**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.

**Ans: 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.

**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.

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

d) To prevent the CPU from overheating

**. 3. Which tool is used to measure the output voltage of a power supply unit (PSU)?**

**Ans:** **a)** Multimeter

b) Screwdriver

c) Pliers

d) Hex key

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

**Ans:** **a)** CMOS battery

b) CPU

c) RAM

d) Hard drive

**Section 2: True or False**

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

**Ans: True**

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

**Ans**: **False**

7. 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**

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

### Ans:

Here’s installing a new graphics card:

1. **Turn off and unplug the computer.**
2. **Open the case** to access the inside.
3. **Locate the PCIe slot** on the motherboard (the long slot).
4. **Remove the metal cover(s)** from the back of the case (if needed).
5. **Insert the graphics card** into the PCIe slot and press down until it clicks.
6. **Secure the card** with screws to the case.
7. **Connect the power cables** from the power supply (if required).
8. **Close the case**, plug everything back in, and power on.
9. **Install drivers** from the manufacturer’s website.
10. **Test the card** to make sure it works.

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

**Ans:**

RAID (Redundant Array of Independent Disks) is a way of using multiple hard drives together to improve:

Here’s common RAID configurations:

1. **RAID 0 (Striping):**
   * **Speed:** Fast.
   * **Safety:** None (if one drive fails, all data is lost).
   * **Minimum Drives:** 2.
2. **RAID 1 (Mirroring):**
   * **Speed:** Good.
   * **Safety:** High (data is copied on two drives).
   * **Minimum Drives:** 2.
3. **RAID 5 (Striping with Parity):**
   * **Speed:** Good.
   * **Safety:** Can survive one drive failure.
   * **Minimum Drives:** 3.
4. **RAID 6 (Double Parity):**
   * **Speed:** Fair.
   * **Safety:** Can survive two drive failures.
   * **Minimum Drives:** 4.
5. **RAID 10 (1+0, Mirroring + Striping):**
   * **Speed:** Fast.
   * **Safety:** High (mixes RAID 1 and RAID 0).
   * **Minimum Drives:** 4.

**Section 4: Practical Application**

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

**Ans:**

Here’s guide to replace a CPU fan:

1. **Turn off and unplug the computer.**
2. **Open the case** to access the CPU fan.
3. **Unplug the fan’s power cable** from the motherboard.
4. **Remove the fan** by unscrewing or unclipping it.
5. **Clean the old thermal paste** off the CPU (optional).
6. **Install the new fan** and secure it with screws.
7. **Reconnect the fan’s power cable** to the motherboard.
8. **Close the case**, plug the computer back in, and power it on to check if the fan wor

**Section 5: Essay**

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

**Ans:**

Regular maintenance for computer hardware is important to keep it running smoothly, improve performance, and extend its lifespan. Here are some key tasks:

1. **Cleaning:**
   * Dust off fans, vents, and components to prevent overheating.
2. **Check for Software Updates:**
   * Keep the operating system and drivers updated for better performance and security.
3. **Check Hard Drive Health:**
   * Run disk checks and defragment (for HDD) to keep it running efficiently.
4. **Monitor Temperature:**
   * Ensure the CPU and GPU temperatures stay within safe limits to avoid overheating.
5. **Backup Data:**
   * Regularly back up important files to prevent data loss.
6. **Check Cables and Connections:**
   * Inspect cables and connections to ensure everything is securely connected.