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Assignment:

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: 2.RAM

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

Ans: **RAM (Random Access Memory):**

* Temporary memory of computer.
* Stores data and programs while using.
* Fast access for CPU.
* Data is lost when power is off (volatile).

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

Ans: **Not listed in options (RAM is primary storage).**

1. What is the purpose of a GPU?

Ans: The purpose of GPU is to handle graphics-related tasks and reduce the load on CPU.

*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: **Difference between HDD and SSD**

* **HDD (Hard Disk Drive):**
  + Stores data on **spinning magnetic disks**.
  + Has **moving parts**, so it is **slower** and less durable.
  + **Cheaper** and provides **more storage space**.
* **SSD (Solid State Drive):**
  + Stores data on **flash memory chips**.
  + Has **no moving parts**, so it is **faster** and more reliable.
  + **Costlier** and usually has **less storage** than HDD.

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

Ans: **BIOS (Basic Input/Output System) is firmware that initializes and tests hardware components during the computer’s startup and provides an interface between the operating system and the hardware.**

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

Ans: 1. Keyboard – used for typing letters, numbers, and commands.

* + 1. Mouse – used to point, click, and select things on the screen.
    2. Microphone – used to give voice input to the computer.

*Section 4: Practical Application*

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

Ans: **Steps to Install a RAM Module into a Computer**

1. **Power Off & Unplug** – Shut down the computer and remove the power cable.
2. **Open the Case** – Remove the side panel of the CPU cabinet.
3. **Locate RAM Slots** – Find the **long slots** (DIMM slots) on the motherboard, usually beside the CPU.
4. **Align the RAM** – Check the **notch** on the RAM module and match it with the slot.
5. **Insert the RAM** – Hold the RAM by the edges, push it firmly into the slot until the side clips lock it in place.
6. **Close the Case & Power On** – Reattach the side panel, connect cables, and start the computer to check if RAM is detected.

*Section 5: Essay*

12. 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**

* A computer generates heat when its components, such as the **CPU, GPU, RAM, and power supply**, are working. If this heat is not controlled, the system may **overheat**, leading to:
* Reduced performance (thermal throttling)
* System crashes or unexpected shutdowns
* Shortened lifespan of components
* In extreme cases, **permanent hardware damage**

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

Ans:  **Definition:** Bus width is the number of bits a computer bus can transfer at one time.

 **Types:**

* **Data Bus** → Transfers data
* **Address Bus** → Carries memory addresses
* **Control Bus** → Sends control signals

 **Significance:**

* Wider bus = more data transfer per cycle → faster performance.
* Determines **memory addressing capacity** (e.g., 32-bit = 4 GB, 64-bit = 16 EB).
* Affects CPU–memory compatibility and system speed.