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.

Answer: **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.

Answer: **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

Answer: **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

Answer: **a)** 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: **True**

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:
- Power off the computer and unplug it from the power source.
- Open the computer case.
- Locate the PCIe slot on the motherboard.
- Remove the existing graphics card if there is one.
- Insert the new graphics card into the PCIe slot firmly.
- Secure the card to the case using screws if required.
- Connect any necessary power cables from the PSU to the graphics card.
- Close the case, plug the computer back in, and power it on.
- Install or update 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 data storage virtualization technology that combines multiple physical drives into one logical unit to improve performance, redundancy, or both.

- **RAID 0**: Striping – improves performance but no fault tolerance.
- **RAID 1**: Mirroring – data is duplicated on two drives for redundancy.
- **RAID 5**: Striping with parity – balances performance and fault tolerance.
- **RAID 10**: Combines RAID 1 and RAID 0 – provides redundancy and performance.

Section 4: Practical Application

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

    1. Answer: Shut down the computer and unplug it from the power outlet.
    2. Open the case and locate the CPU fan and heatsink.
    3. Disconnect the fan's power cable from the motherboard.
    4. Carefully unscrew or unclip the existing fan/heatsink assembly.
    5. Clean the top of the CPU with isopropyl alcohol to remove old thermal paste.
    6. Apply a small amount of new thermal paste to the CPU.
    7. Attach the new CPU fan/heatsink assembly and secure it in place.
    8. Connect the fan's power cable to the correct header on the motherboard.
    9. Close the case, plug in the system, and power it on.
    10. Ensure the new fan is running and temperatures are normal using BIOS or monitoring software.

Section 5: Essay

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

Amswer: Regular maintenance of computer hardware is essential to ensure optimal performance, extend the lifespan of components, and prevent data loss or system failures. Dust accumulation can lead to overheating, while outdated drivers or firmware can cause compatibility issues or security vulnerabilities.

Key maintenance tasks include:

- **Cleaning dust** from fans, vents, and internal components using compressed air.
- **Checking and replacing thermal paste** on CPUs and GPUs.
- **Updating drivers** and BIOS firmware.
- **Running disk checks** and defragmenting hard drives (for HDDs).
- **Monitoring system temperatures** and performance.
- **Backing up data** regularly to avoid loss in case of hardware failure.