

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?

- 1. ALU
- 2. RAM
- 3. CU
- 4. 1 and 3 both

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

ANS:- RAM (Random Access Memory) temporarily stores data and instructions that the CPU needs while performing tasks for fast access and processing.

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

- 1. HDD
- 2. SSD
- 3. SD card
- 4. 1 and 2 both

4. What is the purpose of a GPU?

ANS:- A GPU (Graphics Processing Unit) accelerates the rendering of images and complex calculations, especially for graphics and parallel processing tasks.

Section 2: True or False

5. True or False: The motherboard is the main circuit board of a computer where other components are attached. :- **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. :- **TRUE**

7. True or False: An expansion card is a circuit board that enhances the functionality of a component. :- **TRUE**

Section 3: Short Answer

8. Explain the difference between HDD and SSD.

ANS:- An HDD (Hard Disk Drive) uses spinning magnetic disks to store data, making it

slower and more prone to physical damage, while an SSD (Solid State Drive) uses flash memory with no moving parts, offering faster speed, better durability, and lower power consumption.

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

ANS:- The BIOS (Basic Input/Output System) initializes and tests hardware components during startup and loads the operating system from storage into the computer's memory.

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

ANS:- 1. **Keyboard** – Allows users to input text, numbers, and commands by pressing keys.

2. **Mouse** – A pointing device used to move the cursor, select items, and interact with the graphical user interface.

3. **Scanner** – Converts physical documents or images into digital format for editing or storage on the computer.

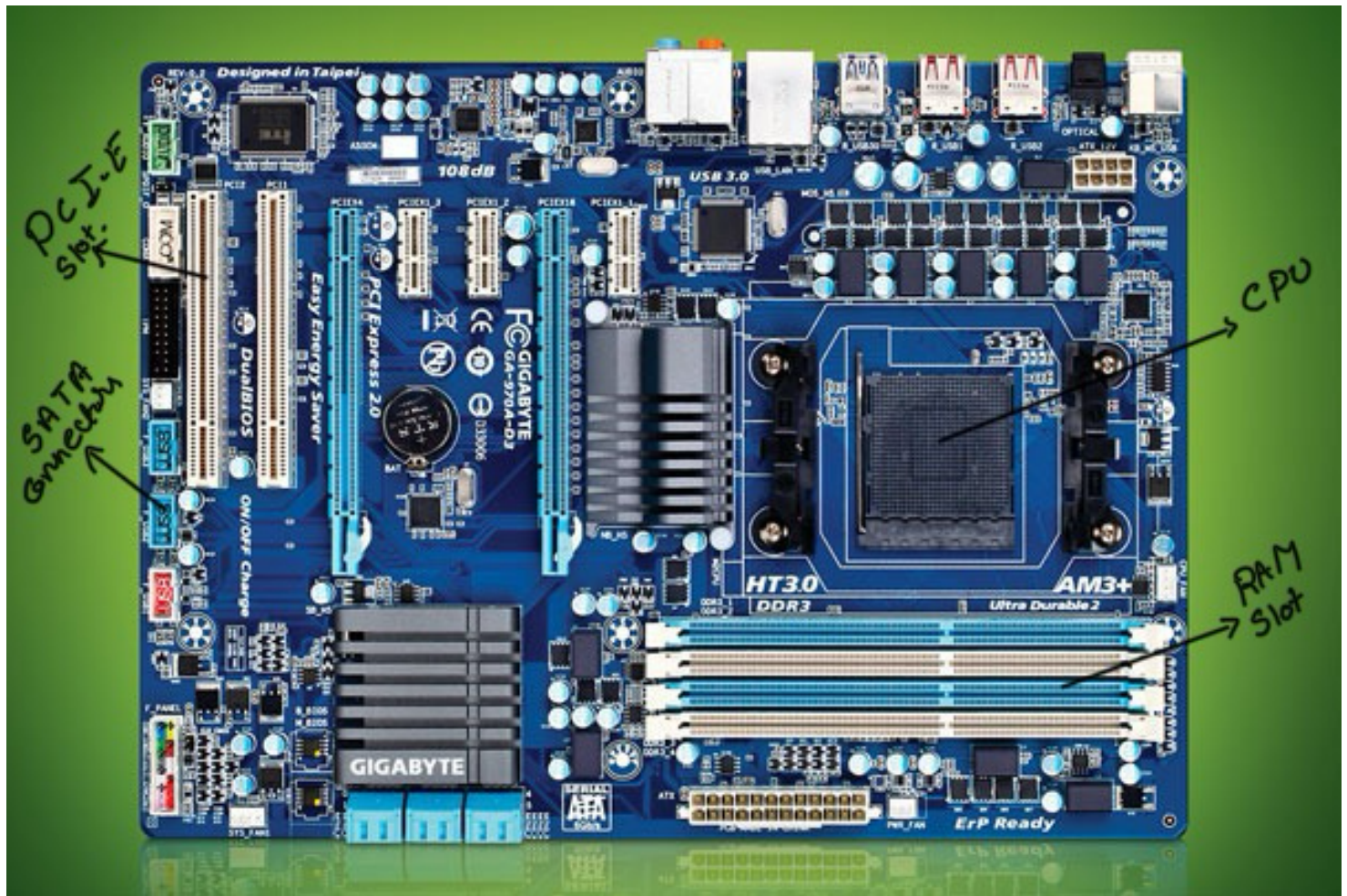
Section 4: Practical Application

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

● CPU

● RAM slots

● SATA connectors ● PCI-E slot



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

ANS:-

1. Turn Off the Computer and Unplug It

- Shut down your PC completely.
- Disconnect all cables, especially the power cable.

2. Open the Computer Case

- Use a screwdriver (if needed) to remove the side panel.
- Ground yourself to avoid static discharge (touch metal or use an anti-static wrist strap).

3. Locate the RAM Slots

- Find the long, narrow slots on the motherboard (usually near the CPU socket).

4. Prepare the RAM Slot

- If replacing or adding RAM, gently push the clips at each end of the slot outward.

5. Align the RAM Module

- Match the notch on the bottom of the RAM module with the key in the slot to ensure correct orientation.

6. Insert the RAM

- Firmly press the RAM module straight down into the slot.

- The clips should snap into place, securing the module.

7. Close the Case and Reconnect Power

- Replace the side panel.
- Reconnect all cables and turn on the PC.

8. Check for Proper Installation

- Boot the computer.
- Go to BIOS/UEFI or your operating system's system information to confirm the RAM is recognized.

Let me know if you're installing RAM in a laptop—the steps differ slightly.

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 are crucial in a computer system to maintain optimal performance, prevent overheating, and extend the lifespan of components like the CPU, GPU, and power supply. Overheating can cause system crashes, reduced performance, or even permanent hardware damage.

Importance of Proper Cooling:

- **Maintains System Stability** – Keeps temperatures within safe limits during heavy tasks like gaming or video editing.
- **Prevents Thermal Throttling** – Avoids automatic slowing of components like the CPU/GPU due to high temperatures.
- **Increases Hardware Longevity** – Reduces wear on sensitive electronic parts caused by excessive heat.
- **Supports Overclocking** – Essential for users pushing components beyond their standard performance limits.

Common Cooling Methods:

1. Air Cooling:

- Uses fans and heat sinks to dissipate heat.
- **Effectiveness:** Cost-effective and sufficient for most everyday computing tasks.
- **Example:** CPU air coolers like Cooler Master Hyper 212.

2. Liquid Cooling:

- Circulates coolant through tubes and a radiator to remove heat.
- **Effectiveness:** More efficient and quieter than air cooling, ideal for high-performance or overclocked systems.
- **Example:** All-in-one (AIO) liquid coolers like Corsair H100i.

3. Thermal Paste:

- Applied between a CPU/GPU and its heat sink to improve heat transfer.
- **Effectiveness:** Essential for optimal heat conduction.

4. Passive Cooling:

- Uses no fans—relies on heat sinks and airflow.
- **Effectiveness:** Silent but suitable only for low-power systems like routers or media centers.

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