

Section 1: Multiple Choice

1. **Answer:** RAM (Random Access Memory) is **not** a component of the CPU. The correct answer is **2 (RAM)**.
2. **Answer:** RAM is a temporary storage that holds data and instructions that the CPU processes. It allows for quick access to frequently used applications and system processes.
3. **Answer:** The **primary storage devices** are **HDD (Hard Disk Drive) and SSD (Solid State Drive)**. So the correct answer is **4 (1 and 2 both)**.
4. **Answer:** A **GPU (Graphics Processing Unit)** handles graphics rendering tasks, improving video quality and gaming performance. It's crucial for applications that require high-resolution imagery and complex computations.

Section 2: True or False

5. **True:** The **motherboard** is indeed the main circuit board where all key components, such as the CPU and RAM, are attached.
6. **True:** A **UPS (Uninterruptible Power Supply)** provides emergency power when the main supply fails, preventing data loss and protecting hardware.
7. **True:** **Expansion cards** are additional hardware components that enhance the functionality of a system, such as sound cards or graphics cards.

Section 3: Short Answer

8. **Difference between HDD and SSD:**
 - **HDD (Hard Disk Drive):** Uses spinning disks and a moving read/write head. It is slower but cheaper and offers more storage capacity.
 - **SSD (Solid State Drive):** Uses flash memory with no moving parts, making it much faster, more reliable, and energy-efficient.
9. **Function of BIOS:**
 - BIOS (Basic Input/Output System) is responsible for initializing hardware components and loading the operating system upon startup.
10. **Three common input devices:**
 - **Keyboard:** Used for text input and command execution.
 - **Mouse:** A pointing device for navigating the computer interface.
 - **Scanner:** Converts physical documents into digital formats.

Section 4: Practical Application

11. Identifying components on a motherboard:

- **CPU:** Central Processing Unit, located in the processor socket.
- **RAM slots:** Memory slots where RAM modules are installed.
- **SATA connectors:** Used for connecting storage devices like HDDs and SSDs.
- **PCI-E slot:** Expansion slot for graphics and other cards.

12. Installing a RAM module:

- Open the computer case and locate the RAM slots.
- Align the RAM module properly with the slot.
- Press down firmly until it clicks into place.

Section 5: Essay

13. Importance of cooling mechanisms in a computer system:

- Computers generate heat, and excessive heat can lead to performance issues or hardware damage. Cooling methods include:
 - **Air cooling (Fans):** Inexpensive and widely used.
 - **Liquid cooling:** More efficient, often used for gaming PCs.
 - **Thermal paste:** Helps dissipate heat from the CPU.
- Proper cooling ensures stable performance and longevity.

14. Bus width and its significance in computer architecture:

- Bus width determines how much data can be transmitted at once between the CPU and memory. A wider bus means **faster data transfer**, improving system efficiency.