

Assignment:

Module -1: Understanding of Hardware and Its Components

1. Which of the following is NOT a component of the CPU?

- A. ALU
- B. RAM
- C. CU
- D. 1 and 3 both

Answer is D. 1 and 3 both

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

Ans =

- RAM is stands for random access memory.
- RAM is primary storage device of computer.
- RAM is volatile memory That's why RAM is temporary storage

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

- A. HDD
- B. SSD
- C. SD card
- D. 1 and 2 both

4. What is the purpose of a GPU?

Ans :

- GPU is stands for graphical processing unit the purpose of GPU is to display the graphical image and videos
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5. True or False: The motherboard is the main circuit board of a computer where other components are attached.

Ans = true.

6. True or False: 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. True or False: An expansion card is a circuit board that enhances the functionality of a component.

Ans = true

8. Explain the difference between HDD and SSD.

Ans =

- HDD: Uses **spinning magnetic disks** (platters) and a moving read/write head to access data.
- SSD: Uses **flash memory chips** (like in USB drives), with no moving parts.

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

Ans = functions of bios are follows

- I. Power-On Self-Test (POST)
- II. Bootstrap Loader
- III. **BIOS Setup Utility (CMOS Setup)**
- IV. Hardware Initialization
- V. Provides Runtime Services
- VI. System Clock Management

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

Ans = 1. Keyboard

- **Function:** Used to input text, numbers, and commands into the computer.
 - **Details:** Contains keys for letters, numbers, functions (F1–F12), and special commands (Ctrl, Alt, etc.).
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2. Mouse

- **Function:** Allows users to point, click, and interact with items on the screen.
 - **Details:** Includes buttons and a scroll wheel; movement of the mouse controls the on-screen pointer.
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3. Scanner

- **Function:** Converts physical documents or images into digital format.
- **Details:** Often used to digitize printed texts, photos, or handwritten notes for editing or storage on the computer.

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

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

Ans =

1. CPU (Central Processing Unit) Socket

- **Location:** Near the top center of the motherboard.
- **Appearance:** Large square socket with a lever or latch; often surrounded by a heatsink or fan mount.
- **Label:** Usually marked "CPU" or "Socket [type]" (e.g., LGA 1700, AM4).

2. RAM Slots (Memory Slots)

- **Location:** Long vertical slots next to the CPU socket (usually 2 or 4).
- **Appearance:** Thin, tall slots with clips at each end. Often color-coded in pairs.
- **Label:** Usually labeled as DIMM_A1, DIMM_B1, etc.

3. SATA Connectors

- **Location:** Lower right side of the motherboard, near the edge.
 - **Appearance:** Small, L-shaped connectors (often black, blue, or red), arranged in a row.
 - **Label:** Marked as SATA0, SATA1, etc. Used for connecting SSDs and HDDs.
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4. PCI-E Slot (Peripheral Component Interconnect Express)

- **Location:** Lower half of the motherboard.
 - **Appearance:** Long horizontal slot (the longest one is typically **x16**, for graphics cards).
 - **Label:** May be labeled as **PCIEX16**, **PCIEX1**, etc. Varies by slot length.
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12. Demonstrate how to install a RAM module into a computer.

Ans = the following steps for installing RAM module into computer

1. Shut Down and Unplug the Computer

- Turn off the computer completely.
 - Unplug it from the power outlet.
 - Press the power button once (while unplugged) to discharge residual power.
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2. Open the Computer Case

- Remove the side panel using a screwdriver if needed.
 - Lay the case flat so the motherboard faces up for easier access.
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3. Ground Yourself

- Touch a metal part of the case or wear an **anti-static wrist strap** to prevent static electricity damage.
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4. Locate the RAM Slots

- Find the long vertical **DIMM slots** on the motherboard (next to the CPU socket).
 - Check your motherboard manual to determine which slots to use first (especially if [you're](#) only using 1 or 2 sticks).
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5. Prepare the RAM Slot

- Push down the plastic **retention clips** at both ends of the [slot](#) so they open outward.
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6. Insert the RAM Module

- Line up the **notch on the RAM stick** with the key in the slot (it only fits one way).
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- Press down **firmly and evenly** on both ends until the module clicks into place.
- The **retention clips will snap closed automatically**, securing the RAM.

7. Double-Check Installation

- Make sure the RAM is fully seated and the clips are locked in place.
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8. Close the Case and Power On

- Replace the side panel.
- Plug in the PC and turn it on.
- The system should recognize the new memory.

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

Ans =

- **Prevents Overheating**

Components like the CPU, GPU, and power supply generate a lot of heat. Excessive temperatures can cause:

- System instability
- Reduced performance (thermal throttling)
- Shortened component lifespan
- In extreme cases, complete hardware failure

- **Improves Performance**

Many modern CPUs and GPUs automatically reduce their clock speeds to prevent overheating. Keeping them cool ensures they run at their maximum potential.

- Increases Lifespan of Components

Electronics degrade faster at high temperatures. Keeping temperatures in check preserves the health of parts over time.

- Reduces Noise

Efficient cooling reduces the need for fans to run at full speed, which lowers system noise.

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

Ans = Bus width refers to the **number of bits** that a computer bus can transmit **simultaneously**. It defines how much data can be moved across the bus in a **single cycle**.

A **bus** in computing is a communication system that transfers data between components (e.g., CPU, memory, peripherals).