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

**Topic: The Visible Computer**

* **Assignment level Basic**

1. What is hardware?

Ans. The hardware is that physical electronic devices that receives instruction from the software and works according to it.

1. What is the purpose of the hardware?

Ans. The purpose of the hardware is to provide basic I/O functionalities to the user and work according to the set of instruction given by the user.

* **Assignment level Intermediate**

1. List out type of hardware?

Ans. Types of Hardware:

* + Input devices (Keyboard, Mouse, Scanner)
  + Output devices (Monitor, Printer)
  + Storage devices (Primary and Secondary storage)
  + Internal Components (Motherboard, RAM, CPU)
* **Assignment level Advance**

1. What is core hardware?

* Core hardware can be referred to as the core of a CPU.
* For a given application to run the specifications established by the programmers, it can be referred to as the minimum core hardware requirements.

1. Do a practical of identifying hardware?

Ans. Done in lab.

**Topic: Category of components**

* **Assignment level Basic**

1. What is the category of components in hardware?

Ans. Categories of component in hardware are:

* 1. Input devices: That hardware which are used to take input from the user is known as input devices. Eg Keyboard, scanner, mouse etc.
  2. Processing devices: To process raw data instruction into information. Eg CPU
  3. Output devices: That hardware which are used to display the results of processes. E.g. Monitor, printer, speaker plotter.
  4. Storage devices: That hardware is used for data and information storage. Eg Hard disk drive, Solid state drive, Digital versatile disk etc.
* **Assignment level Intermediate**

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

Ans. Done in lab.

**Topic: Input Devices**

* **Assignment level Basic**

1. What is input devices?

Ans. The devices which are used to receive instructions from the user is known as input devices.

1. Why input devices needed?

Ans. The input devices are necessary to receive user instructions.

* **Assignment level Intermediate**

1. List out the input devices?

Ans. Some of the input devices are: keyboard, mouse, scanner etc.

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

Ans. Done in lab.

**Topic: Output Devices**

* **Assignment level Basic**

1. What are output devices?

Ans. The devices which are used to display or give the final result is known as output devices.

1. How does output devices work?

Ans. The output devices display the results of the processed data in various formats such as monitor display in pictorial form, printer display in paper form.

* **Assignment level Intermediate**

1. What is motherboard?

Ans. The motherboard is a printed circuit board also known as Integrated Circuits Board which handles all the work of the computer.

1. Why it is called motherboard?

Ans. The motherboard is called so because it is handling every work of the computer.

* **Assignment level Intermediate**

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

Ans. It is called Circuit Board.

1. Describe types of motherboards?

Ans.

* The standard ATX has more function as compared to all others. It is used if there is a very high requirement of the user.
* The micro ATX is used if the user does not require too much ports. Note that the number of the expansion slots is less in Micro-Atx.
* Similarly, there is functionality of Mini-ITX, Nano-ITX and Pico-ITX and vice versa.
* **Assignment level Advance**
* Do a practical by identifying parts of motherboard?

Ans. Done in lab.

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

Ans. Done in lab.

**Topic: CPU**

* **Assignment level Basic**

1. What is CPU?

Ans. The CPU is the main part of the computer. It is also known as the brain of the computer. It processes all the instructions of the computer.

1. Write the full form of the CPU?

Ans. The full form of the CPU is Central Processing Unit.

* **Assignment level Intermediate**

1. What are the types of CPU?

Ans. Various types of CPU’s are dual core, triple core, octa core, hexa core etc.

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

Ans. To keep CPU healthy we need to use processor fan, and software such as disk clean up. Also doesn’t type anything while CPU is booting.

* **Assignment level Advance**

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

Ans. Done in lab.

1. Do a practical to identify CPU and its sockets?

Ans. Done in lab.

**Topic: Monitor**

* **Assignment level Basic**

1. What is Monitor?

Ans. The monitor is an output device which display information in text or pictorial forms.

* **Assignment level Intermediate**

1. List out the types of monitors?

Ans. Types of monitors

* OLED
* LED
* Plasma
* LCD

1. Do a practical to identify monitor Technology.

Ans. Done in lab.

1. What are Technologies used in monitor.

Ans. Most desktop displays use **liquid crystal display (LCD) or cathode ray tube (CRT) technology**, while nearly all portable computing devices such as laptops incorporate LCD technology.

* **Assignment Level Advance**

1. Describe how does the crt monitor works.

Ans. The operation of a CRT monitor is basically very simple. **A heating element in a CRT heats the cathode and causes it to emit electrons which are accelerated and focused on a phosphor screen by means of high voltage grids**. An image (raster) is displayed by scanning the electron beam across the screen

**Topic: System Bus**

* **Assignment level Basic**

1. What is system Bus?

Ans. The system bus is used to transport data from and to motherboard.

* **Assignment level Intermediate**

1. List out the types of system bus?

Ans. Types of buses are:

* Address bus
* Data bus
* Control Bus

1. Describe the working of system bus.

Ans. A system bus works **by sharing data and other information between various aspects of the computer's hardware**.

1. Do a practical to identify the system bus.

Ans. Done in lab.

**Topic: Chipset**

* **Assignment level Basic**

1. What is chipset?

Ans. The chipset a collection of integrated circuits which are designed to function together as a unit, especially to perform a particular task within a computer system.

* **Assignment level Intermediate**

1. What are the types of chipset?

Ans.

* 430 FX, triton. Chipset INTEL. Pentium. ...
* 430 HX, triton III. Chipset INTEL. Pentium. ...
* 430 LX. Chipset INTEL. Specific Pentium 60 and 66 MHz ...
* 430 MX. Chipset INTEL. ...
* 430 NX. Chipset INTEL. ...
* 430 TX, triton IV. Chipset INTEL. ...
* 430 VX, Triton II. Chipset INTEL. ...
* 440 BX. Chipset INTEL.

1. Do a practical to identify chipset?

Ans. Done in lab.

* **Assignment level Advance**

1. Describe how does the Northbridge chipset work.

Ans. The Northbridge chipset handles the traffic of the north side of the PC.

**Topic: Memory**

* **Assignment level Basic**

1. What is memory?

Ans. Memory is the devices which is used to store data.

1. What are types of memory?

Ans. Types of memory

* Primary
* Secondary
* Volatile
* Non-Volatile
* **Assignment Level Advance**

1. Do a practical to identify memory types.

Ans. Done in lab.

1. Do a practical to install memories in system

Ans. Done in lab.

1. Do a practical to identify main memory frequencies.

Ans. Done in lab.

**Topic: System Unit**

* **Assignment level Basic**

1. What is system unit?

Ans. A **system unit** is the part of a computer that houses the primary devices that perform operations and produce results for complex calculations

* **Assignment level Intermediate**

1. How does system unit works?

Ans. The system unit receives instructions from input devices and process it using the processor and produce output on the output screen.

1. What are the components of the system unit?

Ans. Components of the system unit are: Keyboard, mouse, monitor, printer, scanner etc.

* **Assignment level Advance**

1. Do a practical to identify system unit?

Ans. Done in lab.

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

Ans. Done in lab.

**Topic: BIOS**

* **Assignment level basic**

1. What is BIOS?

Ans. The BIOS is a chipset which starts the computer after power is turned on.

* **Assignment level Intermediate**

1. What is full form of BIOS?

Ans. The full form of the BIOS is Basic Input Output system.

1. Describe the working process of the BIOS?

Ans. The BIOS boots the computer after power is turned on and check whether all the I/O devices are working properly.

* **Assignment level Advance**

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

Ans. Done in lab.

1. Do a practical of Hard resetting the BIOS.

Ans. Done in lab.

1. Do a practical of identifying BIOS chip from the motherboard

Ans. Done in lab.

**Topic: CMOS**

* **Assignment level Basic**

1. What is CMOS?

Ans. The CMOS is a battery.

* **Assignment level Intermediate**

1. What is the full form of the CMOS?

Ans. Full form of the CMOS is Complementary Metal Oxide Semiconductor.

1. Describe the working process of the CMOS?  
   Ans. The CMOS is a battery which is used for battery backup and to keep the date and time updated.

* **Assignment level Advance**

1. Do a practical of identifying CMOS?

Ans. Done in lab.

1. Do a practical of installing CMOS?

Ans. Done in lab.

**Topic: Boot Process**

* **Assignment level Basic**

1. What is boot Process?

Ans. The boot process is the starting process of the computer after the power is switched on.

* **Assignment level Intermediate**

1. What is the first process of boot.

Ans. Select boot option and press F11 or F10 or F12.

1. What is the final stage in boot process.

Ans. Load Operating system and start.

1. Describe the boot process in Linux.

Ans. Done in lab.

**Topic: SMPS**

* **Assignment level Basic**

1. What is SMPS?

Ans. The SMPS is Switch Mode Power Supply.

1. What is the process of SMPS?

Ans. The SMPS converts the A.C. Current to D.C. Current and supply electricity to every part of the computer.

* **Assignment level Intermediate**

1. Do a practical to install SMPS?

Ans. Done

1. How many SATA connections are there in a normal SMPS?

Ans. There are 2 Sata connections in a normal SMPS.

* **Assignment level Advance**

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

Ans. Take a small wire and insert it in green and black ATX power connector of SMPS and plug in the system. If the fan of the SMPS starts then the SMPS is working.

1. How many power connectors does ATX pin have.

Ans. 24 Pin power supply.

**Topic: RAM**

* **Assignment level Basic**

1. What is RAM?

Ans. The RAM is a temporary memory which is used to run current or ongoing applications.

1. What is full form of RAM?

Ans. The full form of the RAM is Random Access Memory.

* **Assignment level Intermediate**

1. What are types of RAM?

Ans. There are mainly two types of RAM: Static and Dynamic

1. Do a practical to Identify RAM?

Ans. Done in lab.

* **Assignment Level Advance**

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

Ans. Done in lab.

**Topic: Device and Cable**

* **Assignment level Basic**

1. What are types of devices?

Ans. Types of devices

* I/O devices
* Storage devices
* Peripheral devices

1. What are types of cables?

Ans. Types of cables

* Coaxial Cable
* Twisted Pair
  + Shielded
  + Unshielded
* Optical Faber
* **Assignment level Intermediate**

1. Which cable are used to connect printer?

Ans. Now the USB cable is also used to connect printers.

* **Assignment level Advance**

1. Do a practical to identify SATA cables?

Ans. Done in lab.

1. Do a practical to identify and install cables in system.

Ans. Done in lab.

**Topic: Expansion Cards & Slots**

* **Assignment level Basic**

1. Why expansion cards needed?

Ans. The expansion card are needed in case if the ports gets damaged or not working properly.

1. Why expansion slots needed?

Ans. The expansion slots acts as a replaces for various ports.

* **Assignment level Intermediate**

1. What are types of expansion cards?  
   Ans. Types of expansion cards are
   1. NIC card
   2. Graphic card
   3. Riser Card
   4. USB card

* **Assignment level Advance**

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

Ans. Done in lab.

1. Do a practical to install the Graphics card.

Ans. Done in lab.

1. Do a practical to install LAN card

Ans. Done in lab.

**Topic: I/O Ports**

* **Assignment Level Intermediate**
  1. What is I/O ports?

Ans. The port which is used for I/O functioning is I/O ports.

* 1. List out the I/O ports available

Ans. Various I/O ports are PS-2, audio jack, USB port for various devices.

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

Ans. Done in lab.

* **Assignment Level Advance**
  1. What is I/O ports?

Ans. An I/O port is a socket in a computer that is used to connect cable.

**Topic: Laptop and Storage**

* **Assignment level Basic**

1. What is Laptop?

Ans. A laptop is a device which perform same as PC but main difference is that, that it can be remote.

* **Assignment Level Intermediate**

1. Describe the working process of a laptop.
2. What is storage.

Ans. Storage means to store something.

1. List out types of storage.

Ans. Types of Storage

* Primary
* Secondary
* **Assignment Level Advance**

1. Do a practical to identify types of storage

Ans. Done in lab.

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

Ans. Done in lab.

1. Do a practical to install the storage devices.

Ans. Done in lab.

**Topic: Printer**

* **Assignment Level Basic**

1. What is printer?

Ans. A printer is an output device.

1. Why is printer needed

Ans. The printer is used to print some text or image on a page.

* **Assignment Level Intermediate**

1. Describe the working process of printer.

Ans. The printer takes input from the Computer and prints according to the instructions given by the user.

1. What are the types of printer.

Types of printers

* Laser
* Ink-Jet
* Dot-Matrix
* **Assignment Level Advance**

1. Do a practical to install the printer

Ans. Done in lab.

1. Do a practical to Troubleshoot the improper printing.

Ans. Done in lab.

**Topic: SATA**

* **Assignment Level Basic**

1. What is SATA?

Ans. The SATA is a cable which is used to connect to hard disk from either SMPS or Motherboard.

* **Assignment Level Advance**

1. Describe the working of SATA.

Ans. The SATA connection is used to connect IC to HDD and another SATA connection is used to connect HDD to motherboard.

1. Do a practical to identify Sata.

Ans. Done in lab.

1. Do a practical to install SATA.

Ans. Done in lab.

1. Where does SATA is used.

Ans. In hard Disk

**Topic: SCSI**

* **Assignment Basic**

1. What is SCSI?

Ans. The SCSI is used for backup, storage.

* **Assignment level Intermediate:**

1. Do a Practical to install scsi.

Ans. Done in lab.