

Module – 1 : Understanding of Hardware and Its components

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

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

Ans. RAM

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

Ans. RAM (Random Access Memory) is the temporary memory of a computer that stores data and programs currently in use. It allows fast access to information, helping the system run smoothly and quickly. Data in RAM is lost when the computer is turned off.

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

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

Ans. 1 and 2 both

4) What is the purpose of a GPU?

Ans. GPU (Graphics Processing Unit) helps the computer show images, videos, and games smoothly. It takes care of all the graphics work, so the CPU can do other jobs faster. It's useful for gaming, watching videos, and editing photos or videos.

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. True

8) Explain the difference between HDD and SSD.

Ans. Full Form :

- HDD – Hard Disk Drive
- SSD – Solid State Drive

Technology :

- HDD has moving parts like spinning disks to read/write data.
- SSD has no moving parts and stores data on flash memory

Speed :

- HDD is slower while starting the system or opening files.
- SSD is much faster than HDD and improves overall performance

Durability :

- HDD is more likely to get damaged in case if it is dropped.
- SSD is more durable and shock-resistant.

Noise :

- HDD makes noise while spinning.
- SSD works more silently than HDD.

Cost :

- HDD is cheaper and offers more storage at lower cost.
- SSD is more expensive but faster and better for performance.

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

Ans. BIOS is the first thing that runs when computer is turned on. It checks that everything is working properly like keyboard, memory and hard drive. And then it helps to start operating system like windows.

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

Ans. Keyboard – Used to type text, numbers and give commands to the computer.

Mouse – Used to move pointer, click, drag and select items on the screen.

Scanner – Used to scan documents and photos to convert them into

digital form.

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

CPU

RAM Slots

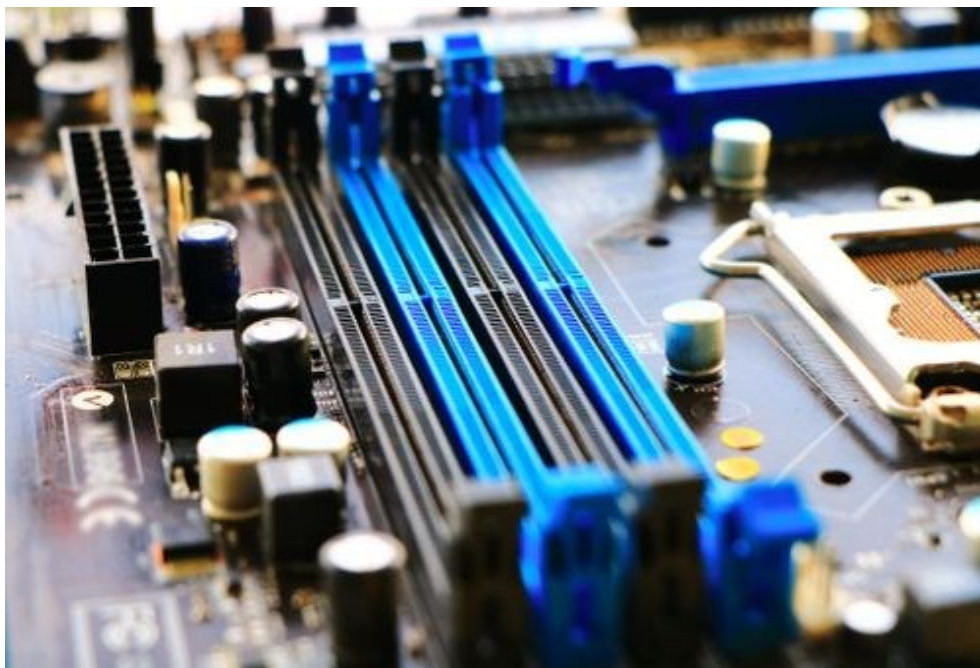
SATA Connectors

PCI-E Slot

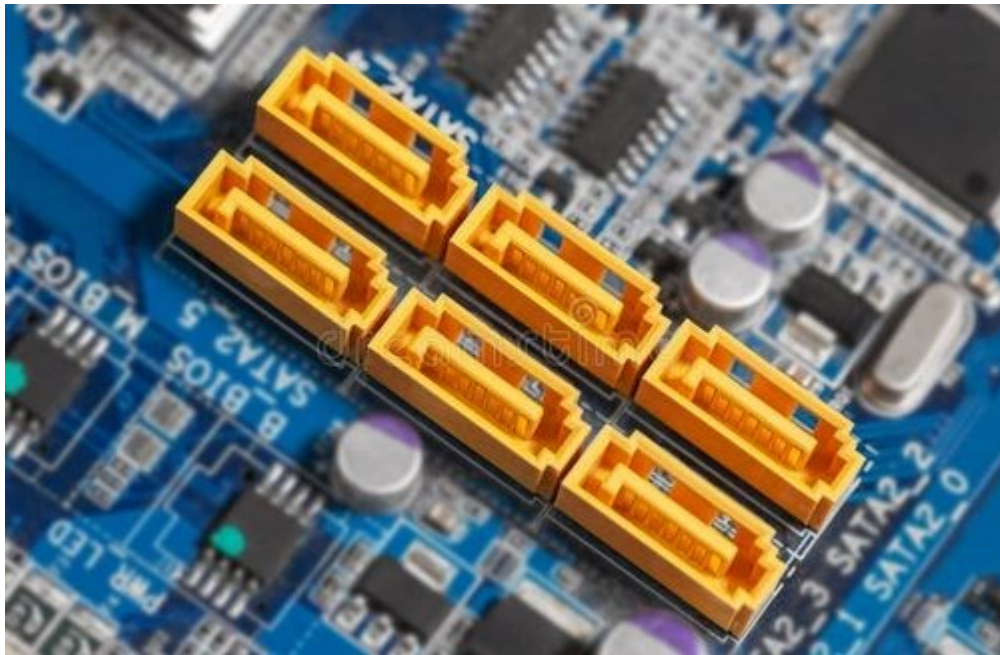
Ans.



CPU



RAM Slots



SATA Connectors



PCI-E Slots

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

Ans.

1. To install a RAM module into a computer, first turn off the computer and unplug it from the power source.
2. Then, open the side panel of the computer case.
3. Inside, locate the RAM slots on the motherboard, which are long and narrow and usually placed near the CPU.
4. Hold the RAM stick carefully by its edges, without touching the metal pins.
5. Align the notch on the RAM module with the slot, making sure it fits properly.
6. Press down firmly and evenly on both ends until you hear a click and the side clips lock it into place.
7. Once installed, close the case, plug the computer back in, and turn it on.
8. If installed correctly, the computer will detect the new RAM automatically.

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 in a computer system to keep the components from overheating. When parts like the CPU, GPU, or power supply get too hot, the system can become slow, unstable, or even shut down suddenly. Overheating can also damage hardware permanently.

Common Cooling Methods :

1. Air Cooling :
 - Most Common Method.
 - Keeps the CPU and other parts cool using fans.
2. Liquid Cooling :
 - Uses liquid to reduce heat.
 - Better working than air cooling for powerful systems like gaming PCs.
3. Thermal Paste :
 - Helps to transfer heat from the CPU to the heat sink.

4. Cooling Pads :

- External fans that keeps laptop cool during long use.

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

Ans. **Bus Width**

- It refers to the number of bits transferred at one time through the buses.
- Tells how much data can move at once between components.
- Example : A 32-bit bus can transfer 32 bits of data at a time. Whereas a 64-bit bus can transfer 64 bits of data at a time.

Significance

1. Speed and Performance :

- A wider bus can carry more data at once.
- Improves speed and performance of the computer.

2. Data Transfer Rate :

- Bus width, combined with clock speed, determines how fast data can be transferred.
- Ex., 64-bit bus running at 100 MHz can transfer more data per second than a 32-bit bus at the same speed.

3. Support for Larger Memory :

- Wider address buses allows the CPU to access more memory.
- A 32-bit address bus can access upto 4 GB of RAM.
- A 64-bit address bus can access over 18 exabytes.

4. Better CPU and RAM Communication :

- With the help of wider bus, CPU and RAM exchanges data more efficiently, reducing delay and increasing performance in heavy tasks like gaming, video editing and multitasking.