CompTIA A+ Assignment

**Module -1, 2 [Hardware and its components]**

* What is input device?

The device which are used to give input to the computer is called input device.

Example :- Mouse, Key board, Scanner, Microphone etc.

* What is output device?

The devices which are used to display the output is called output device.

Example :- Monitor, Printer, Speaker etc.

* What is CPU?

CPU stands for central processing unit that is also called as processor is the main part (brain) of computer, which processes data given by user and produce output.

CPU has two parts :- ALU(Arithmetic Logic Unit)

CU(Control Unit)

* What are the types of CPU?

**LGA (**Land Grid Array**): -** Pads on motherboard, pins on CPU.

**PGA (**Pin Grid Array**): -** Pins on motherboard, holes on CPU.

* What do we need to keep the CPU Healthy?

To keep the CPU healthy, ensure proper cooling, regular maintenance, and avoid overheating

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

Done into Lab

* Do a practical to Identify CPU and its Sockets.

Done into Lab

* What is memory?

Memory is a computer’s storage space where it temporarily holds data and applications while running.

* What are the types of memory?

Two main types of memory :

**1.RAM (**Random Access Memory**): -** Temporary storage for data.

**2.ROM (**Read-Only Memory**): -** Permanent storage for important data and

instructions.

* Do a practical to identify memory types.

Done into Lab

* Do a practical to install memories in system

Done into Lab

* Do a practical to identify memories in system

Done into Lab

* What is bios?

BIOS (Basic Input/Output System) is a software that configures and controls a computer’s hardware components when it’s turned on.

* Describe working process of BIOS.

The BIOS is responsible for starting up a computer by initializing hardware components, checking for connected devices, and loading the operating system from storage into the computer’s memory.

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

Done into Lab

* Do a practical of Hard resetting the BIOS.

Done into Lab

* Do a practical of identifying BIOS chip from the motherboard

Done into Lab

* What is CMOS?

CMOS (Complementary Metal-Oxide-Semiconductor) is a small amount of memory that stores a computer’s basic settings, such as time, date, and BIOS configuration.

* What is motherboard?

Motherboard is the main circuit board of a computer that connects and supports all hardware components, such as CPU, RAM, and peripherals.

* Describe types of motherboard.

There are two types of motherboard : -

**1.Integrated Motherboard : - AT (**Advanced Technology**) :** Original

Motherboard type

**ATX (**Advanced Technology Extended**) :**

Standard motherboard type

**Micro-ATX :** Smaller version of ATX

**Mini-ATX :** Compact motherboard

**Nano-ATX :** Smaller version of Mini-ATX

**2.Non-Integrated Motherboard : - Backplane:** A motherboard that only

provides connectors for expansion

card.

**Passive Backplane:** A backplane with

no active components.

**Multi-Processor Motherboard:**

Supports multiple CPUs.

**Proprietary Motherboard:** Custom-

designed for specific system.

**Single-Board Computer (SBC):** A

motherboard with all components,

including CPU, RAM and I/O.

* Do a practical by identifying parts of motherboard.

Done into Lab

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

Done into Lab

* What is system bus?

A communication pathway that allows different parts of a computer like CPU, RAM, peripherals to exchange data, instructions, and control signals.

* What is chipset and types of chipset?

A group of microchips on a motherboard that manage data transfer between different components.

* Describe how does the Northbridge chipset work.
* Receives data from CPU.
* Manages RAM access.
* Handles graphics processing.
* Regulates data flow.
* It acts as a bridge, managing data transfer between CPU, RAM, and graphic card.
* what is SMPS? And its purpose

SMPS stands for Switch Mode Power Supply. It’s type of power supply that uses switching electronics to regulate the output voltage, providing efficient and reliable power to electronic devices.

The purpose of SMPS is to:

* Convert AC power to DC power.
* Regulate output voltage
* Provide efficient power supply
* Reduce energy loss
* Increase reliability and lifespan of devices.
* DO a practical to install SMPS.

Done into Lab

* How to check SMPS?
* Visual inspection
* Power on and check output voltage
* Multimeter test
* Check for noise and overheating
* Verify output connectors.
* List out the types of storage devices.

Hard Disk Drive (HDD)

Solid-State Drive (SSD)

Flash Drive

Memory Card

CD/DVD Drive

Tape Drive

External Hard Drive

Cloud Storage

USB Drive

SD Card

* Describe the working process of storage devices.

**Hard Disk Drive (HDD):** Stores data on spinning disks, read/written by heads.

**Solid-State Drive (SSD):** Stores data in flash memory, accessed via controller.

**Flash Drive:** Stores data in flash memory, accessed via controller and USB.

**Memory Card:** Stores data in flash memory, accessed via controller and card slot.

**CD/DVD Drive:** Reads/writes data to spinning discs using laser.

**Tape Drive:** Reads/writes data to magnetic tape using tape heads.

**External Hard Drive:** Stores data on spinning disks, accessed via USB or another interface.

**Cloud Storage:** Stores data on remote servers, accessed via internet.

**USB Drive:** Stores data in flash memory, accessed via controller and USB.

**SD Card:** Stores data in flash memory, accessed via controller and card slot.

* Do a practical to Remove storage devices and reinstall it and make a gpt disk.

Done into Lab

* What is SATA?

SATA (Serial Advanced Technology Attachment) is a type of interface used to connect storage devices, such as hard drives and SSD, to a computer’s motherboard.

* Describe the working of SATA.

SATA (Serial Advanced Technology Attachment) works as follows:

* Connects devices (HDD, SSD, Optical Drive) to motherboard.
* Transfers data serially (one bit at a time) through a cable.
* Supports hot-swapping (adding/removing devices without restarting).
* Speeds: SATA I (1.5 Gbps), SATA II (3 Gbps), SATA III (6 Gbps).
* Do a practical to install SATA.

Done into Lab

* What is SCSI storage and type of SCSI?

SCSI (Small Computer System Interface) is a way to connect devices to a computer, allowing them to communicate and transfer data.

Types of SCSI : - SCSI-1

SCSI-2

SCSI-3

Ultra2 SCSI

Ultra160 SCSI

Ultra320 SCSI

iSCSI

FC-SCSI

* What is I/O ports?

I/O (Input/Output) ports are connections on a computer that allow devices to communicate with the system, transferring data, commands, and signals.

Example : - USB, HDMI, Ethernet ports.

* List out the I/O ports available

USB (Universal Serial Bus)

HDMI (High-Definition Multimedia Interface)

Ethernet (RJ-45)

VGA (Video Graphics Array)

DVI (Digital Visual Interface)

Audio Jacks (3.5 mm)

PS/2 (for keyboard and mouse)

Serial Port (COM)

Parallel Port (LPT)

SD/MicroSD Card Slots

* Do a practical to identify the I/O ports

Done into Lab

* What is Boot Process?

The Boot Process is the sequence of events that occurs when a computer starts up, loading the operating system and preparing it for use.

* Describe the boot process in Linux?

Linux Boot Process:

1. BIOS/UEFI loads

2. Bootloader (GRUB) loads

3. Kernel loads

4. Init system initializes

5. System services start

6. User login prompt appears

* List out the types of display

1. CRT (Cathode Ray Tube)

2. LCD (Liquid Crystal Display)

3. LED (Light Emitting Diode)

4. OLED (Organic Light Emitting Diode)

5. QLED (Quantum Dot Light Emitting Diode)

6. Plasma Display

7. Touchscreen Display

8. Flexible Display

* What is printer? And type of printer

A printer is an electronic device that prints text, images, and other data onto physical media, such as paper.

* Do a practical to install the printer

Done into Lab

* Do a practical to Troubleshoot the improper printing.

Done into Lab

* What are the parts of laptop?

Display screen

Keyboard

Touchpad

Battery

Processor (CPU)

Motherboard

RAM (Memory)

Hard drive/SSD (Storage)

Graphics card

Cooling system (Fans)

Ports (USB, HDMI, etc.)

Power button

Speakers

Webcam

* Do a practical to disassemble the laptop.

Done into Lab