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. B) Wear an anti-static wrist strap to prevent damage electrostatic discharge.

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

ANS. 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)?

ANS. A) Multimeter

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

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.

1. Power off the computer and unplug it from the power source.
2. Open the computer case.
3. Locate the PCIe x16 slot on the motherboard.
4. Remove the expansion slot cover from the case where the GPU ports will align.
5. Carefully insert the graphics card into the PCIe slot pressing firmly until it clicks into place.
6. Secure the card to the case using screws.

7. Connect the necessary power connectors from the PSU to the graphics card.
8. Close the case plug in the power and boot up thr system.
9. Install the appropriate drives for the new graphics card.

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

ANS. RAID (Redundant Array of independent Disk)

Is a data storage virtualization technology that combines multiple hard drives to improve performance, reliability or both .

Common configuration include:

- RAID 0 (Striping): Data is split across disks for performance. No redundancy.
- RAID 1 (Mirroring): Data is duplicated on two or more drives. High redundancy.
- RAID 5: Data is striped with distributed parity. Provides a balance between performance and redundancy.
- RAID 10(1+0): Combines mirroring and striping for high performance and redundancy.

Section 4: Practical Application

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

ANS.

1. Power off the computer and unplug it from the power source.
2. Open the computer case.
3. Disconnect the CPU fan's power cable from the CPU fan's power cable from the motherboard.
4. Unscrew or unlocked the old fan from the CPU heatsink or mounting brackets.
5. Carefully remove the fan (and heatsink if combined) from the CPU.
6. Clean off the old thermal paste from the CPU using isopropyl alcohol and a lint-free cloth.
7. Apply a small amount of new thermal paste of the CPU surface.
8. Install the new fan and / or heatsink onto the CPU, securing it with clips or screws.
9. Reconnect the fan cable to the appropriate CPU_FAN header on the motherboard.
10. Close the case power on the system to ensure the fan is functioning correctly.

Section 5:

Essay 11. 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, longevity and reliability, Neglecting maintenance can lead to the hardware failure, system crashes, overheating, data loss.

Key reasons for regular maintenance include:

- Preventing overheating: Dust accumulation on fans and heatsinks can cause overheating.
- Enhancing performance: Clean and well maintain components function more efficiently.
- Avoiding unexpected failures: Regular checks can identify failing hardware before it causes data loss or downtime.
- Extending hardware lifespan: Maintance help components last longer.

Example of maintenance tasks:

- Cleaning dust from internal components using compressed air.
- Checking cable and connection for wear or loose fittings.
- Running diagnostics on hard drives and RAM.

- Updating firmware and drivers to ensure compatibility and performance.
- Reapplying thermal paste on CPUs or GPUs when temperature rise abnormally.
- Backing up data regularly to avoid loss in case of hardware failure.