**Assignment 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:**

**1. Power Off and Unplug the Computer**

**2. Open the Computer Case**

**3. Locate the PCIe Slot**

**4. Prepare the Graphics Card**

**5. Install the Graphics Card**

**6. Connect Power Cables**

**7. Close the Computer Case**

**8. Reconnect the Power and Monitor**

**9. Power On the Computer**

**10. Install Drivers**

**11. Restart the Computer**

**12. Verify the Installation**

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

**ANS: RAID stands for Redundant Array of Independent Disks (or Inexpensive Disks). It's a data storage technology that combines multiple physical drives into a single unit to improve performance, reliability, or both. RAID is commonly used in servers, data centers, and even in some personal systems to ensure data integrity and optimize storage.**

**RAID 0 (Striping):**

* **Combines two or more drives by splitting data evenly across them.**
* **Benefits: Increased performance and speed.**
* **Drawbacks: No redundancy; if one drive fails, all data is lost.**

**RAID 1 (Mirroring):**

* **Duplicates the same data on two drives.**
* **Benefits: High redundancy and reliability**
* **Drawbacks: Storage capacity is halved since each drive holds identical data**

**RAID 5:**

* **Requires at least three drives. Data and parity (error-checking information) are distributed across all drives.**
* **Benefits: Good balance of performance, storage efficiency, and redundancy**
* **Drawbacks: Slower write performance and can only tolerate a single drive failure.**

**RAID 6:**

* **Similar to RAID 5, but with double parity for added protection.**
* **Benefits: Can tolerate two drive failures**
* **Drawbacks: Even slower write performance compared to RAID 5.**

**RAID 10 (1+0):**

* **Combines RAID 1 and RAID 0 by mirroring data across pairs of drives and then striping across those mirrored pairs.**
* **Benefits: High performance and redundancy**
* **Drawbacks: Requires a minimum of four drives and results in reduced usable storage capacity.**