

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

-> RAM

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

->RAM temporarily stores data and instructions that the CPU needs for quick access, allowing faster processing compared to storage devices like HDDs or SSDs. It helps run applications smoothly by storing data that is actively being used.

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

->Options are wrong !!

->RAM is the primary storage device in a computer.

4) What is the purpose of a GPU?

->A GPU (Graphics Processing Unit) is responsible for rendering images, videos, and animations by performing complex mathematical and graphical calculations. It is commonly used in gaming, video editing, AI, and deep learning applications.

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

->True

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

->True

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

->True

8) Explain the difference between HDD and SSD.

Feature	HDD (Hard Disk Drive)	SSD (Solid State Drive)
Technology	Uses spinning magnetic disks and a moving read/write head.	Uses flash memory (no moving parts).
Speed	Slower due to mechanical parts (100–200 MB/s).	Much faster (up to 5000 MB/s for NVMe SSDs).
Durability	Prone to damage due to moving parts.	More durable and resistant to shocks.
Power Consumption	Consumes more power.	Consumes less power, improving battery life.
Lifespan	Can last longer with proper care but wears out over time.	Limited write cycles but generally lasts long.
Cost	Cheaper per GB.	More expensive per GB.
Usage	Best for large storage (e.g., backups, media).	Best for OS, applications, and fast performance.

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

->BIOS (Basic Input/Output System) is firmware stored on the motherboard that performs the following functions:

1. Power-On Self-Test (POST): Checks hardware components (RAM, CPU, etc.) during startup.
2. Bootstrapping: Finds and loads the operating system from storage.
3. Hardware Initialization: Configures system hardware like keyboards, mouse, and drives.
4. System Settings: Provides a BIOS setup utility where users can configure settings such as boot order and CPU settings.

(Note) Modern computers use UEFI (Unified Extensible Firmware Interface), which is a more advanced version of BIOS with better security and graphical interfaces.

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

->List of devices are as follows

- 1)Keyboard
- 2)Mouse
- 3)Scanner
- 4)Microphone
- 5)Fingerprint Scanner

-->>Keyboard:

A device with keys for typing text, numbers, and commands.

Comes in different layouts like QWERTY, mechanical, or virtual keyboards.

-->>Mouse:

A pointing device used to move a cursor, select items, and navigate GUIs.

Variants include optical mice, trackpads, and gaming mice.

-->>Scanner:

Converts physical documents or images into digital form.

Types include flatbed scanners, barcode scanners, and document scanners.

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



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

--> Step 1 Gather Your Tools and Prepare

Step 2 Open the Computer Case

Step 3 Locate the RAM Slots

Step 4 Insert the New RAM Module

Step 5 Close the Case and Test

Troubleshooting If RAM Is Not Detected

If the PC doesn't boot or beeps:

Remove and reseat the RAM.

Try inserting the RAM into a different slot.

Ensure the RAM type and speed are compatible with your motherboard.

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

--> Proper cooling is crucial for maintaining a computer's performance, longevity, and stability. Overheating can cause hardware damage, reduced efficiency, system crashes, and even permanent failure.

Why Cooling Is Important?

Prevents Overheating: High temperatures can damage the CPU, GPU, and motherboard.

Enhances Performance: CPUs and GPUs throttle (slow down) if they get too hot, reducing performance.

Extends Lifespan: Heat can degrade components over time, leading to premature failure.

Ensures Stability: Overheating can cause unexpected shutdowns and errors.

For most users, air cooling (fans and heatsinks) is enough. However, gamers and professionals may need liquid cooling for better performance.

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

What is Bus Width?

--> Bus width refers to the number of bits a computer's data bus can transmit in parallel at one time. It determines how much data can move between components like the CPU, memory, and storage in a single cycle.

Why is Bus Width Important?

Increases Data Transfer Speed: A wider bus can transfer more data per clock cycle.

Improves System Performance: Faster communication between CPU, RAM, and peripherals.

Affects RAM Compatibility: Systems support different RAM types (e.g., 32-bit vs. 64-bit addressing).

Example: A 32-bit CPU can address 4GB of RAM, whereas a 64-bit CPU can address over 16 exabytes of RAM. This is why modern computers use 64-bit architecture.