**Module 1 [Hardware and its components]**

Topic: The Visible Computer

**• Assignment Level Basic**

1.What is hardware?

Ans. Hardware refers to the physical and visible components of the system such as a monitor, CPU, keyboard and mouse.

2.What is the purpose of Hardware?

Ans. Computer Hardware help for Business Manage Customer Data.

**• Assignment Level Intermediate**

1.list out two types of hardware

Ans. two types of computer hardware monitors, keyboards,

**•Assignment Level Advance**

1.What is core hardware

Ans. a core is a small CPU or processor the minimum hardware required to run an application.

2.Do a practical of identifying hardware

Ans. Done

Topic: Category of components

**•Assignment Level Basic**

1.What are the category of components in hardware?

Ans. categories of hardware are central processing unit ( CPU ) , primary storage , secondary storage , input devices , output devices , and communication devices .

2. Why category is needed?

Ans. use categories to organize our world and our thoughts. the clothes in our closets, and the books in the library are all arranged and sorted based on categories.

**•Assignment Level Intermediate**

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

Ans. Done

Topic: Input Device

**• Assignment Level Basic**

1. what is Input Device

Ans. A piece of equipment/hardware which helps us enter data into a computer is called an input device. For example keyboard, mouse

2.Why input device needed?

Ans. input device is to enable computer operators to have control of the computer and send data such as text, images, or sounds to the computer.

**•Assignment Level Intermediate**

1.List out the input device

Ans. Input Device- Keyboard, Mouse, Microphone, Scanner.

2.Do a practical to identify input device and describe how it work

Ans. Done.

Topic: Output Device

**• Assignment Level Basic**

1.What are output device

Ans. Output Device -A piece of equipment/hardware which gives out the result of the entered input, once it is processed is called an output device.

2. how does output device work?

Ans. The computer processes the input and then sends a new signal to the output device

**•Assignment Level Intermediate**

1.List out the output device.

Ans. output device- monitors, printers, speakers, headphones, projectors, GPS devices,

2.Do a practical to identify the output device and describe its working process.

Ans. Done

Topic: Motherboard

**• Assignment Level Basic**

1.What is motherboard?

Ans. A motherboard is the main printed in a computer. The motherboard is a computer's central communications backbone connectivity point,

2. Why it is called motherboard?

Ans. It's called a motherboard because it's the main circuit board. Much like the term “mothership,” the word motherboard signifies its essential nature.

**• Assignment Level Intermediate**

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

Ans. It's called "bareboarding" when you remove all components from a motherboard. In simple terms, it leaves the motherboard empty. It's like having a blank canvas ready for new components.

2.Describe types of motherboard

Ans.ATX motherboard Intel in the year 1995, AT Motherboards,

Balance Technology Extended BTX, Mini ITX Motherboard,

LPX Low Profile extension.

**• Assignments level Advance**:

1.Do a practical by identifying parts of motherboard.

Ans. Done

2.Do a practical by describing the data flow in motherboard

Ans. Done

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

Ans. Done

Topic: CPU

**• Assignment Level Basic**

1. What is CPU.

Ans.  CPU is the primary component of a computer control center  the main parts of a CPU in computer.

2.Write the full form of CPU

Ans. Central Processing Unit.

**•Assignment Level Intermediate**

1.What are the types of CPU?

Ans. CPU types- single-core, dual-core, Quad-core, Hexa-core, Octa-core, and Deca-core processors,

1.What do we need to keep the CPU Healthy?

Ans. Run regular antivirus scans, Clean the keyboard and case, Update your passwords, Protect with padding, Organize cords, Update your operating system

**• Assignment Level Advance**

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

Ans. Done

2.Do a practical to Identify CPU and its Sockets.

Ans. Done

Topic: Monitor

**• Assignment Level Basic**

1.What is Monitor?

Ans. A monitor is electronic output device. It is used to display images, text, video, and graphics information.

**• Assignment Level Intermediate**

1.List out the types of monitor.

Ans. Types of monitor- LED Monitors, OLED Monitors, DLP Monitors, TFT Monitors, Plasma Screen Monitors.

2.Do a practical to identify monitor Technology.

Ans. Done

3.What are the Technologies used in monitor.

Ans. Major technologies are CRT, LCD and its derivatives (Quantum dot display, LED backlit LCD, WLCD, OLCD), Plasma, and OLED and its derivatives (Transparent OLED, PMOLED, AMOLED).

**• Assignment Level Advance**

1. Describe how does the CRT monitor works

Ans. CRT monitors work by emitting electrons from a heated cathode, accelerating and focusing the electrons into a beam, and directing this beam with magnetic fields to strike phosphor-coated pixels on the screen.

Topic: system bus

**• Assignment Level Basic**

1.What is system bus

Ans. A system bus is a facet of computer architecture that transmits and shares data throughout the computer and between devices.

**•Assignment Level Intediaterm**

1.List out the types of system bus.

Ans. Three types of bus are used- Address bus, Data bus, Control bus.

2.Describe the working of system bus.

Ans. A system bus is a facet of computer architecture that transmits and shares data throughout the computer and between devices.

3. Do a practical to identify the system bus.

Ans. Done

Topic: Chipset

**• Assignment Level Basic**

1.What is chipset

Ans. A chipset is a set of electronic components on one or more ULSI integrated circuits known as a "Data Flow Management System" that manages the data flow between the processor, memory and peripherals.

**• Assignment Level Intermediate**

1.What are the types of chipset?

Ans. 8vsb modulator chipset, 802.11 chipsets, flow control microcontroller, GSM chipset, PCIset, RF chipset, UHF RFID reader chipset, 802.11 AC chipsets.

2.Which chipset does have direct contact with the cpu.

Ans. chipset that directly communicates with the CPU is the Northbridge, managing tasks like memory and graphics, while the Southbridge handles I/O functions like USB and SATA.

3.Do a practical to identify the chipset

Ans. Done

**• Assignment Level Advance**

1.Describe how does the Northbridge chipset work

Ans. Northbridge chipset facilitates high-speed communication between the CPU and memory, managing data transfers and coordinating tasks such as RAM access and graphics processing.

Topic: Memory

**• Assignment Level Basic**

1.What is memory?

Ans. memory is used to store information a computer programs or data.

2.What are the types of memory

Ans. Two types memory – 1 primary memory- DRAM, SRAM, DRDRAM. 2. Secondary memory-PROM, EPROM, EEPROM.

**• Assignment Level Intermediate**

1.Describe memory in detail.

Ans. Memory is the process of taking in information from the world around us, processing it, storing it and later recalling that information, sometimes many years later.

2. What are memory types.

Ans. computer memory: volatile memory, such as RAM, loses data when power is off, and non-volatile memory, like ROM and storage devices,

**• Assignment Level Advance**

1.Do a practical to identify memory types.

Ans. Done

2.Do a practical to install memories in system

Ans. Done

3.Do a practical to identify main memory frequencies.

Ans. Done

Topic: System Unit

**• Assignment Level Basic**

1. What is System Unit?

Ans. system unit definition a case that contains electronic components of the computer it is used to process data.

**• Assignment Level Intermediate**

1.How does system unit work?

Ans. system unit processes and executes instructions stored in memory, and manages input/output operations to perform computing tasks in a computer.

2.What are the components and system unity?

Ans. Specifically, Camera Component, GUI Layer, Flare Layer, and an Audio Listener

**• Assignment Level Advance**

1. Do a practical to identify system unit.

Ans. Done

1. Do a practical to assemble and disassemble system unit.

Ans. Done

Topic: BIOS

**• Assignment Level Basic**

1.What is bios.

Ans. computer program that is typically stored in EPROM and used by the CPU to perform start-up procedures when the computer is turned on.

**• Assignment Level Intermediate**

1.What is the full form of bios

Ans. Basic Input Output System

2.Describe working process of BIOS

Ans. program a computer's microprocessor uses to start the computer system after it is powered on.

**• Assignment Level Advance**

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

Ans. Done.

2.Do a practical of Hard resetting the BIOS.

Ans. Done.

3.Do a practical of identifying BIOS chip from the

Motherboard

Ans- Done.

Topic: CMOS

**• Assignment Level Basic**

1.What is CMOS ?

Ans. The term usually used to describe the small amount of memory on a computer motherboard that stores the BIOS settings.

**• Assignment Level Intermediate**

1.What is the full form of CMOS?

Ans. Full form is complementary metal-oxide semiconductor

2.Describe the working process of CMOS.

Ans. CMOS works by using pairs of complementary transistors to store and manipulate binary information. It efficiently balances power consumption and speed in electronic devices by employing both n-type and p-type transistors simultaneously.

**Assignment Level Advance**

1.Do a practical of identifying CMOS.

Ans. Done

2,Do a practical of installing CMOS.

Ans. Done

3.How do we know that CMOS is not working.

Ans. If the CMOS battery is not working, the computer may consistently lose date and time settings, and the BIOS or UEFI settings may reset to default values each time the system is powered off and restarted.

Topic: Boot process

**• Assignment Level Basic**

1.What is Boot Process?

Ans. The process of booting involves turning on a computer.

**• Assignment Level Intermediate**

1.What is the first process of boot?

Ans. First, the CPU runs an instruction in memory for the BIOS

2.What is the final stage in the boot process?

Ans. The final stage in the boot process is the initiation of user space, where the operating system initializes user-level processes, leading to the presentation of the login prompt or graphical interface.

3.Describe the boot process in Linux?

Ans. Firmware initialization, execution of a boot loader, loading and daemons.

**• Assignment Level Advance**

1. Describe about working with the grub BOOTLOADER.

Ans. GRUB BOOTLOADER involves configuring and managing the boot menu, specifying kernel parameters, and updating the configuration file etc, default, grub. to control the boot process in Linux systems.

2.Describe working process of boot loader.

Ans. The BOOTLOADER initializes the computer, loads the operating system kernel into memory, and transfers control to the kernel, initiating the system's STARTUP process.

Topic: SMPS

**• Assignment Level Basic**

1.What is SMPS?

Ans. SMPS is a type of power supply that efficiently converts and regulates electrical voltage using switching regulators, commonly employed in electronic devices and computers.

2. What is the process of SMPS?

Ans. SMPS Operation Diagram- 1.In the first stage, the incoming AC power runs through a rectifier and undergoes filtration to produce DC. 2.The SMPS works at high frequencies, so a high-frequency switch processes the DC signal, which creates a high-frequency pulsating DC signal

**• Assignment Level Intermediate**

1.DO a practical to install SMPS.

Ans. Done

2.How many SATA connectors are there in normal SMPS?

Ans. Therefore nowadays all the SMPS comes with 24 pin detachable connector (20 + 4) that can be split into 20 pin and 4 pin cables. CPU 4 + 4 Pin Connector.

**• Assignment Level Advance**

1.Do a practical to troubleshoot a SMPS without plugging it to the system.

Ans. Done

2.How many pins does ATX power connector have?

Ans. The ATX power connector typically has 20 or 24 pins.

Topic: RAM

**• Assignment Level Basic**

1. What is RAM?

Ans. RAM is a type of computer memory that provides fast, temporary storage for data and machine code currently being used and processed by a computer..

2.What is the full form of RAM?

Ans. Random access memory.

**•Assignment Level Intermediate**

1.What are the types of ram?

Ans. There are two main types of RAM: Dynamic RAM (DRAM) and Static RAM (SRAM).

2.Do a practical to identify RAM.

Ans. Done

**• Assignment Level Advance**

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

Ans. Done

Topic: Device and cable

**• Assignment Level Basic**

1. What are the types of devices?

Ans. Devices can be categorized into input, output, and storage devices, facilitating interaction with computers and data processing

2.What are the types of cable?

Ans. Cables include HDMI for multimedia, USB for universal connectivity, Ethernet for networking, VGA for video, and power cables for electrical supply

**• Assignment Level Intermediate**

1.What cables are used to connect printer?

Ans. The majority of printers are compatible with a USB 2.0 A/B cable. The "A" side of the cable plugs into the USB port on your computer and the "B" side plugs into the back of the printer.

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

Ans. Lightning to USB You can connect IPHONE to a power outlet using a compatible power adapter (sold separately) and the included cable. You can also connect the included cable to your computer's USB port for charging, transferring files, and more

• Assignment Level Advance

1.Do a practical to identify the SATA cables.

Ans. Done

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

Ans. Done

Topic: Expansion card and slots

**• Assignment Level Basic**

1. Why expansion card needed?

Ans. Expansion cards are needed to enhance or extend the functionality of a computer by adding specific features or capabilities

1. Why expansion slots needed?

Ans. Expansion slots provide a standardized interface on a computer's motherboard for connecting expansion cards, allowing users to easily add or upgrade hardware components for enhanced functionality.

**• Assignment Level Intermediate**

1.What are the types of expansion card?

Ans. Types of expansion cards include graphics cards, sound cards, network interface cards (NICs), and storage controller cards.

**• Assignment Level Advance**

1.Do a practical to identify the types of expansion slots

Ans. Done

2.Do a practical to install the Graphics card.

Ans. Done

3.Do a practical to install LAN card Topic: I/O Ports

Ans. Done

Topic: I/O Ports

**• Assignment Level Intermediate**

1. What is I/O ports?

Ans. I/O ports, or INPUT/OUTPUT ports, are interfaces on a computer that enable communication with external devices, facilitating data transfer and CONNECTIVIT

2.List out the I/O ports available

Ans. Common I/O ports include USB (Universal Serial Bus), HDMI (High-Definition Multimedia Interface), audio jacks, and Thunderbolt.

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

Ans. Done

Topic: BIOS & CMOS

**• Assignment Level Basic**

1.What is BIOS?

Ans. BIOS, or Basic INPUT/OUTPUT System, is firmware that initializes and manages essential hardware components in a computer, facilitating the boot process and providing a bridge between the operating system and the hardware.

2.What is CMOS?

Ans. CMOS (Complementary Metal-Oxide-Semiconductor) is a technology used to store BIOS configuration data in a small, battery-powered memory chip, ensuring persistent settings even when the computer is powered off.

**• Assignment Level Intermediate**

**1.**What is the role of BIOS in i/os

Ans. BIOS facilitates input/output operations by providing low-level communication between the operating system and hardware components in a computer

2.What is the role of i/o in CMOS?

Ans. CMOS stores configuration data, including input/output settings, providing a non-volatile memory solution for retaining hardware configurations in a computer.

**• Assignment Level Advance**

1.Do a practical to reset BIOS

Ans. Done

2.Do a practical to remove CMOS.

Ans. Done

Topic: Laptop & storage

**• Assignment Level Basic**

1.What is laptop?

Ans. A laptop is a portable personal computer designed for mobile use, featuring a compact form factor with an integrated display, keyboard, and battery for on-the-go computing.

2.Why laptop is used widely now a days?

Ans. Laptops are widely used nowadays due to their portability, versatility, and convenience, allowing users to work, study, and engage in various activities from different locations.

**• Assignment Level Intermediate**

1.Describe the working process of laptop?

Ans. Laptops work by processing user inputs through the keyboard and other peripherals, executing tasks using the central processing unit (CPU), and displaying outputs on the integrated screen, all powered by a rechargeable battery or external power source.

2.What is storage?

Ans. Storage refers to the electronic or magnetic media where digital data is stored for long-term retention, retrieval, and future use in computing systems.

3.List out the types of storage

Ans. Types of storage include hard disk drives (HDDs) for high-capacity data storage solid-state drives (SSDs) for faster, flash-based storage in computing systems.

**• Assignment Level Advance**

1.Do a practical to identify types of storage.

Ans. Done

2.Do a practical to disassemble and assemble the storage.

Ans. Done

3.Do a practical to install the storage devices.

Ans. Done

Topic: Printer

**• Assignment Level Basic**

1.What is printer?

Ans. A printer is a peripheral device that produces a physical copy of text or graphics from a digital source onto paper or other media.

2.Why is printer needed?

Ans. Printers are essential for generating tangible copies of digital documents, images, or other content, facilitating information dissemination and record-keeping.

**• Assignment Level Intermediate**

1.Describe the working process of printer.

Ans. Printers work by converting digital data into a printed format, involving processes like image formation, transfer, fusing, and paper feeding, ultimately producing a physical copy of the digital content.

2.What are the types of printer

Ans. Laser Printer Inkjet Printer Dot Matrix Printer 3D Printer

**• Assignment Level Advance**

1.Do a practical to install the printer

Ans. Done

2.Do a practical to Troubleshoot the improper printing.

Ans. Done

Topic: Storage devices

**• Assignment Level Basic**

1.What is storage device?

Ans. A storage device is hardware that stores and retrieves digital data, providing long-term memory for computers and electronic devices.

2.Why we need storage device

Ans. Storage devices are essential for preserving and accessing digital data, enabling data retention, software installation, and efficient functioning of electronic devices.

**• Assignment Level Intermediate**

1. List out the types of storage devices.

Ans. ROM. ROM means read-only memory, Hard disk, Magnetic disk, Pen drive, SSD, Sd card

2.Describe the working process of storage devices.

Ans. Storage devices store and retrieve data by using magnetic, optical, or semiconductor technologies, with read/write heads (for magnetic storage) or lasers (for optical storage) interacting with the storage medium to read or alter data in binary code.

**Assignment Level Advance**

1.Do a practical to Remove storage devices and reinstall it and make a GPT disk.

Ans. Done

Topic: ATA

**Assignment Level Intermediate**

1.What is ATA?

Ans. ATA is a standard interface used for connecting storage devices, such as hard drives and CD-ROM drives, to computer systems, with variations including Parallel ATA (PATA) and Serial ATA (SATA).

**Assignment Level intermediate:**

1.Describe working of ATA.

Ans. ATA (Advanced Technology Attachment) works by transmitting parallel data between a computer motherboard and storage devices, employing a parallel interface for data transfer in older storage technologies like Parallel ATA (PATA).

Top of Form

**Assignment level A dvanced:**

1**.**Do a practical to identify and install ATA cables.

Ans. Done

Topic: SATA

**Assignment Level Basic**

1.What is SATA?

Ans. SATA (Serial ATA) is a widely used interface for connecting storage devices, such as hard drives and solid-state drives, to motherboards in computers and other electronic devices.

**Assignment Level Advance**

1.Describe the working of SATA.

Ans. SATA (Serial ATA) transmits data between a motherboard and storage devices by sending serially encoded data in a point-to-point connection, enhancing data transfer speeds and simplifying cable management compared to its predecessor, Parallel ATA.

2.Do a practical to identify SATA.

Ans. Done

3.Do a practical to install SATA.

Ans. Done

4.Where does SATA is used.

Ans. SATA (Serial ATA) is commonly used for connecting internal storage devices, such as hard disk drives (HDDs) and solid-state drives (SSDs), in personal computers, laptops, and servers.

Topic: SCSI

**• Assignment Basic**

1.What is SCSI?

Ans. SCSI (Small Computer System Interface) is a set of standards for connecting and transferring data between computers and peripheral devices, offering fast and versatile communication for storage, printers, and other hardware.

2.WHy SCSI needed  
Ans. SCSI (Small Computer System Interface) is needed for high-performance and reliable data transfer in professional and server environments due to its ability to connect multiple peripherals, support fast data rates, and provide robust command sets for efficient data handling

**• Assignment level Intermediate:**

1.What is the rpm of SCSI?

Ans. SCSI (Small Computer System Interface) hard drives typically operate at rotational speeds of 10,000 or 15,000 revolutions per minute.

2.Do a Practical to install SCSI.

Ans. Done

Topic: Laptop

**• Assignment Level Basic:**

1.What is laptop?

Ans. A laptop is a portable personal computer that integrates a display, keyboard, and pointing device, providing users with a compact and self-contained computing solution.

2.What are the types of laptop?

Ans. Ultraportable, Ultrabook, Chromebook, MacBook, Tablet as a laptop, Netbook.

3.Diffrent names of laptop.

Ans. laptop computer-laptop, microcomputer, minicomputer, notebook computer, palmtop.

**• Assignment level Intermediate**:

1.What are the parts of laptop?

Ans. Including a display screen, keyboard, touchpad or pointing device, processor, memory, storage, battery, and various ports for connectivity..

2. Do a practical of identifying parts of the laptop.

Ans. Done

* **Assignment level Advance.**

1.Do a practical to disassemble the laptop.

Ans. Done

2.Do a practical to change the RAM in the laptop.

Ans. Done

TOPIC: PRINTER

**• assignment level basic:**

1.what is printer?

Ans. A printer is a device that produces a hard copy of digital content, such as documents or images, on paper or other physical media.

2.is it a input device or output device?

Ans. A printer is an output device, as it produces physical copies of digital data or information.

**• Assignment level intermediate:**

1.Describe the types of printer.

Ans. Laser Printers. Solid Ink Printers. LED Printers Home. Inkjet Printers. Dot Matrix Printers. 3D Printers.

2.Describe inkjet printer.

Ans. An inkjet printer is a type of printer that sprays liquid ink onto paper to create high-quality COLOR or monochrome prints

**• Assignment levelAdvanced:**

1.Do a practical of network installation of the printer

Ans. Done

2.do a practical to troubleshoot the printer of no cartridge error

Ans. Done