

## Assignment module : 2

### Installation and Maintenance of Hardware and Its

#### Section 1: Multiple Choice

1. Which of the following precautions should be taken before working on computer hardware?
  - Wear an anti-static wrist strap to prevent damage from electrostatic discharge.
2. What is the purpose of thermal paste during CPU installation?
  - To improve thermal conductivity between the CPU and the heat sink.
3. Which tool is used to measure the output voltage of a power supply unit (PSU)?
  - Multimeter
4. Which component is responsible for storing BIOS settings, such as date and time, even when the computer is powered off?
  - CMOS battery

#### Section 2: True or

5. When installing a new hard drive, it is essential to format it before use.
  - True
6. A POST (Power-On Self-Test) error indicates a problem with the CPU.
  - False

7. It is safe to remove a USB flash drive from a computer without ejecting it first.

- False

### Section 3: Short Answer

8. Describe the steps involved in installing a new graphics card in a desktop computer.

- **Shut down** the computer and **unplug** all cables.
- Open the CPU cabinet side panel.
- Ground yourself (use anti-static wrist strap).
- Remove the old graphics card (if any).
- Insert the new graphics card into the PCIe slot firmly.
- Secure the card with screws.
- Close the cabinet and reconnect cables.

9. What is RAID, and what are some common RAID configurations?

- RAID (Redundant Array of Independent Disks) is a technology that combines multiple hard drives into a single unit to improve data protection, performance, or storage capacity.
- Common RAID configurations:
  - RAID 0: Increases performance by striping data; no data protection.
  - RAID 1: Mirrors data on two drives for RAID 5: Uses striping with parity; provides good performance and data recovery (needs at least 3 drives).
  - RAID 5: Uses striping with parity; provides good performance and data recovery (needs at least 3 drives).
  - RAID 10 (1+0): Combines RAID 1 and RAID 0 for high performance and high redundancy.

## Section 4: Practical Application

10. Demonstrate how to replace a CPU fan in a desktop computer.

- Demonstration: Replacing a CPU Fan in a Desktop Computer
- Shut down the computer and **unplug** the power cable.
- Open the CPU cabinet side panel.
- Ground yourself to avoid static electricity.
- Disconnect the CPU fan cable from the motherboard.
- Unscrew or unclip the old CPU fan/heatsink carefully.
- Clean old thermal paste from the CPU surface.
- Apply new thermal paste (pea-sized amount).
- Place the new CPU fan/heatsink on the CPU.
- Secure it firmly and connect the fan cable.
- Close the cabinet, power on the PC, and check fan operation.

## Section 5: Essay

11. Discuss the importance of regular maintenance for computer hardware and provide examples of maintenance tasks.

### Importance of Regular Maintenance for Computer Hardware

Regular maintenance of computer hardware is essential to ensure smooth performance, reliability, and long life of a computer system. Over time, dust, heat, and continuous usage can affect hardware components, leading to reduced efficiency or sudden failure. Proper maintenance helps in identifying potential problems early and prevents costly repairs or data loss.

One of the main benefits of regular hardware maintenance is **better performance**. Dust accumulation inside the CPU cabinet can block airflow and cause overheating, which slows down the system. Cleaning internal components such as fans, heat sinks, and vents helps maintain optimal temperature and improves processing speed. Maintenance also **extends the lifespan** of hardware components like the motherboard, hard drive, and power supply.

Regular maintenance also improves **system reliability and safety**. Loose cables, faulty fans, or damaged components can cause system crashes or electrical hazards. Routine checks help ensure all components are securely connected and functioning properly. It also reduces the risk of data loss by keeping storage devices in good condition. Examples of common maintenance tasks include **cleaning dust from internal parts, checking cables and connectors, updating drivers and firmware, monitoring system temperature, running disk checks, and replacing worn-out components such as fans or thermal paste** when necessary.

In conclusion, regular maintenance is crucial for keeping computer hardware efficient, safe, and durable. It ensures consistent performance, minimizes downtime, and helps users get the maximum value from their computer systems.