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?
Answer: Wear an anti-static wrist strap to prevent damage from electrostatic discharge.

2. What is the purpose of thermal paste during CPU installation?
Answer: 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)?
Answer: Multimeter.

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

Section 2: True or False

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

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

7. 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.
- Power off and unplug the computer.
- Open the computer case.
- Locate the PCI-E slot on the motherboard.
- Insert the graphics card gently into the slot.
- Secure it with a screw.
- Connect power cables if required.
- Close the case, power on the system, and install the drivers.

9. What is RAID, and what are some common RAID configurations?
RAID (Redundant Array of Independent Disks) combines multiple drives for redundancy or performance.
- RAID 0: Striping for speed.
- RAID 1: Mirroring for data protection.
- RAID 5: Striping with parity.
- RAID 10: Combination of RAID 0 and RAID 1.

Section 4: Practical Application

10. Demonstrate how to replace a CPU fan in a desktop computer.
- Turn off and unplug the computer.
- Open the case and remove the old fan's power connector.
- Unscrew or unclip the old fan.
- Clean the CPU and apply new thermal paste.
- Install the new fan properly.
- Connect it to the motherboard.
- Close the case and test the fan.

Section 5: Essay

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

Regular maintenance of computer hardware is essential to ensure optimal performance, reliability, and a longer lifespan of system components. Over time, dust accumulation, outdated software, and worn-out parts can reduce efficiency and may lead to unexpected system failures. Proper maintenance helps prevent these problems and keeps the system running smoothly.

One of the most important maintenance tasks is cleaning dust from internal components such as fans, heat sinks, and ventilation areas. Dust can restrict airflow and cause overheating, which may damage critical components like the CPU and power supply. Regular cleaning improves cooling and system stability.

Checking cables and internal connections is another important task. Loose or damaged cables can result in hardware malfunctions, data errors, or system crashes. Ensuring that all components are securely connected helps maintain reliable performance.

Updating device drivers and BIOS also plays a vital role in maintenance. These updates improve compatibility, fix bugs, and enhance system security and performance. Replacing old thermal paste on the CPU helps maintain effective heat transfer and prevents overheating.

Monitoring hard drive health and performing regular data backups are necessary to protect important information. Hardware failure can occur unexpectedly, and backups ensure that data can be recovered.

In conclusion, regular maintenance improves computer performance, prevents hardware failure, and extends the life of system components. Simple tasks such as cleaning, updating, monitoring, and backing up data help ensure efficient and trouble-free computer operation.