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**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?**

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

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

**Ans :** 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)?**

**Ans :** Multimeter

1. **Which component is responsible for storing BIOS settings, such as date and time, even**

**when the computer is powered off?**

**Ans :** 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

**Note :** Because POST (Power-On Self-Test) error indicates a problem with all hardware components, not just the CPU.

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

**Ans : False**

**Note :** It is not safe to remove a USB flash drive without ejecting it first, because it prevent data loss or corruption if the drive is still being accessed.

* **Section 3 : short answers**

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

**Ans : Installation process of Graphic card :**

**Step 1: first we have to turn off computer system and disconnect the video connecter**

**Step 2: after that we have to open side panel of cabinet**

**Step 3: and then we have to identify the PCIe slot on mother board**

**Step 4 : if old Graphic card exist then we have to remove the old one**

**Step 5 : after that we have to unbox the new graphic card and align the card with the PCIe slot and we have to push it down until it makes click sound.**

Step 6 : after that we have to replace the side panel and power on the system then we have to install required drivers for new graphic card from manufacturer’s website. And at last we have verify that the functions are working properly by running games or other graphics testing application.

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

**Ans** : RAID stands for Redundant Array of Independent Disks, and it's a storage system that uses multiple drives to store data.

**RAID 0: Striped Set Without Fault Tolerance**

Key Point: No redundancy; if one disk fails, all data is lost.

**RAID 1: Mirroring and Duplexing**

Key Point: Provides high redundancy; if one disk fails, the other(s) still hold the complete data.

**RAID 5: Striped Set with Distributed Parity**

Key Point: Allows one disk to fail without data loss, balancing performance and fault tolerance.

**RAID 0+1 (RAID 01)**

Key Point: Requires at least four disks; if a single disk in a striped set fails, the entire set can be compromised.

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

Key Point: Offers better fault tolerance than RAID 0+1; can sustain multiple disk failures as long as no mirrored pair is completely lost.

Each configuration serves different needs depending on the desired balance of performance, redundancy, and capacity.

* **Section 4 : Practical Application**

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

**Ans. Process of replacing CPU fan :**

1. Turn off and unplug the computer
2. Open the computer case
3. Locate the CPU fan
4. Remove the fan
5. Clean the processor
6. Install the new fan
7. Apply thermal paste
8. Close the case
9. Test the fan

* **Section 5 : Essay**

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

**examples of maintenance tasks.**

**Ans**. Regular maintenance for computer hardware is important because it helps identify and fix issues before they become more serious. It also improves performance and extends the life of hardware components.

* **Here are some examples of computer hardware maintenance tasks:**
* **Cleaning**: Dusting and cleaning your computer
* **Updating**: Updating firmware and drivers
* **Replacing**: Replacing and upgrading components
* **Troubleshooting**: Troubleshooting and repairing issues
* **Monitoring**: Monitoring and testing performance
* **Backing up data**: Backing up your files and folders so you can restore them if you lose data
* **Defragmenting**: Defragmenting your hard drive to organize files so your computer can access them more quickly
* **Deleting unused programs**: Removing unnecessary programs to free up memory space