**Assignment module 2 : Installation and Maintenance of Hardware and Its Components.**  
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.

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.

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

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

Section 5: Essay

Section 1: Multiple Choice

Assignment module 2 : Installation and Maintenance of Hardware and Its

Components

5. True or False: When installing a new hard drive, it is essential to format

it before use.  
**True**  
For the new drive needs to be formatted to create a new file system so the operation system can store and backup the data.

6. True or False: A POST (Power-On Self-Test) error indicates a problem

with the CPU.  
**False**A POST error can indicate issue with various hardware components, such as memory. Graphics card, or just the CPU.

7. True or False: It is safe to remove a USB flash drive from a computer

without ejecting it first.  
  
**False**  
  
Removing a USB drive without ejecting can lead to data corruption if files are still being written or accessed.

8. Describe the steps involved in installing a new graphics card in a

desktop computer.  
  
There are number steps involved installing a new graphics card in a desktop computer which are as follow :   
  
\* Turn off and unplug the computer  
\* Locate the PCIe slot  
\* Removing the existing graphics card  
\* Prepare the new graphics card  
\* Insert the graphics card  
\* Connect power cables  
\* Reconnect and power on  
\* Install Drivers

9. What is RAID, and what are some common RAID configurations?  
  
RAID ( Redundant Array of independent disks) is a data storage virtualization technology that combines multiple physical hard drives into a one logical unit for performance improvement.  
  
Common RAID configuration:  
  
(i) RAID 0 (stripping): Splits data across multiple drives.

Improves performance but provides no redundancy.

Failure of one drive results in total data loss.

2. RAID 1 (Mirroring):

Duplicates data across two drives.

No performance improvement.

3. RAID 5:

Requires at least three drives.

Can tolerate one drive failure without data loss.

4. RAID 10 (1+0):

Combines RAID 1 and RAID 0.

Data is mirrored and striped, offering redundancy and improved performance.

Requires at least four drives.

5. RAID 6:

Similar to RAID 5 but includes two parity blocks for higher redundancy.

Can tolerate up to two drive failures.

10. Demonstrate how to replace a CPU fan in a desktop computer.  
  
Steps to Replace a CPU Fan in a Desktop Computer

1. Power Down and Unplug the Computer:

Turn off the PC and unplug it from the power outlet.

Ground yourself to avoid static discharge (e.g., using an anti-static wrist strap).

2. Locate the CPU and Fan:

Identify the CPU fan mounted on the heat sink over the processor.

3. Disconnect the CPU Fan Power Cable:

Locate the fan's power connector plugged into the motherboard (usually labeled "CPU\_FAN") and unplug it carefully.

4 Remove the Old CPU Fan:

Unscrew or release the retention clips holding the fan in place on the heat sink.

Gently lift the fan off the heat sink.

5. Install the New CPU Fan:

Align the new fan with the mounting points on the heat sink.

Attach the fan using screws or clips, ensuring it is secure and properly aligned for airflow direction.

6. Connect the New Fan's Power Cable:

Plug the new fan's power cable into the motherboard's "CPU\_FAN" header.

9. Power On and Test:

Plug the computer back in and turn it on.

Check that the new CPU fan is spinning and operating correctly.

11. Discuss the importance of regular maintenance for computer hardware

and provide examples of maintenance tasks.  
  
Benefits of Regular Maintenance:

1. Improved Performance: Removes unnecessary clutter and ensures hardware operates at its peak efficiency.

2. Extended Lifespan: Reduces wear and tear by keeping components clean and functioning correctly.

3. Reduced Risk of Failure: Prevents potential issues like overheating or dust buildup from causing hardware damage.

4. Enhanced Security: Identifies vulnerabilities or failing hardware that could lead to data loss.

Examples of Maintenance Tasks

1. Cleaning Components:

Remove dust from fans, vents, and internal components using compressed air or a soft brush.

Clean peripherals like keyboards and mice.

2. Checking and Replacing Cooling Systems:

CPU and GPU fans are functioning properly.

Reapply thermal paste every couple of years to maintain efficient heat transfer.

3. Inspecting Cables and Connections:

Check power cables, SATA cables, and connectors for wear or damage.

Secure any loose connections.

4. Updating Software and Firmware:

Regularly update the BIOS, drivers, and other hardware-related software.

5. Monitoring Storage Drives:

Run disk cleanup to free up space.

Check for bad sectors or errors using built-in tools like CHKDSK or third-party software.

Defragment hard drives (if using HDDs, not SSDs).

6. Testing Power Supply:

Use a multimeter to check PSU output voltage and replace if failing.

7. Replacing Worn Components:

Replace aging parts, like CMOS batteries