**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?  
 Ans. . RAM  
  
 2. What is the function of RAM in a computer?  
 Ans. RAM (Random Access Memory) temporarily stores data and programs that the CPU is   
 currently using, allowing for quick access.  
  
 3. Which of the following is a primary storage device?  
 Ans. 4. 1 and 2 both  
  
 4. What is the purpose of a GPU?  
 Ans. A GPU makes graphics look better and helps games and videos run more   
 smoothly. It also assists with processing data for tasks like machine learning.  
  
   
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. False  
  
  
Section 3: Short Answer  
  
  
 8. Explain the difference between HDD and SSD.  
 Ans. HDD:- Hdd uses spinning disks to read and write data, making it slower but usually cheaper and   
 with more storage capacity.  
  
 SSD:- Ssd has no moving parts, making it much faster and more durable, but it tends to be more  
 expensive and has less storage for the same price.  
   
 9. Describe the function of BIOS in a computer system.   
 Ans-The BIOS (Basic Input/Output System) starts up the computer by setting up the hardware and   
 loading the operating system. It also lets you change system settings.

**Its primary function include:**

1. Power-On Self-Test (POST): It checks the hardware components, such as the CPU, RAM, and storage   
 devices, to ensure they are working correctly.

2. Booting the Operating System: After the POST, BIOS identifies and loads the operating system from   
 the designated storage device, allowing the computer to start up.

3. Configuration Settings: BIOS provides a setup utility where users can configure hardware settings,   
 such as the boot order and system time.

4. Interface Between OS and Hardware: It acts as an intermediary, enabling communication between  
 the operating system and the computer's hardware components.   
  
  
 10. List and briefly explain three input devices commonly used with computers.  
 Ans. Here are three common input devices used with computers:

1. Keyboard: A device used for typing text and entering commands, numbers, and functions.  
 2. Mouse : A pointing device that allows users to navigate and interact with the computer's   
 graphical interface by clicking and dragging.  
 3. Scanner: A device that converts physical documents and images into digital formats, enabling  
 easy storage and sharing.  
  
   
**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: Done in lab  
  
 12. Demonstrate how to install a RAM module into a computer.  
 Ans. Done in lab

**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 crucial for maintaining optimal  
 performance and preventing damage to components. Excess heat can lead to reduced   
 efficiency, system instability, and hardware failure.

Importance:

1. Performance: Cooling helps keep components like the CPU and GPU running at optimal temperatures,   
 ensuring they operate efficiently.

2. Longevity: By preventing overheating, effective cooling can extend the lifespan of hardware.

3. Stability: Proper cooling reduces the risk of system crashes and errors that can occur due to high  
 temperatures.

Cooling Methods:

1. Air Cooling: Uses fans and heatsinks to dissipate heat. It’s effective for most systems and relatively easy   
 to install.

2. Liquid Cooling: Involves circulating coolant through tubes and a radiator to absorb and dissipate heat.   
 It's more efficient than air cooling, especially for high-performance systems.

3. Thermal Paste: Applied between the CPU and heatsink to improve heat transfer, enhancing the   
 effectiveness of cooling solutions.

:- Overall, maintaining proper cooling is vital for the health and performance of a computer system.  
  
  
  
 14. Explain the concept of bus width and its significance in computer architecture.  
 Ans. Bus Width in Computer Architecture:  
 Bus width is a crucial concept in computer architecture that describes how many bits can be sent at   
 once through a bus. A bus is a communication link that connects various parts of a computer, like   
 the CPU, memory, and input/output devices. The bus width determines how much data can be   
 transferred simultaneously, which directly impacts the system's overall performance.

Significance of Bus Width

1. Data Transfer Rate: A wider bus can carry more data in a single cycle. For example, a 64-bit bus can transmit twice the amount of data as a 32-bit bus during the same time frame. This increased data transfer rate is vital for applications that require quick processing, such as gaming and video editing.

2. System Performance: With a wider bus, the CPU can access more memory and communicate with more devices at once. This helps reduce delays and bottlenecks, leading to smoother performance, especially when running multiple tasks simultaneously.

3. Future Compatibility: As software becomes more complex, it is designed to utiliz