

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:- RAM

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

Ans:- RAM [random access memory] is a computer's short-term memory that Stores data so that the CPU can quickly access it. RAM is fundamental Component of a computer and its helps to run computer faster and More smoothly.

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

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

Ans:- HDD or SSD both are primary storage device

4. What is the purpose of a GPU?

Ans:- A graphics processing unit[GPU] is a computer chip that performs Mathematical calculations to render images and graphics. GPU are used For a variety of tasks, inculindg gaming,video editing, etc.

Section 2: True or False

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

ANS:- The statement is 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:- The statement is true

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

ANS:- The statement is true

Section 3: Short Answer

8. Explain the difference between HDD and SSD.

ANS:- **HDD:** Uses spinning disks and a moving read/write head. Slower, cheaper, and has more storage space.

SSD: Uses flash memory with no moving parts. Faster, more durable, and uses less power, but usually costs more.

SSD is better for speed, while HDD is better for budget and large storage.

9. Describe the function of BIOS in a computer system

ANS:- BIOS (Basic Input/Output System) starts the computer when you turn it on. It checks hardware, loads the operating system, and helps the computer communicate with its parts.

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

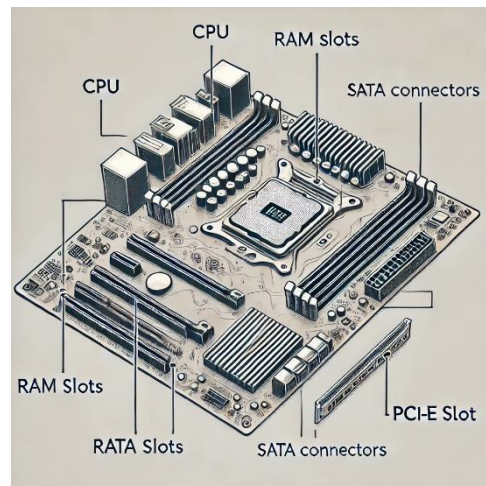
ANS:- Here are three common input devices:

1. **Keyboard** – Used to type letters, numbers, and commands.
2. **Mouse** – Moves the cursor and selects items on the screen.
3. **Scanner** – Converts physical documents into digital format

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



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

ANS:- **Turn Off and Unplug** – Shut down the computer and unplug it from power.

Remove the side panel of the CPU case.

Find the long RAM slots on the motherboard.

Push down the small plastic clips on both ends of the slot

.Align the RAM module with the slot (notch should match).

Push down evenly until the module clicks into place. The clips should lock automatically. Put the side panel back, plug in the computer, and turn it on.

Section 5: Essay

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

ANS:- Importance of Proper Cooling in a Computer System

Cooling is essential to prevent overheating, which can damage components, slow performance, and reduce the lifespan of a computer. Proper cooling keeps the system stable and efficient.

Common Cooling Methods & Effectiveness

1. Air Cooling (Fans & Heat Sinks)

- **How it works:** Fans move hot air away, and heat sinks absorb heat from components.
- **Effectiveness:** Good for most computers but may struggle with high-performance tasks.

2. Liquid Cooling

- **How it works:** Uses liquid coolant in tubes to absorb and transfer heat away.
- **Effectiveness:** More efficient than air cooling, ideal for gaming and heavy workloads.

3. Thermal Paste

- **How it works:** Applied between the CPU and heat sink to improve heat transfer.
- **Effectiveness:** Helps maximize cooling efficiency but needs proper application.

4. Cooling Pads (For Laptops)

- **How it works:** External fans help cool the laptop from the bottom.
- **Effectiveness:** Provides extra cooling but doesn't replace internal cooling.

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

ANS:- Bus Width and Its Significance

Bus width refers to the number of bits a computer's data bus can transfer at once. It determines how much data can move between components (like the CPU, memory, and storage) in a single cycle.

Significance:

1. **Faster Data Transfer** – A wider bus (e.g., 64-bit vs. 32-bit) can transfer more data at once, improving speed.
2. **Better Performance** – Systems with a larger bus width handle larger amounts of data efficiently, reducing bottlenecks.
3. **Supports More RAM** – A wider address bus allows access to more memory, improving multitasking and performance.

Example:

- A **32-bit bus** can transfer 4 bytes per cycle, while a **64-bit bus** can transfer 8 bytes, making it twice as fast.
- Modern computers use **64-bit buses** for higher efficiency and speed.

In short, **bus width affects how fast and efficiently data moves inside a computer.**