Assignment module 2:

Installation and Maintenance of Hardware and Its

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

From electrostatic discharge.

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

Ans: C) To improve thermal conductivity between the CPU

And the heat sink.

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

Ans: A) Multimeter

1. 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

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

Ans: TRUE

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

Ans: FALSE

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

Ans: FALSE

Section 3: Short Answer

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

Ans: Installing a new graphics card:

1. Shut down and unplug computer.
2. Ground yourself.
3. Remove old card (if applicable).
4. Locate PCIe slot.
5. Install new card, securing with screws.
6. Connect power cables.
7. Reconnect other components.
8. Configure BIOS/UEFI (if necessary).
9. Install drivers.
10. Test graphics performance.
11. What is RAID, and what are some common RAID configurations?

Ans: What is RAID?

RAID (Redundant Array of Independent Disks) combines multiple disks for improved performance, capacity, reliability, and fault tolerance.

Common RAID configurations:

1. RAID 0 (Striping): Fast performance
2. RAID 1 (Mirroring): Data redundancy
3. RAID 5 (Striping with Parity): Balance performance and redundancy
4. RAID 6 (Striping with Dual Parity): Enhanced redundancy
5. RAID 10 (Mirroring and Striping): High performance and redundancy

Benefits:

* Improved performance
* Increased capacity
* Enhanced data protection
* Fault tolerance

Applications:

* Servers
* Data centers
* High-performance computing
* Critical data storage

Section 4: Practical Application

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

Ans: Why Replace a CPU Fan?

1. . Overheating: Old or malfunctioning fans can cause CPU temperatures to rise, slowing performance.
2. Noise: Faulty or worn-out fans can produce excessive noise.
3. . Dust Buildup: Fans accumulate dust, reducing airflow and cooling efficiency.
4. System Crashes: Overheating can cause system instability and crashes.

Real-World Scenarios

1. Gaming PCs: Upgrade to high-performance fans for improved cooling and overclocking.
2. Video Editing: Replace fans to maintain optimal temperatures during intense processing.
3. Servers: Ensure reliable cooling for continuous operation.
4. Home Computers: Replace fans to reduce noise and improve overall system performance.

Industries

1. Data Centers
2. Gaming
3. Video Production
4. Scientific Computing
5. Cloud Computing

Benefits

1. Improved system performance
2. Reduced noise levels
3. Increased reliability
4. Extended component lifespan
5. Enhanced overclocking capabilities

Best Practices

1. Regularly clean dust from CPU socket and surrounding area.
2. Monitor CPU temperatures.
3. Upgrade fans when necessary.
4. Consider liquid cooling solutions.
5. Consult motherboard manual for specific replacement instructions.

Section 5: Essav

1. Discuss the importance of regular maintenance for computer hardware and provide example of maintenance tasks.

Ans: Consequences:

1. Reduced performance
2. Increased downtime
3. Data loss
4. Hardware failure
5. Security vulnerabilities

Importance of Maintenance:

1. Prevents overheating
2. Reduces dust buildup
3. Identifies potential issues
4. Extends hardware lifespan
5. Ensures data integrity

Examples of Maintenance Tasks:

Hardware Maintenance:

1. Cleaning dust from:

- Fans

- Heat sinks

- Ventilation grills

1. Checking and replacing:

- Thermal paste

- CPU coolers

- Power supplies

1. Upgrading:

- RAM

- Hard drives (to SSDs)

- Graphics cards

Software Maintenance:

1. Updating:

- Operating systems

- Drivers

- Firmware

1. Running:

- Disk cleanups

- Disk defragmentation

- Virus scans

1. Backing up data:

- Regularly

- To external drives or cloud storage

Scheduled Maintenance:

1. Daily: Check for updates, run virus scans
2. Weekly: Clean dust, check disk space
3. Monthly: Run disk cleanups, defragmentation
4. Quarterly: Update drivers, firmware
5. Annually: Upgrade hardware (if necessary)

Tools for Maintenance:

1. CCleaner (disk cleanup)
2. Disk Defragmenter (disk optimization)
3. CPU-Z (CPU monitoring)
4. GPU-Z (GPU monitoring)
5. Speed Fan (fan control)

Best Practices:

1. Create a maintenance schedule
2. Document hardware and software configurations
3. Use reputable maintenance tools
4. Monitor system performance
5. Consult manufacturer guidelines