

# **ASSIGNMENT-1**

## **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**

➤ **ANS: 2.RAM**

**2. What is the function of RAM in a computer?**

**ANS:** RAM stands for Random Access Memory and its volatile memory.

- Its main function is to temporarily store data that the CPU (Central Processing Unit) needs to access quickly while running programs and performing tasks.
- Its volatile memory means it loses data when the computer or device turns off.
- It is faster than ROM(Read Only Memory).

**3. Which of the following is a primary storage device?**

- 1. HDD**
- 2. SSD**
- 3. SD card**
- 4. 1 and 2 both**

➤ **ANS: 4. 1 and 2 both**

**4. What is the purpose of a GPU?**

**ANS:** GPU stands for Graphics Processing Unit.

- It is used to accelerate the creation and rendering of images, videos, and animations, particularly for applications like gaming, 3D rendering, and video editing.
- It manages the multitasking and if we want to do heavy gaming with multiple tasks open then GPU is necessary.

## **Section 2: TRUE OR FALSE**

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

➤ **ANS: TRUE.**

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

➤ **ANS: TRUE.**

**7. An expansion card is a circuit board that enhances the functionality of a component.**

➤ **ANS: TRUE.**

## **Section 3: Short Answers**

**8. Explain the difference between HDD and SSD.**

**ANS: HDD:**

- HDD stands for Hard Disk Drive.
- HDD speed is slower as compared to SSD.
- HDD is cheaper than SSD because its speed is slow.
- It high changes to loose data if disk fall or physical shock because of moving parts.

**SSD:**

- SSD stands for Solid State Drive.

- SSD is faster as compared to HDD.
- SSD is more expensive because of its high speed.
- Its more durable because of there is no moving parts.

### **9. Describe the function of BIOS in a computer system.**

**ANS:** BIOS stands for BASIC INPUT OUTPUT SYSTEM.

- It's a process that initializes hardware during startup and loads the operating system.
- it provides basic system configuration settings and acts as an interface between the operating system and hardware.
- BIOS is important for booting the system.

### **10. List and briefly explain three input devices commonly used with computers.**

**ANS:**

#### **1. Keyboard:**

- A keyboard allows users to input text, numbers, and commands into a computer by pressing keys. It is one of the primary devices for typing and interacting with the system.
- Its common use is typing Documents, entering data and navigating the computer.

#### **2. Mouse:**

- A mouse is a pointing device used to interact with the computer's graphical user interface.
- It moves a pointer on the screen, allowing users to select, drag, and drop objects.

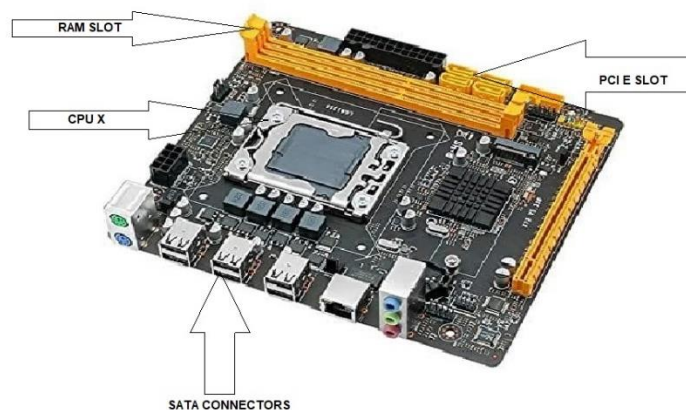
#### **3. Scanner:**

- A scanner is used to convert physical documents and images into digital format by scanning them into the computer.
- A scanner is used to scan Photographs, Documents etc.

## Section 4: Practical Application

**11. Identify and label the following components on a diagram of a motherboard:**

- CPU x
- RAM slots
- SATA connectors
- PCI-E slot



**12. Demonstrate how to install a RAM module into a computer.**

**ANS:**

### **Step 1: Power Off and Unplug**

- Turn off your computer and unplug the power cable.
- Press the power button for a few seconds to discharge any remaining power.

### **Step 2: Open the Computer Case**

- Remove the side panel by unscrewing the screws at the back.
- Lay the case flat on a table for easier access.

### **Step 3: Locate the RAM Slots**

- Identify the RAM slots on the motherboard — they are long slots typically near the CPU with small clips on both ends.

### **Step 4: Open the RAM Slot Clips**

- Push the clips at both ends of the slot outward to open them.

### **Step 5: Align the RAM Module**

- Hold the RAM stick by its edges.
- Align the notch on the RAM's connector with the ridge in the RAM slot.

### **Step 6: Insert the RAM Module**

- Firmly press the RAM straight down into the slot until the clips automatically snap back into place.
- Apply even pressure on both ends to ensure it's fully seated.

### **Step 7: Close the Case and Reconnect Power**

- Reattach the side panel.
- Plug in the power cable and turn the computer back on.

### **Step 8: Confirm Installation**

- Enter the BIOS/UEFI by pressing a key like F2, F10, or DEL during startup to confirm your RAM is detected.

## **Section 5: Essay**

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

**ANS:** Proper cooling mechanisms in a computer system are essential for maintaining performance, preventing hardware failure, and ensuring longevity. Overheating can lead to reduced processing speeds, system crashes, and even permanent damage to components.

**IMPORTANCE:** it's prevent overheating and enhances the performance.

Efficient cooling solutions can reduce the need for noisy fans running at high speeds.

### **Types of Cooling Method:**

#### ➤ **Air Cooling:**

Uses fans to circulate air inside the case and reduce the heat of the components.

Suitable for most standard systems. High-performance air coolers can efficiently manage heat in gaming PCs or workstations.

#### ➤ **Liquid Cooling:**

Utilizes liquid coolant to transfer heat away from critical components. Typically includes a pump, radiator, and cooling block.

Highly efficient for dissipating large amounts of heat, ideal for overclocked CPUs and high-end GPUs.

### **14. Explain the concept of bus width and its significance in computer architecture.**

**ANS:** Bus Width refers to the number of bits that can be transmitted simultaneously over a computer bus. In computer architecture, a bus is a communication pathway that transfers data between various components of the system, such as the CPU, memory, and input/output devices.

### **Significance of Bus Width:**

#### ➤ **Data Transfer Capacity:**

A wider bus can transfer more data at once. For example, a 32-bit bus can carry 32 bits of data in one cycle, while a 64-bit bus can carry 64 bits.

This directly impacts the system's performance, especially in data-intensive applications.

➤ **Memory Addressing:**

Bus width determines the maximum amount of memory the system can address.

For example, a **32-bit address bus** can address up to **4 GB** of memory, while a **64-bit address bus** can address **16 exabytes**.

➤ **system Speed and Performance:**

A wider bus allows more data to be processed in a given time, improving system performance.

Modern processors with **64-bit data buses** can handle larger data chunks, enhancing performance in tasks like video editing, gaming, and multitasking.