**Assignment Module 2: Installation and Maintenance of Hardware and Its**

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**Section 1: Multiple Choice Questions**

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1. Which of the following precautions should be taken before working on computer hardware?

✅ b) Wear an anti-static wrist strap to prevent damage from electrostatic discharge.

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

✅ 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

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

✅ a) CMOS battery

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Section 2: True or False

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

✅ True

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

✅ True

7. It is safe to remove a USB flash drive from a computer without ejecting it first.

❌ False

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Section 3: Short Answer

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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 by removing the side panel.

- Locate the PCIe slot on the motherboard.

- Carefully insert the graphics card into the PCIe slot and press down firmly.

- Secure the card using a screw or locking mechanism.

- Connect the necessary power cables from the PSU if required.

- Close the case and power on the computer.

- Install the latest graphics card drivers using the internet or installation disc.

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

Answer:

RAID stands for "Redundant Array of Independent Disks". It is a data storage virtualization technology that combines multiple hard drives into one unit for data redundancy, performance improvement, or both.

Common RAID configurations include:

- RAID 0: Striping (faster performance, no redundancy)

- RAID 1: Mirroring (exact copies, redundancy)

- RAID 5: Striping with parity (balanced performance and redundancy)

- RAID 10: Mirroring + Striping (high performance and redundancy)

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Section 4: Practical Application

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

Answer:

- Turn off the computer and unplug it.

- Open the side panel of the computer case.

- Carefully disconnect the power connector from the old CPU fan.

- Remove the screws or clips securing the fan and heat sink.

- Gently lift the fan off the CPU.

- Clean off old thermal paste using isopropyl alcohol.

- Apply a small amount of new thermal paste on the CPU.

- Place the new fan and heat sink onto the CPU.

- Secure it with screws or clips and reconnect the fan power cable.

- Close the case and power on the system to check if the fan is working properly.

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Section 5: Essay

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

Answer:

Regular maintenance of computer hardware is essential to ensure smooth performance, longer life, and to prevent failures or damage. Just like any machine, computers need periodic care and cleaning. Dust buildup can block airflow, causing components like the CPU or GPU to overheat. Loose connections or cables can cause system instability.

Examples of maintenance tasks include:

- Cleaning internal parts like fans, CPU, and motherboard with compressed air.

- Checking and reseating cables and connectors.

- Updating drivers and BIOS.

- Scanning for malware to prevent software-related slowdowns.

- Monitoring temperatures and cleaning out unused software or files.

By performing regular maintenance, we can reduce system crashes, extend hardware life, and improve overall computer efficiency.

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