***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?**
   1. **Ensure the computer is plugged in to prevent electrostatic discharge.**
   2. **Wear an anti-static wrist strap to prevent damage from electrostatic Discharge.**
   3. **Work on carpeted surfaces to prevent slipping.**
   4. **Use magnetic tools to handle components more easily.**

**Ans. b)Wear an anti-static wrist strap to prevent damage from electrostatic Discharge.**

1. **What is the purpose of thermal paste during CPU installation?**
   1. **To insulate the CPU from heat.**
   2. **To provide mechanical support for the CPU.**
   3. **To improve thermal conductivity between the CPU and the heat sink.**
   4. **To prevent the CPU from overheating.**

**Ans. c) To improve thermal conductivity between the CPU and the heat sink.**

1. **Which tool is used to measure the output voltage of a Power Supply Unit (PSU)?**
   1. **Multimeter**
   2. **Screwdriver**
   3. **Pliers**
   4. **Hex key**

**Ans. a) Multimeter**

1. **Which component is responsible for storing BIOS settings, such as date and time, even when the computer is powered off?**
   1. **CMOS battery**
   2. **CPU**
   3. **RAM**
   4. **Hard drive**

**Ans. a) CMOS battery**

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

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

**Ans. True**

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

**Ans. False**

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

**Ans. False**

***Section 3: Short Answer***

1. **Describe the steps involved in installing a new graphics card in a Desktop computer.**

**Ans. Steps of installing new graphics card are as follows :**

**1. Power off and unplug the PC; use anti-static precautions.**

**2. Open the case by removing the side panel.**

**3. Remove old card (if applicable) by disconnecting power, unscrewing it, and releasing the latch.**

**4. Insert new card into the PCIe x16 slot and fit it with screws.**

**5. Connect power cables from the PSU to the card (if required).**

**6. Close the case and plug the PC back in.**

**7. Boot the computer and connect the monitor to the new card.**

**8. Install drivers from the manufacturer’s website.**

**9. Test the card by running applications or games.**

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

**[ TOPIC IS REMAINING ]**

***Section 4: Practical Application***

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

**[ TO BE DONE IN LAB ]**

***Section 5: Essay***

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

**Ans. Regular maintenance of computer hardware is crucial for ensuring optimal performance, extending the lifespan of components, and preventing hardware failures. Neglecting maintenance can lead to system slowdowns, overheating, and even complete hardware failure, resulting in data loss or costly repairs.**

**Importance of Regular Maintenance:**

**> Improves performance: Keeps components running efficiently, preventing issues like overheating or slow performance.**

**> Prevents hardware failure: Routine checks can catch potential problems early, reducing the risk of costly damage.**

**> Extends lifespan: Proper care and maintenance prolong the life of computer components.**

**> Maintains system stability: Reduces the chance of unexpected crashes or malfunctions.**

**Common Task done for Maintenance :**

**1. Cleaning dust and waste :**

**> Dust can accumulate inside the case, blocking airflow and causing components to overheat. Regular cleaning with compressed air helps prevent overheating and improves cooling.**

**2. Checking and replacing thermal paste:**

**> Over time, the thermal paste between the CPU and heat sink can dry out, reducing cooling efficiency. Reapplying fresh thermal paste helps maintain proper heat transfer.**

**3. Inspecting and cleaning cooling fans:**

**> Fans can become clogged with dust, reducing airflow and cooling efficiency. Cleaning or replacing fans ensures proper ventilation.**

**4. Running hardware diagnostics:**

**> Regularly check components like RAM, hard drives, and the power supply using diagnostic tools to detect early signs of failure.**

**5. Updating firmware and drivers:**

**> Keeping device drivers and firmware up to date ensures hardware is functioning correctly and can fix known issues or improve performance.**

**6. Checking cables and connections:**

**> Loose or damaged cables can lead to intermittent hardware issues. Regularly inspect and secure all connections.**

**7. Backing up data:**

**> Regular backups protect against data loss in case of hardware failure, ensuring data recovery is possible.**

**Routine hardware maintenance helps prevent performance degradation and unexpected downtime, making it essential for maintaining reliable system operation.**