Assignment:

Module-1: Understanding of Hardware and Its Components

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**Section 1: Multiple Choice**

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

Ans: RAM.

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

Ans: Stores data it needs to retrieve quickly.

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

Ans: Random Access Memory (RAM).

1. What is the purpose of a GPU?

Ans: Helps handle graphics related work like graphics effects and video.

# Section 2: True or False

1. The motherboard is the main circuit board of a computer where other components are attached.

Ans: True

1. A UPS (Uninterruptible Power Supply) is a hardware device that provides emergency power to a load when the input power source fails.

Ans: True

1. An expansion card is a circuit board that enhances the functionality of a component.

Ans: True

# Section 3: Short Answer

1. Explain the difference between HDD and SSD.

Ans: HDD:

* Random access time 5-10 ms
* Read latency time high.
* 50MB/s to 100MB/s
* Higher capacity options available (up to 16TB)
* Low reliability.
* HDD have moving parts and subject to sudden failure.
* Relatively large and heavy
* 6-12 Watts.
* Generally, less expensive per GB

SSD:

* Random access time 0.1ms.
* Read latency time very low.
* 100MB/s to 500MB/s
* Lower capacity options available (up to 8TB)
* High reliability.
* SSD have no moving parts to faill
* Small and light weight.
* Power consumption 2watts.
* Generally, more expensive per GB

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

Ans: The BIOS, or Basic input/Output system, is a computer’s firmware that performs a variety of functions to start and run the computer.

1. Boot: The BIOS initiates the computer’s hardware and loads the operating system.
2. Hardware configuration: The BIOS identifies and configures the computer’s hardware, such as the CPU, memory, and hard drive.
3. Data flow management : The BIOS manages data flow between the computer’s operating system and attached device, such as the keyboards, mouse, and printer.
4. Security: The BIOS provides security features, such as boot protection and password protection.
5. System configuration: The BIOS provides users with system configuration options, such as changing the boot order, date and time.
6. Diagnostic tools: The BIOS provides tools for troubleshooting and error detection.

-The BIOS is stored on the motherboard and is the first software to run after the computer starts. The BIOS’s setting are saved and recoverable even after the computer has been power off.

-To enter the BIOS setup, you can press key, such F1, F2, F10, DEL or ESC, as soon as the manufacturer’s logo appears but before the operating system loads.

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

Ands:

1. Keyboard : A device with keys that allows users to input text, number, and commands by pressing them.
2. Mouse: A pointing device that allows users to click on items on the screen and navigate by moving the cursor with their hand movements.
3. Microphone: An input device that captures sound and coverts it into digital signals that can be processed by the compute.

# Section 4: Practical Application

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

Ans.

1. CPU: The central processing unit, usually located in a socket in the center of the motherboard.
2. RAM Slots: The memory slots where you insert the RAM modules (DIMM or DDR).
3. SATA Connectors: The connectors for attaching storage devices like hard drivers or solid-state drives.
4. PCI-E Slot: The expansion slot for adding hardware components like graphics cards, sound card, or network cards.
5. Demonstrate how to install a RAM module into a computer.

Ans:

Step 1: Power off and disconnect: Turn off your computer and unplug it from the power source.

Step 2: Open the case: Access the inside of your computer by removing screws and carefully opening the case.

Step 3: Ground yourself: Touch a grounded metal surface on your computer to prevent static electricity.

Step 4: Locate RAM slots: identify the RAM slots on the

motherboard, which are usually near the CPU.

Step 5: Remove existing RAM : If you need to replace

existing RAM, gently press the clips on the sides of the

module to release it and pull it straight out.

Step 6: Align the RAM module: Take your new RAM

module and align the notch on the module with the

corresponding ridge in the RAM slot.

Step 7 : Insert the RAM: firmly press the RAM module into

the slot at s slight angle until you hear a click, ensuring the

side clips securely latch onto the motherboard.

# Section 5: Essav

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

Ans: Computer colling system are active or passive colling

system designed to dissipate excessive heat generated

through a Pc. Proper and regular heat dissipation from the

system ensures efficiency and effectiveness while working.

Also maintains an optimal performance that ensures the

system stays protected against any damage and works for a

longer time span.

TYPES OF COLLING SYSTEM IN YOU PC :

1. Fans: Fans, unlike heat slinks, from an active colling system. They use energy to run, thus enabling the air to circulate. They work on pushing air out of your PCs and laptop through their casing. Fans are used with heat slinks in a computer system wherein a heat sink is first placed on top of it after which the fan is plied on.
2. Liquid cooling: working on the same concept as the IC engines (internal combustion engines), liquid cooling system have recently been introduced with advanced technology. The most commonly used liquid for cooling purposes is distilled water. This form of computer cooling solution is the best out of all other types for efficient cooling
3. Heat sinks: Heat sinks can be applied with multiple components inside the system. Their function is to dissipate the heat from element they have been fixed to. Commonly used with older CPUs heat sinks work conventionally and are attached to those parts that do not generation immense heat.
4. Explain the concept of bus width and its significance in computer architecture.

Ans: Significance of bus width:

1. Data transfer rate: A wider bus allows for more data to be transferred at once, increasing the overall data transfer rate.
2. Performance: A wider bus can improve system performance by reducing the time it takes to transfer data between components.
3. Memory access: A wider bus can provide faster memory access times, as more data can be transferred between the CPU and memory.
4. Scalability: A wider bus can support more devices and components, making it easier to add new features and functionality to the system.

Common bus width:

* 8-bit (older systems)
* 16-bit (older systems)
* 32-bit (common in older systems and some embedded systems)
* 64-bit (common in modern systems, including desktops, laptops, and servers)
* 128-bit (used in some specialized systems, like graphics processing units).