Assignment:

Module -1: Understanding of Hardware and Its Components

Section 1: Multiple Choice

1. Which of the following is NOT a component of the CPU?
   1. ALU
   2. RAM
   3. CU
   4. 1 and 3 both

Answer:RAM
Reason:Because RAM is part of memory ,not the CPU internal architecture.

2. What is the function of RAM in a computer?
Answer:RAM(Random Access Memory)is a computer short-term memory,storing data that the CPU needs to access quickly.

3. Which of the following is a primary storage device?
1. HDD
2. SSD
3. SD card
4. 1 and 2 both

Answer:None of these(ans not Available)
Reason:HDD,SSD and SD card are all secondary storage devices.

4.What is the purpose of a GPU?
Answer: A GPU helps the computer show graphics faster.It makes games,videos,and animations run smooth and look good.GPU takes the load from the CPU and handles all the heavy visuals.

Section 2: True or False

5.The motherboard is the main circuit board of a computer where other components are attached.
Answer:True

6. A UPS (Uninterruptible Power Supply) is a hardware device that provides emergency power to a load when the input power source fails.
Answer:True

7.An expansion card is a circuit board that enhances the functionality of a component.
Answer:True

Section 3: Short Answer

8. Explain the difference between HDD and SSD.

Answer:

Feature	HDD(Hard Disk Driver)	SSD(Solid State Driver)
Definition	User spinning disks and mechanical parts	User electronic components(no moving parts)
Storage Technology	Users spinning magnetic disks for storage.	User NAND flash memory with no moving parts.
Speed	Slower boot times and file access.	Mush fastes boot times and file access.
Durability	Has moving parts,making it prone to damage.	More durable and shock-resistant.
Noise	Produces noise due to spinning disks.	Operates silently.
Power Consumption	Consumes more power.	Uses less power,improving battery life .
Reliability	Less reliable due to moving parts(eg.head crash)	More reliable(no moving parts,less risk of failure)
Data Fragmentation	Performance can suffer from fragmentation	No fragmentation;performance remains consistent

9. Describe the function of BIOS in a computer system.
Answer:BIOS stands of Basic Input Output System.It is the first software that runs when you turn on your computer.

Main Functions of BIOS:

1.Power-On Self Test(POST):It checks it hardware like RAM,keyboard,processor are working properly.

2.Booting the System:BIOS finds the operating system from the hard disk and starts it.

3.Hardware Control:BIOS controls basic computer parts lije keywords display and storage device before windows starts.

4.Settings Menu(BIOS Setup):You can enter BIOS setup by pressing keys like DEL,F2,F10 while starting.Here you can change settings like boot order,time and passwords.

10. List and briefly explain three input devices commonly used with computers.
Answer: 1. Keyboard

- A keyboard is used to type letters,number,and symbols into the computer.
- It helps you give commands or write anythings.

2. Mouse

- A mouse is used to move the pointer on the screen.
- You can click,select,drag and open file using it.

3. Microphone

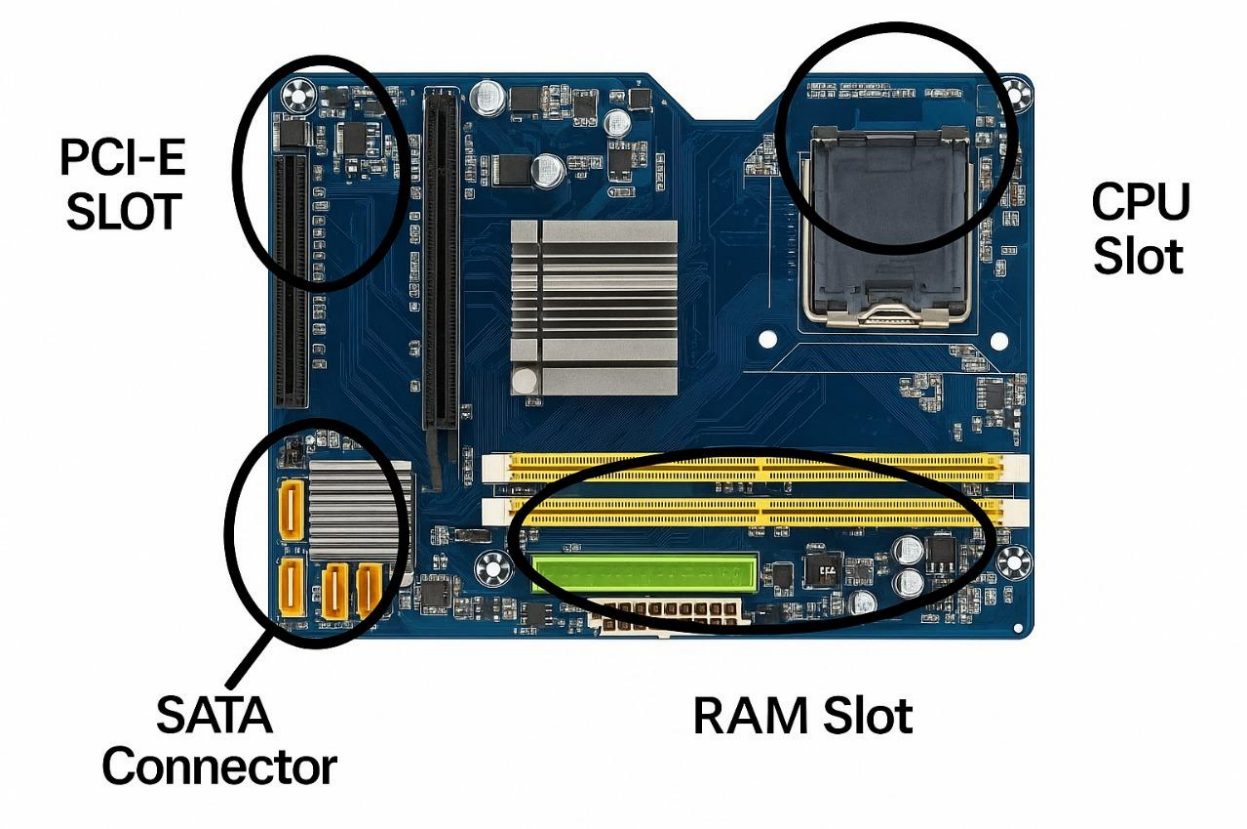
- A microphone is used to record your voice or sound.
- It helps in voice typing,callinh or giving voice commands to the computer.

Section 4: Practical Application

11. Identify and label the following components on a diagram of a motherboard:
● CPU
● RAM slots
● SATA connectors
● PCI-E slot

Answer:

- CPU Socket:Where the processor(brain of the computer)is placed.
- RAM Slots:Long slots where memory sticks(RAM) are installed.
- SATA Connectors:Used to connect storage device like HDD or SSD.
- PCI-E Slot:Used to connect graphics cards or other expansions card.



12.Demonstrate how to install a RAM module into a computer.
Answer: 1. Turn off the computer

- Shut down the computer.
- Remove the power cable.

2. Open the cabinet

- Use a screwdriver to open the side panel.
- Now you can see the motherboard inside.

3.Find the RAM Slots
- Look near the CPU on the motherboard.
- You will see long slots with small while clips.
- These are called RAM slots or DIMM slots.

4.Open the clips
- Push the clips on the both sides of the RAM slot outward to open them.

5.Insert the RAM
- Look at the circuit on the RAM stick.
- Match the notch with RAM slot.
- Push the RAM straight down into the slot.

6.Lock the RAM
- When the RAM goes in properly, the clips will lock automatically.
- You'll hear a little click sound.

7.Close the cabinet
- Put the side panel back on.
- Tighten the screws.

8.Turn On the Computer
- Plug in the power cable.
- Start the computer.
- Your RAM is now installed- the system will show more memory.

Section 5: Essay

13. Discuss the importance of proper cooling mechanisms in a computer system. Include examples of cooling methods and their effectiveness.

Answer:Proper cooling keeps a computer safe from overheating,which can damage parts like CPU,GPU and motherboard.

Why Cooling is important:
- Prevents system crash or slow speed
- Increase life of hardware
- Improves performance

Comman Cooling Methods:

1. Air Cooling- Use fans to blow out hot air.
- Cheap and easy to use

2. Heat Sinks-Metal pieces that absorb and spread heat.
- Good for basic cooling

3. Liquid Cooling-Uses water pipes to cool parts.
- Very effective for gaming or heavy work

4. Thermal Paste-Applied between CPU and heat sink.
- Helps transfer heat better

14. Explain the concept of bus width and its significance in computer architecture.
Answer:<u>What is a bus in a computer?</u>
Inside a computer, a bus is like a path or road that carries data between parts like:
- CPU
- RAM
- Hard Drive
- Input/Output device

It helps them talk and share data with each other.

<u>What is bus width?</u>
Bus width means how many bits of data can travel at the same time through the bus.
It is measured in bits like 8-bits,16-bits,32-bits,64-bits
- Just like a road with more lanes allows more cars at once,a bus with more width carries more data once.

<u>Example</u>:
- 8-bits bus - sends 8bits at a time
- 64-bits bus - sends 64bits at a times(much faster)

<u>Main Types of Buses:</u>

Type of Bus	**What It Does**
Data Bus	Sends actual data(CPU-Memory)
Address Bus	Sends memory address(like location of data)
Control Bus	Sends controls signals(read /write etc.)

<u>Why is Bus Width Important?</u>
1.Fast Speed
- More width=more data =quicker processing

2.Better System Performance
- Helps with heavy tasks like gaming,editing,multitasking

3.Spports More RAM
- 64-bits system support more memory than 32-bits once