**Assignment**

**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?**

**Answer:** Wear an anti-static wrist strap to prevent damage from electrostatic discharge.

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

**Answer:** 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)?**

**Answer:**Multimeter

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

**Answer:** CMOS battery

* **Section 2: True or False**

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

**Answer:** False

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

**Answer:** False

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

**Answer:** False

* **Section 3: Short Answer**

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

**Answer:**

**Steps involved in installing a new graphics card:**

* **Shut down and unplug the computer:** Turn off the computer and unplug it from the power outlet.
* **Open the computer case:** Locate the computer case and open it by releasing the side panel latches.
* **Remove the existing graphics card:** Locate the graphics card and identify the screws holding it to the PCI-e slot. Unscrew the screws and gently remove the graphics card.
* **Install the new graphics card:** Align the new graphics card with the PCI-e slot and carefully insert it. Secure the card in place by screwing in the screws.
* **Connect the power cables**: Connect the necessary power cables to the graphics card. Some graphics cards require additional power, so check the documentation.
* **Close the computer case:** Close the computer case and secure the side panel latches.
* **Plug in the computer and boot up:** Plug the computer back in and turn it on.
* **Install drivers:** Once the computer boots up, install the latest drivers for the new graphics card.

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

**Answer:** RAID (Redundant Array of Independent Disks) is a storage technology that combines multiple hard drives into a single logical unit.

**It offers to several benefits:**

* **Increased performance:** By striping data across multiple disks, RAID can improve read/write speeds.
* **Data redundancy:** RAID levels with redundancy can protect data against disk failures, preventing data loss.
* **Increased storage capacity:** RAID can create larger virtual disks by combining the capacity of multiple physical drives.

**Some common RAID configurations:**

* **RAID 0 (striping):** Data is striped across multiple disks, improving performance but offering no data redundancy.
* **RAID 1 (mirroring):** Data is mirrored across two disks, providing full redundancy but with lower storage capacity.
* **RAID 5:** A combination of striping and parity data, offering both performance and redundancy but with lower write performance compared to RAID 0.
* **RAID 10:** A combination of RAID 1 and RAID 0, offering high performance and redundancy with higher storage capacity.
* **RAID 6:** Similar to RAID 5, but with two parity blocks for increased redundancy.
* **Section 4: Practical Application**

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

**Answer:** Practical Done in Lab

* **Section 5: Essay**

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

**Answer:**

**Importance of Regular Maintenance for Computer Hardware**

* **Enhanced Performance:** Regular maintenance ensures optimal system performance by preventing performance degradation due to dust buildup, overheating, and other factors.
* **Increased Lifespan:** Proper maintenance can significantly extend the lifespan of hardware components by preventing wear and tear, heat damage, and other
* **Reduced Costs:** Detecting and resolving issues early on can save you money in the long run by avoiding costly repairs or replacements.
* **Data Protection:** Maintenance ensures that your data is protected from potential hardware failures by maintaining a healthy system.

**Examples of Maintenance Tasks:**

* **Dusting and Cleaning:** Regular cleaning of internal components and cooling systems helps prevent overheating and performance issues.
* **Software Updates:** Installing software updates ensures the latest security patches and performance enhancements.
* **Driver Updates:** Keeping device drivers up to date ensures optimal compatibility and performance.
* **Disk Cleanup and Defragmentation:** Regular disk cleanup and defragmentation optimize storage space and system speed.
* **Monitoring System Performance:** Monitoring hardware temperature, fan speeds, and other metrics helps detect potential issues early.
* **Backup:** Regularly backing up data protects your valuable information in case of hardware failure or system crashes.

Regular maintenance is crucial for ensuring optimal performance, longevity, and reliability of your computer hardware. By implementing a routine maintenance schedule, you can significantly enhance the overall health and performance of your system.