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?

   ➢ Ram store data temporarily and instructions that are currently being used by the cpu.

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?

   ➢ The GPU Process Graphics And Visual Data.

Section 2:- True And 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:- it's uses rotating disk.

- ➢ It Is slower and cheaper.

        SDD:- it have no moving part.

- ➢ It is fast and costly.

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

  Ans:- BIOS start the computer and loads the operating system.

- ➢ Without BIOS the computer cannot start.

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

  Ans:-

- ▪ Keyboard:-Used to enter text and commands.
- ▪ Mouse:-Used to point, click, and select items on the screen.
- ▪ 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 Socket:- Holds Proccessor.

● RAM slots :- Holds RAM.

● SATA connectors:- Connects HDD/SSD

● PCI-E slot :- Used For Graphics Card.

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

  Ans:-

      1:Turn off the computer and unplug power.

      2:Open the computer case.

      3:Open the clip of the RAM slot.

      4:Align the RAM notch with the slot.

      5:Press firmly until it clicks.

      6: Close the case and power on.

Sectipn 5:- Essay

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

➢ Liquid cooling is more effective than air cooling. It uses a liquid to absorb heat and transfer it to a radiator. This method is used in high-performance systems like gaming computers and servers. Although it is more expensive, it keeps temperatures lower and reduces noise.

➢ Passive cooling does not use fans and depends only on heat sinks. It is silent but suitable only for low-power devices. Active cooling, which uses fans or pumps, is used in most modern computers.

➢ Proper airflow inside the computer cabinet is also important. Clean fans, good ventilation, and proper cable arrangement help improve cooling efficiency.

➢ In conclusion, proper cooling mechanisms are essential for the safe and efficient working of a computer system. They prevent overheating, improve performance, and increase the lifespan of hardware components.

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

➢ Types of Bus Width
  1. Data Bus Width
  • Determines how many bits of data can be transferred at once.
  • Example: A 32-bit data bus can transfer 32 bits (4 bytes) of data in one cycle.
➢ 2. Address Bus Width
  • Determines how many memory locations the CPU can address.
  • Example: A 32-bit address bus can address up to 2^{32} memory locations (4 GB of memory).
➢ 3. Control Bus Width
  • Carries control signals (read, write, interrupt, clock signals).
  • Its width affects system coordination rather than data size.
➢ Significance of Bus Width
  1. Performance

  • A wider bus allows more data to be transferred in a single cycle, improving overall system speed.

➢ 2. Memory Capacity
  • Address bus width directly limits the maximum memory a system can support.
➢ 3. Processing Power

- • Systems with wider buses (e.g., 64-bit) can handle larger data sizes and complex computations more efficiently.
- ➢ 4. System Scalability
- • Wider buses support modern applications that require high data throughput, such as graphics processing and scientific computing.
- ➢ 5. Compatibility and Architecture
- • Bus width influences the design of processors and operating systems (e.g., 32-bit vs 64-bit architecture).
- ➢ Examples
  - • 8-bit bus: Early microprocessors (limited speed and memory).
  - • 32-bit bus: Common in older PCs; supports up to 4 GB RAM.
  - • 64-bit bus: Modern systems; supports very large memory and faster data transfer.