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 acts as a fast-access, temporary workspace for the CPU to handle active tasks and data efficiently.

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

   1. HDD

   2. SSD

   3. SD card

   4. 1 and 2 both

Ans:- 1 and 2 both.

4. What is the purpose of a GPU?

Ans:- A Graphics Processing Unit (GPU), often called a graphics card or video card, is a specialized electronic circuit primarily designed to accelerate the rendering of images and videos on a computer display.

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 :- 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

Section 3: Short Answer

8. Explain the difference between HDD and SSD

 Ans :-

HDD	SSD
HDD stands for Hard Disk Drive.	SSD stands for Solid State Drive.
HDD contains moving mechanical parts, like the arm.	SSD does not contains, mechanical parts, only electronical parts like ICs.
HDD has longer R/W time.	SSD has shorter R/W time..
HDD has higher latency.	SSD has lower latency.

HDD supports fewer I/O operations per second.	SSD supports more I/O operations per second.
HDD is heavier in weight.	SSD is lighter in weight.

9. Describe the function of BIOS in a computer system

  Ans :- The BIOS (Basic Input/Output System) is a crucial firmware component in a computer system. It is the first software that runs when a computer is powered on, and its primary function is to initialize and test the hardware components of the system, and then load the operating system (OS) into memory.

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

Ans :- Three commonly used computer input devices are the keyboard, mouse, and microphone. The keyboard allows users to input text and commands through its keys, while the mouse enables pointing, clicking, and scrolling on the screen. A microphone captures audio for voice input, such as dictation or voice commands.

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

Ans :-

General Layout of a Motherboard:

- The CPU is in the center.
- RAM slots are located close to the CPU.
- SATA connectors are typically near the bottom right or left of the motherboard.
- PCI-E slots are positioned towards the lower part of the motherboard.

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

Ans :- To install a RAM module, first ensure the computer is off and unplugged. Open the computer case, locate the RAM slots, ground yourself, and remove any existing RAM. Align the notch on the new RAM module with the ridge in the slot, and press it down firmly until it clicks and the clips secure it.

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 is crucial in computer systems to prevent overheating and ensure component longevity and performance. Overheating can lead to temporary malfunctions, reduced performance, or permanent damage to components like CPUs, GPUs, and hard drives. Effective cooling methods include air cooling, liquid cooling, and sometimes passive cooling.

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

Ans :- In computer architecture, the bus width refers to the number of bits that can be transmitted simultaneously over the system bus.

Essentially, the bus width determines how much data can travel between the different parts of the system at once. It is often measured in bits, with common values being 8 bits, 16 bits, 32 bits, or 64 bits.

*Significance of Bus Width in Computer Architecture

1. Data Transfer Speed

2. Overall System Performance

3. Effect on Memory Access

4. Impact on Addressing Capability

5. Enhanced Parallel Processing