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**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:** 2.RAM is not a component of CPU because ram can store a temp. storage data and known as internal storge while we can extend RAM behalf of uses.

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

**Ans:** RAM can access data easily and fast.

We can open various program at a same time.

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

1. HDD

2. SSD

3. SD card

4. 1 and 2 both

**Ans:** 1.HDD because it’s a volatile memory, which means it is wiped out when the computer is turned off.

**4. What is the purpose of a GPU?**

**Ans:** it handles graphics-related work like graphics, effects, and videos.

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

**Ans:** true because there has backbone connectivity point where all components and external peripherals connect.

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

**Ans:** true because when the power goes it protecting equipment from damage if the power source fails.

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

**Ans:** true with the help of expansion card we use like a graphics card, network cards for wired or wireless connection, storage card and tv tuners

**8. Explain the difference between HDD and SSD.**

|  |  |
| --- | --- |
| **HDD** | **SDD** |
| 1. **Slower** 2. **We can buy at a affordable price.** 3. **It is heavy in weight** 4. **It Mechanical having moving part** 5. **Takes time to read and write the content** | 1. **Faster** 2. **It is more expensive** 3. **It lite** 4. **Non mechacnical (flash)** 5. **Improves performance with a quick delivery of content** |
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**9. Describe the function of BIOS in a computer system.**

**Ans:** BIOS have primary function to handle the system setup process including driver loading and operating system booting. This tests the hardware of the computer before loading the Operating system (POST).

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

**Ans:** keyboard: a keyboard is used for entering characters and functions into the computer system by pressing button or keys.

Mouse: to select an item on the screen and to give instructions to our computer to perform tasks.

Scanners: scanner is use to scan or convert pictures of a document, display it on our monitor screen, and store it on your connected computer.

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

• CPU

• RAM slots

• SATA connector

• PCI-E slot

**Ans:**

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PCI-E slot

SAtA connecters

CPU

RAM slots

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

**Ans:** Align the notch on the RAM stick with the ridge in the slot, and firmly press the RAM into the slot until the side clip snap into place for securing the RAM.

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

**Ans:** Proper cooling mechanisms in computer systems are crucial for preventing overheating, ensuring stability, extending component lifespan, and maintaining performance.

Cooling methods and their effectiveness :-

1. Air cooling :- CPU cooler and case fans create airflow to remove heat and effective for most consumer systems.

HEAT SINKS: Metal components that dissipate heat efficiently when combined with fans.

It is cost-effective and easy to maintain.

1. Liquid cooling :- All in one coolers: pre-assembled units pump, tubing.

Custom loop cooling : custom-designed loops for maximum efficiency.

Effeectiveness: superior heat dissipation, suitable for high-performance and overclocking systems, but requires more maintenance.

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

**Ans:** Bus width in computer refer to the number of bits transmitted simultaneously over a computer bus. It significantly impacts system performance and efficiency.

The main important key terms are:

1. Data transfer rate: Wider bus widths transfer more data per cycle, enhancing data transfer rates. Just an example a 64-bit bus transfer twice as much as a 32-bit bus.
2. System performance: Wider buses enable faster communication between the CPU, memory and other components, improving overall system performance.
3. Addressable memory: the address bus width determines the maximum memory the system can address. A 32-bit bus can address up to 4 GB, while a 64-bit bus bus can address much more.
4. Compatibility and Expansion: bus width affect compatibility. Wider buses support more advanced peripherals and memory modules.
5. System architecture: 64-bit architectures handle more complex tasks and large memory spaces than 32-bit architectues.