Hardware and Networking

Assignment

* Module 1 [Hardware and its components] :
* Topic: The visible computer
* Level basic :

Que 1 : What is Hardware ?

Ans : Physical parts of computer that we can touch is called Hardware. Like computer screen, Keyboard, Mouse, Audio speakers, CPU Cabinet etc.

Que 2 : What is the purpose of Hardware ?

Ans : Purpose of Hardware is to give required components for computer . These hardware works together to do tasks like to run program, save information, show pictures and videos etc.

* Level intermediate :

Que 1: List out two types of hardware.

Ans : Here is the two types of hardware :

1. Input devices
2. Output devices

1.Input devices :- Input devices allows user to input data into the computer. For example keyboard, mouse, joystick, trackball, game controller, webcam, mic, touchpad.

2.Output devices :- Output devices give or present information processed by computer to users in understandable format. For example monitors, printers, speakers .

* Level Advance :

Que 1: What is core Hardware ?

Ans : Core hardware means must required hardware to perform any task in computer. Like Motherboard, CPU, RAM, Hard disk etc.

* Topic : Category of components
* Level Basic:

Que 1: What are the category of components in hardware ?

Ans : Components can be categorized as following,

* Motherboard
* Central Processing Unit(CPU)
* Graphics Processing Unit (GPU)
* Random Access Memory (RAM)
* Read Only Memory (ROM)
* SMPS (Power Supply)

Que 2: Why category is needed ?

Ans : Categories allows better understanding of functions and roles of every components. Having category helps to identify issues while having computer problems. It makes easy to find solution.

* Topic: Input Device
* Level Basic:

Que 1: What is input device ?

Ans : Input device is something we can use to input data in computer for processing and get result. We can use keyboard, mouse, microphone, joystick etc. as Input device .

Que 2: Why input device needed ?

Ans : Input devices are necessary to give instructions and command to computer. Input devices help us type, click, and do other things to make the computer work.

* Level Intermediate:

Que 1: List out the input device.

Ans :

1. Keyboard
2. Mouse
3. Touchpad
4. Joystick
5. Game controller
6. Trackball
7. Scanner
8. Microphone
9. Webcam
10. Touch Screen
11. Barcode reader
12. Fingerprint scanner

* Topic: Output Device :
* Level Basic :

Que 1: What are output device ?

Ans : Output device are hardware that present data processed by the computer. Output device present data in understandable format for us. For example monitor, printer, speaker.

Que 2: How does output device work ?

Ans : Output device takes information from the computer and show it to us in a way we can understand. For explanation monitor shows us images, videos and text , printer prints output on a paper.

* Level Intermediate:

Que 1: List out the output device.

Ans :

1. Monitor
2. Printer
3. Projector
4. Speaker
5. Headphone

* Topic: Motherboard
* Level Basic :

Que 1: What is motherboard ?

Ans : Motherboard is important part of a computer system. It is circuit board in which we need to connect all other important components like CPU, GPU, RAM, Hard Disk, and all wires. All parts of computer system are connected to motherboard where they can communicate with each other.

Que 2: Why it is called motherboard ?

Ans : It is called a motherboard because it is like the main parent of all the parts in the computer. Just as mother takes care of family, motherboard takes care of all other parts.

* Level Intermediate:

Que 1: **What it is called if we remove all components from the motherboard?**

**Ans : If we remove all components from the motherboard there will be only IC left.**

**Que 2:** Describe types of motherboard.

Ans :

1. ATX
2. Micro-ATX
3. Mini-ATX

* Topic : CPU
* Level Basic :

Que 1: What is CPU ?

Ans : The CPU (Central Processing Unit) is the brain of computer. The CPU handles computer’s basic operations like running processing data and executing software.

Que 2: Write the full form of CPU.

Ans : CPU – Central Processing Unit

* Level Intermediate:

Que 1: What are the type of CPU?

Ans :

1. Single Core Processor: one processing core
2. Multi Core Processor: multiple processing core in one chip
3. Dual Core Processor: two independent core in single chip
4. Quad Core Processor: four independent core in single chip, enhanced multitasking
5. Hexa Core Processor: six independent core in single chip, enhanced multitasking and performance
6. Octa Core Processor: eight independent cores in single chip, providing greater performance for multitasking and high demanding task

Que 2: What do we need to keep CPU healthy?

Ans :

1. Handle with care: Handle CPU with care to avoid physical damage.
2. Maintain cooling: Maintain proper air flow and ventilation to keep CPU cool.

* Topic : Monitor
* Level Basic

Que 1 : What is Monitor ?

Ans : Monitor is a screen for computer. Which shows task or program we are running in visual format. Like image or video .

* Level intermediate

Que 1: List out types of Monitors.

Ans :

1. CRT
2. LCD
3. LED
4. OLED etc.

Que 2 : What are the Technologies used in monitor.

Ans :

1. CRT (Cathode ray tube)
2. Plasma
3. LCD(Liquid crystal display)
4. LED(Light emitting diode )
5. OLED(Organic LED)
6. E-Ink(Electronic INK)

* Level Advance

Que 1: Describe how does the crt monitor works.

Ans : CRT monitor uses tiny particles on the screen that light up when hit by fast-moving beams, and creating the images we see.

* Topic : System Bus :
* Level Basic

Que 1 : What is system bus ?

Ans : The system bus is communication pathway in a computer, helping different parts of the computer talk to each other . Like CPU and RAM talk to each other.

* Level intermediate

Que 1: List out types of system bus.

Ans :

1. Address Bus
2. Data Bus
3. Control Bus

Que 2 : Describe working of the system bus .

Ans : The system bus helps computer components by passing around data and let components know where to send and receive .

* Topic : Chipset
* Level Basic

Que 1 : What is chipset ?

Ans : A chipset is a set of electronic components on computer motherboard that manages communication between the CPU, RAM, Hard disk, and other peripherals.

* Level intermediate

Que 1 : What are the types of the chipset?

Ans : North Bridge and South Bridge chipset ,

Integrated chipset

Que 2 : Which chipset does have direct contact with CPU?

Ans : A north bridge chipset does have direct contact with the CPU.

* Level Advance

Que 1 : How does the Northbridge chipset work ?

Ans : The Northbridge chipset manages connections between CPU, Ram and other high speed components like GPU.

* Topic : Memory
* Level Basic

Que 1 : What is memory ?

Ans : Memory is storage in a computer, like RAM and ROM. These are used for access to the data and instructions needed for doing task and run programs .

Que 2 : What are the types of memory ?

Ans : RAM : Random Access Memory : Volatile

It is used to store temporary data of running programs and tasks.

ROM : Read Only Memory : Non volatile

It is used for containing essential instructions fir booting up the computer .

* Topic : System Unit
* Level Basic

Que 1 : What is system unit ?

Ans : Computer cabinet with all necessary components like CPU, RAM, SSD, Mother Board etc. is called system unit .

* Level intermediate

Que 1 : How does the system unit works ?

Ans : The system unit coordinates cpu, memory, storage, and other parts to run programs. It manages communication and processing to make computer work smoothly .

Que 2 : What are the components and system unity ?

Ans : Motherboard , CPU , RAM, storage , power supply , cooling system these all work together in system unit to enable computer functions.

* Topic : BIOS
* Level Basic

Que 1 : What is BIOS ?

Ans : BIOS is the computer’s startup up program . It starts when we start our computer , making sure everything is ready for OS to start.

* Level intermediate

Que 1 : What is ff of BIOS ?

Ans : Basic Input Output System

Que 2 : Describe working process of the BIOS .

Ans : BIOS is computer’s boot guide . When we start our computer , it checks everything from hardware to software so that main OS can take over and run .

* Topic : CMOS
* Level Basic

Que 1 : What is CMOS?

Ans : CMOS is the chip on the motherboard , which stores essential settings of the computer like date & time and hardware configurations with small battery to retain this information when computer is turned off.

* Level intermediate

Que 1 : What is ff of CMOS ?

Ans : Complementary Metal Oxide Semiconductor

Que 2 : Describe working process of CMOS.

Ans : CMOS chip stores BIOS setting and keeps track of date and time, using small battery to retain these information whe computer is off.

* Topic : Boot process
* Level Basic

Que 1 : What is boot process ?

Ans : The boot process means whole process of computer goes through when it starts up including hardware checks , loading BIOS , launching operating system, and reaching user interface .

* Level intermediate

Que 1 : What is first process of boot ?

Ans : The first step of boot process is “Power On Self Test”(POST) , where the computer checks its hardware to ensure everything working properly .

Que 2 : What is final stage of boot process ?

Ans : The final stage of the boot process is reaching the user interface or login screen .

Que 3 : Describe the boot process in Linux .

Ans : The boot process in Linux involves BIOS , Grub loads the kernel , the kernel initializes system processes, systemd manages services and it ends with user interface .

* Topic : SMPS
* Level Basic

Que 1 : What is SMPS ?

Ans : SMPS stands for “Switch Mode Power Supply”. It provides dc power to all other components of system unit.

Que 2 : What is the process of SMPS ?

Ans : SMPS converts AC power into DC power to run computer by rapidly switching voltage .

* Level intermediate

Que 2 : How many sata connectors are there in normal SMPS?

Ans : Generally there are anything between 2 to 4 sata connectors in normal type of SMPS.

* Level Advance

Que 2 : How many pins does atx power connector have ?

Ans : ATX power connector has 20 + 4 pins .

* Topic : RAM
* Level Basic

Que 1 : What is RAM ?

Ans : RAM is volatile memory that temporary stores data of running programs and processes.

Que 2 : What is ff of RAM ?

Ans : Random Access Memory

* Level intermediate

Que 1 : What are the types of RAM ?

Ans : DDR ,DDR2 ,DDR3 ,DDR4 ,DDR5

* Topic : Device and Cable
* Level Basic

Que 1 : What are the type of devices ?

Ans : Desktop computer, Laptop, Tablet, Smartphone, Printer etc.

Que 2 : What are the types of cable ?

Ans : AC power cable , USB cable, VGA Cable, HDMI cable, DVI Cable , LAN cable etc.

* Level intermediate

Que 1 : Which cables are used to connect the printers ?

Ans : USB cable and LAN cable

Que 2 : What was the first cable found by apply to data transfer ?

Ans : The first cable found by Apple was Apple Desktop Bus cable (ADB) in late 1980s and 1990s .

* Topic : Expansion card and slot
* Level Basic

Que 1 : Why expansion card needed ?

Ans : Expansion cards are very useful to expand capabilities of computer system. With expansion cards we can upgrade Graphics , Sound ,Network and Storage capacities as per requirement .

Que 2 : Why expansion slots needed ?

Ans : Expansion slots are necessary to add extra features or upgrade components like graphic card or sound card.

* Level intermediate

Que 1 : What are the types expansion cards?

Ans : Graphics card , Sound card , Network Interface Card, Wi-Fi card, Capture card etc.

Que 2 : What are the types of expansion slots ?

Ans : PCI , PCI express ,PCI-X , mini PCI, mini PCIe

* Topic : IO ports
* Level Basic

Que 1 : What is IO ports ?

Ans : IO ports are connection ports given in the motherboard which is used to connect external peripherals like mouse, keyboard, headphone etc.

Que 2 : List out IO ports available .

Ans : USB, PS/2, VGA , HDMI, Display port, Thunderbolt, Ethernet, Audio jack etc.

* Topic : Laptop & Storage
* Level Basic

Que 1 : What is Laptop ?

Ans : Laptop is portable computer , which has all functions like desktop computer. Laptop has all functions inbuilt which allows mobile usage from any location.

Que 2 : Why laptops are widely used nowadays ?

Ans : Laptops are widely used because they offer portability , allowing user to work from anywhere .

* Level intermediate

Que 1 : Describe the working process of laptop .

Ans : Laptop works same as desktop computer , laptop can also give performance as desktop computer . But the only difference between laptop and Desktop computer is portability .

Que 2 : What is storage ?

Ans : Storage is device in which we can store our data, information , files and also operating systems .

Que 3 : List out types of storage .

Ans : Floppy disk, Compact disk, HDD , SSD etc.

* Topic : Printer
* Level Basic

Que 1 : What is printer ?

Ans : Printer is a device which gives output of processed data in physical format . Like on paper in black & white or colorful format.

Que 2 : Why is printer needed ?

Ans : Printer is needed for making physical copies of digital documents ,images or information . That can be easily shared,

Stored or presented .

* Level intermediate

Que 1 : What is working process of printer ?

Ans : Printer processes digital data and converts it into printable format, and prints it on paper using technologies like laser , ink jet etc.

Que 2 : What are the types of printer ?

Ans : Ink jet printers , Laser printer , Dot matrix printer,

All in one printer etc.

* Topic : Storage devices
* Level Basic

Que 1: What is storage device ?

Ans : Storage is device in which we can store our data, information , files and also operating systems.

Que 2 : Why we need storage devices ?

Ans : We need storage device to store our data, information, to run programs, and also to run an OS.

* Level intermediate

Que 1: List out types of storage devices.

Ans : Floppy disk, Compact disk, HDD , SSD etc.

Que 2 : Describe the working process of storage.

Ans : When we want store any data or information we store it into storage device , it processes data and converts it into 1s and 0s . When we need that data it converts from 1s and 0s to understandable format.

* Topic : ATA
* Level Basic :

Que 1 : What is ATA ?

Ans : Advanced Technology Attachment (ATA) is standard interface for connecting storage device to computers.

* Level intermediate :

Que 1 : Describe working of ATA.

Ans : ATA is like a conversation between a computer and its storage, where they exchange messages to save or get data.

* Topic : SATA
* Level Basic :

Que 1 : What is SATA ?

Ans : SATA is a connection type for computer storage, like hard drives. It’s a faster and more efficient way for the computer to talk to and exchange data with these storage devices.

* Level intermediate :

Que 1 : Describe the working of SATA.

Ans : SATA works by efficiently sending data between a computer and storage devices like hard drives through a single stream of bits, enhancing speed and performance.

Que 4 : Where does SATA is used ?

Ans : SATA is commonly used to connect storage devices, such as hard disk drives , solid state drives to connect motherboard .

* Topic : SCSI
* Level Basic :

Que 1 : What is SCSI ?

Ans : Small Computer System Interface (SCSI) is set of standard for connecting computers with storage devices.

Que 2 : Why SCSI is needed ?

Ans : SCSI was needed for versatile connections in enterprise, allowing multiple devices on one bus. However, as simpler and cost-effective alternatives like SATA and SAS emerged, the demand for SCSI decreased.

* Level intermediate :

Que 1 : What is the rpm of SCSI ?

Ans : Common rpm of SCSI hard drive is around 10000 to 15000 rpm.

* Topic : Laptop
* Level Basic :

Que 1 : What is Laptop ?

Ans : Laptop is portable computer , which has all functions like desktop computer. Laptop has all functions inbuilt which allows mobile usage from any location.

Que 2 : What are the types of Laptop ?

Ans : Study laptops, Professional laptops, Gaming laptops, toich screen laptops etc.

* Level intermediate :

Que 1 : What are the parts of laptop ?

Ans : Motherboard , Display , keyboard , Trackpad etc.