screws: If applicable, secure the storage device in place by tightening the screws.

Close the Case: If the storage device is internal, close the computer case and secure it with screws.

Power On: Reconnect the computer to the power source and power it on to check if the storage device is recognized”

* Do a practical to install the storage devices.

“Open Computer Case:

Use a screwdriver to remove the screws securing the computer case.

Slide or lift the side panel to open the case.

Identify Drive Bays:

Locate the drive bays inside the case where you'll install the HDD.

Prepare HDD:

Take the HDD out of its packaging.

Set the jumper settings (if needed) to "Master" or follow manufacturer instructions.

Install HDD:

Slide the HDD into an available drive bay, aligning screw holes.

Secure the HDD in place with screws.

Connect Cables:

Attach SATA power and data cables to the HDD.

Connect the other ends to the corresponding motherboard and power supply ports.

Close Computer Case:

Securely close the case and fasten the screws.

Power On:

Reconnect the computer to the power source.

Turn on the computer.

Check Recognition:

Enter BIOS/UEFI settings to confirm the HDD is recognized.

Format and partition the HDD in the operating system if needed.”

* What is printer?

“A printer is a device that accepts text and graphic output from a computer and transfers the information to paper”

* Why is printer needed?

“To get a hard copy of a document or a file”

* Describe the working process of printer.

“A printer works by receiving electronic data from a computer and translating it into a physical copy on paper. The process typically involves the following steps:

Data Input: The computer sends a digital file to the printer containing the text, images, or graphics to be printed

Data Processing: The printer's internal processor interprets the electronic data and converts it into a format the printer can understand

than the process

the ink will spray on the paper as the desire out put”

* What are the types of printer.

“Inkjet Printers

Laser Printers

Dot Matrix Printers

3D Printers

Photo Printers”

* Do a practical to install the printer

“Connect the printer to a power source.

Plug the printer into the computer using a USB cable or connect it via a network (Ethernet/Wi-Fi).

Turn on the printer and wait for the computer to detect it.

Install the printer drivers by following the manufacturer's instructions or letting the operating system automatically install them.”

* Do a practical to Troubleshoot the improper printer.

“Check the connections between the printer and the computer.

Verify that the printer has paper and ink/toner.

Restart both the printer and the computer.

Update or reinstall printer drivers.

Check for any error messages on the printer display or in the computer's printer settings.”

* What is storage device?

“A storage device is hardware used to store and retrieve digital information permanently or temporarily from a computer or electronic device.”

* Why we need storage device?

“Storage devices are essential for storing operating systems, software applications, documents, multimedia files, and other data in computers or electronic devices.”

* List out the types of storage devices.

“Hard Disk Drives (HDDs)

Solid-State Drives (SSDs)

USB Flash Drives

Memory Cards (SD cards, microSD cards)

Optical Discs (CDs, DVDs, Blu-ray discs)

Magnetic Tape”

* Describe the working process of storage devices.

“Data is written and read from storage devices by encoding information onto magnetic disks (HDDs), flash memory cells (SSDs, USB drives), optical discs (CDs, DVDs), or magnetic tape. This information is stored and accessed when needed by the computer's processor.”

* Do a practical to remove storage devices and reinstall it and make a GPT disc

“Power down the computer and unplug it.

Open the computer case and locate the storage device (HDD/SSD).

Disconnect the cables connected to the storage device.

Unscrew or unlatch the device from its mounting.

Install the device back securely into the slot, ensuring proper connections.

Boot up the computer and access the Disk Management tool in Windows.

Initialize the disk, convert it to GPT (GUID Partition Table) format, and create partitions if needed.”

* What is ATA ?

“ATA is an older interface standard used to connect storage devices like hard drives and optical drives to a computer.”

* Describe working of ATA

“ATA facilitates data transfer between the storage device and the computer's motherboard using a parallel interface. PATA, a type of ATA, employs a wide parallel data bus to transfer data in parallel between the device and the motherboard.”

* What is SATA?

“SATA is a newer interface standard that replaced ATA/PATA for connecting storage devices. It uses a serial interface for data transfer, offering faster speeds and smaller, more efficient cables”

* Describe the working of SATA

“SATA transmits data serially, sending information one bit at a time. This allows for higher data transfer rates and thinner cables compared to the older parallel ATA/PATA interface.”

* Where does SATA is used

“SATA is commonly used in modern computers, laptops, and other devices as the primary interface for connecting hard drives, solid-state drives (SSDs), and optical drives.”

* What is scsi?

“SCSI is a high-performance interface used to connect multiple devices like hard drives, tape drives, and scanners to a computer system. It offers faster data transfer rates and supports multiple devices on the same bus.”

* Why scsi needed ?

“SCSI was developed for devices requiring higher performance and the ability to connect multiple peripherals simultaneously, making it suitable for servers and high-end workstations”

* What is the RPM of scsi?

“SCSI drives commonly operate at rotational speeds of 10,000 RPM or 15,000 RPM, providing faster data access compared to standard drives.”

* What is laptop?

“A laptop is a portable computer.it has a rechargeable battery.”

* What are the type of laptop?

“ Ultrabooks (thin and lightweight)

Gaming laptops (optimized for gaming performance)

Chromebooks (running Google's Chrome OS)

2-in-1 or convertible laptops (with touchscreen and versatile form factors)

Business laptops (designed for work-related tasks).”

* Different name of laptop

“Dell, acer, Asus, Microsoft,msi, samsung, Lenovo,LG, HP”

* What are the part of laptop?

“ display screen

keyboard

touchpad

processor (CPU)

RAM

storage (HDD/SSD)

battery

ports (USB, HDMI, etc.)

cooling system

Motherboard “

* What is printer?

“A printer is a device used to produce hard copies of digital documents or images by transferring ink on paper or other media through various printing technologies like inkjet, laser, or dot matrix.”

* Is it a input device or output device?

“A printer is an output device because it produces hard copies of digital information stored in a computer or other electronic devices.”

* Describe the types of printer

“Inkjet Printers

Laser Printers

Dot Matrix Printers

3D Printers

Photo Printers”

* Describe inject printer

“An inkjet printer operates by propelling droplets of ink onto paper to form characters or images. It uses small nozzles in the print head to spray ink onto the paper in a pattern dictated by the digital file being printed.”