

HARDWARE-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 stores data and instructions temporarily while the computer is working.

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

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

5. RAM

4. What is the purpose of a GPU?

Ans: GPU stands for Graphics processing unit. GPU is used to process and display graphics and images.

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 (Hard Disk Drive)	SSD (Solid State Drive)
Uses magnetic disks to store data	Uses flash memory to store data
Has moving parts	No moving parts
Slower in speed	Faster in speed
Makes noise while working	Works silently

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

Ans: BIOS (Basic Input Output System) is a program stored in ROM. Its main function is to start the computer by checking hardware components and loading the operating system into RAM.

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

Ans:

1. **Keyboard**

Used to enter text, numbers, and commands into the computer.

2. **Mouse**

Used to point, click, select, and move objects on the screen.

3. **Scanner**

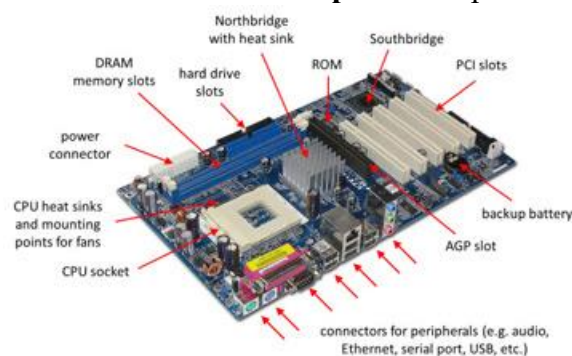
Used to convert paper documents or images into digital form.

Section 4: Practical Application

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

1. **CPU (Central Processing Unit)**

- Located in the **CPU socket** near the center/top of the motherboard.
- It is the **brain of the computer** that processes instructions.



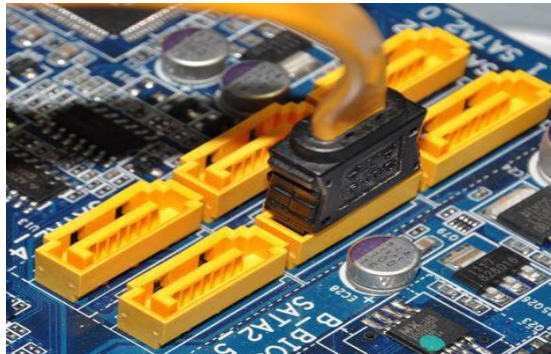
2. **RAM Slots**

- Long, narrow slots usually placed next to the CPU.
- Used to insert RAM (primary memory).



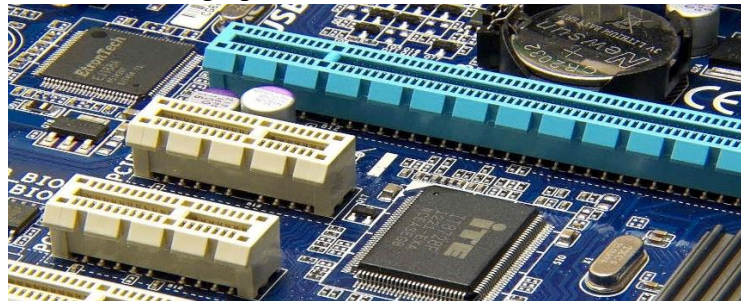
3. SATA Connectors

- Small L-shaped connectors found near the edge of the motherboard.
- Used to connect HDD, SSD, or optical drives.



4. PCI-E Slot (Peripheral Component Interconnect Express)

- Long expansion slot, usually at the bottom half of the motherboard.
- Used to install graphics card, sound card, or network card.



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

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

1. Switch off the computer and unplug the power cable.
2. Open the CPU cabinet using a screwdriver.
3. Locate the RAM slot on the motherboard.
4. Open the side clips of the RAM slot.
5. Align the notch on the RAM module with the notch in the slot.
6. Insert the RAM gently and press down firmly.
7. Close the clips until they lock the RAM in place.
8. Close the cabinet, reconnect power, and switch on the computer.

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 is very important for a computer system because computer components like CPU, GPU, and motherboard produce heat while working.

If excess heat is not removed, it can:

- Slow down the computer
- Cause hardware damage
- Reduce the life of components
- Lead to system crashes or shutdowns

Therefore, cooling helps the computer work smoothly and safely.

Examples of Cooling Methods and Their Effectiveness

1. **Air Cooling (Fans)**

- Uses cooling fans to circulate air inside the CPU cabinet.
- Effective for normal home and office computers.

2. **Heat Sink**

- A metal component attached to the CPU.
- Absorbs and spreads heat away from the processor.
- Very effective when used with a fan.

3. **Liquid Cooling**

- Uses liquid to transfer heat away from components.
- More effective than air cooling, mainly used in high-performance systems.

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

Ans: Bus Width refers to the number of bits that a computer bus can carry at one time between different components like CPU, memory, and input/output devices.

Significance of Bus Width

1. **Faster Data Transfer**

- A larger bus width allows more data to move at once, increasing speed.

2. **Better System Performance**

- Helps CPU communicate efficiently with memory and devices.

3. **Supports Larger Data Processing**

- Wider buses can handle bigger instructions and data sizes.

Example:

- A 32-bit bus transfers 32 bits at a time.
- A 64-bit bus transfers 64 bits at a time and is faster.

