

# **ASSIGNMENT-2**

## **MODULE-2: Installation and Maintenance of Hardware and Its Components.**

### **Section 1: Multiple Choice**

**1. Which of the following precautions should be taken before working on computer hardware?**

- a) Ensure the computer is plugged in to prevent electrostatic discharge.
- b) Wear an anti-static wrist strap to prevent damage from electrostatic discharge.
- c) Work on carpeted surfaces to prevent slipping.
- d) Use magnetic tools to handle components more easily.

➤ **ANS: b) Wear an anti-static wrist strap to prevent damage from electrostatic discharge.**

**2. What is the purpose of thermal paste during CPU installation?**

- a) To insulate the CPU from heat.
- b) To provide mechanical support for the CPU.
- c) To improve thermal conductivity between the CPU and the heat sink.
- d) To prevent the CPU from overheating.

➤ **ANS: c) 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)?**

- a) Multimeter
- b) Screwdriver
- c) Pliers
- d) Hex key

➤ **ANS: a) Multimeter**

**4. Which component is responsible for storing BIOS settings, such as date and time, even when the computer is powered off?**

- a) CMOS battery
- b) CPU
- c) RAM
- d) Hard drive

➤ **ANS: a) CMOS battery**

### **Section 2: True or False**

**5. When installing a new hard drive, it is essential to format it before use.**

➤ **ANS: TRUE.**

**6. A POST (Power-On Self-Test) error indicates a problem with the CPU.**

➤ **ANS: FALSE.**

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

➤ **ANS: FALSE.**

### **Section 3: Short Answer**

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

**ANS:**

- Power Off & Unplug – Shut down the PC and disconnect the power cable.
- Open the Case – Remove the side panel to access the motherboard.
- Uninstall Old GPU (if applicable) – Remove screws, disconnect power cables, and release the PCIe latch.
- Insert the New GPU – Align it with the PCIe slot and firmly press it in until it clicks.
- Secure the Card – Screw it into place on the case.
- Connect Power Cables – Attach the required PCIe power connectors from the PSU.
- Close the Case – Reattach the side panel.

- Power On & Install Drivers – Boot up the PC and install the latest GPU drivers.

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

**ANS:**

#### **RAID (Redundant Array of Independent Disks)**

RAID is a data storage technology that combines multiple hard drives or SSDs to improve performance, redundancy, or both.

#### **Common RAID Configurations:**

- RAID 0 (Striping) – Faster performance, no redundancy.
- RAID 1 (Mirroring) – Data is duplicated for redundancy, slower write speed.
- RAID 5 (Striping with Parity) – Balances performance and fault tolerance, needs at least 3 drives.
- RAID 10 (1+0, Mirroring & Striping) – Combines RAID 1 & 0 for speed and redundancy, requires at least 4 drives.

## **Section 4: Practical Application**

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

- Turn Off & Unplug – Shut down the PC, unplug power, and remove the side panel.
- Remove Old Fan – Disconnect the fan cable, unscrew/unclip the fan, and lift it off.
- Clean (If Needed) – Wipe off old thermal paste with isopropyl alcohol if replacing the heatsink.
- Install New Fan – Attach the new fan, secure it with screws/clips, and connect it to the CPU\_FAN header.
- Test – Power on the PC, check fan operation in BIOS, and monitor temperatures.

## **Section 5: Essay**

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

**ANS:**

### **The Importance of Regular Maintenance for Computer Hardware:**

Computers are essential tools in both personal and professional settings, making regular maintenance crucial for longevity and efficiency. Without proper upkeep, hardware can degrade, leading to reduced performance, data loss, or system failure. Regular maintenance enhances lifespan and ensures smooth operation.

### **Benefits of Regular Maintenance**

- Improved Performance: Cleaning and updates help maintain speed and efficiency.
- Extended Hardware Lifespan: Reduces wear and tear on components.
- Prevention of Failures: Routine checks detect and fix minor issues early.
- Data Protection: Regular backups prevent data loss.
- Energy Efficiency: A well-maintained system consumes less power.

### **Essential Maintenance Tasks**

- Cleaning Dust and Debris: Prevents overheating by keeping fans and vents clear.
- Checking Thermal Paste: Ensures proper heat dissipation for the CPU and GPU.
- Updating Software and Drivers: Maintains compatibility and security.
- Disk Cleanup and Defragmentation: Improves data access speed.
- Hardware Inspection: Identifies loose cables or damaged components.
- Checking Power Supply and Battery Health: Prevents power-related issues.
- Backing Up Data: Protects against unexpected data loss.