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?

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.

Answer : B ) Wear anti-static wrist strap to prevent damage from electrostatic discharge.

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.

Answer : 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

b) Screwdriver

c) Pliers

d) Hex key

Answer : 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

b) CPU

c) RAM

d) Hard drive

Answer : 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.

Answer : True

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

Answer : False

7 . True or False: 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.

Answer : Steps in installing a new graphics card in a desktop computer:

1. Power off the computer and unplug it.
2. Open the computer case.
3. Locate the PCIe x16 slot on the motherboard.
4. Remove the slot cover from the case.
5. Insert the graphics card into the PCIe slot firmly.
6. Secure the card with a screw or latch.
7. Connect any required power cables from the power supply.
8. Close the case, reconnect cables, and power on.
9. Install or update the graphics card drivers.

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

Answer : RAID ( Redundant Array of Independent/ inexpensive Disks ) is a storage technology that combines multiple hard drivers into single logical unit to improve performance, redundancy, or both.

Common RAID configurations :

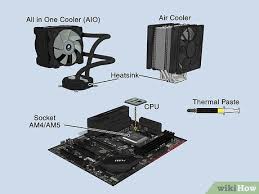
1. RAID 0 ( Striping ): Data is split across drives – fast performance, but no fault tolerance.
2. RAID 1 ( Mirroring ): Data is duplicated on two drivers - high reliability, but storage capacity is haled.
3. RAID 2 ( Striping with Parity ) : Data + Parity spread across 3+ drives – good balance of performance , capacity, and fault tolerance.
4. RAID 10 ( 1+0 ) : Combines mirroring and striping – high performance and reliability, but requires at least 4 drives.

Section 4 : - Practical Applications

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

Answer : 1 . Turn off the computer and unplug it from the power source to ensure safety.

1. . Open the computer case using a screwdriver (usually by removing the side panel).
2. . Locate the CPU fan and heatsink on top of the CPU socket.
3. . Disconnect the CPU fan cable from the motherboard CPU\_FAN header.
4. . Remove the old fan and heatsink assembly by loosening the clips, screws, or latches holding it in place.
5. . Clean off old thermal paste from the CPU surface using isopropyl alcohol and a lint-free cloth.
6. . Apply a small amount of new thermal paste (about the size of a pea) to the top of the CPU.
7. . Install the new CPU fan and heatsink by carefully placing it over the CPU and securing it with the provided clips or screws.
8. . Reconnect the CPU fan cable to the motherboard CPU\_FAN header.
9. . Close the computer case and secure it with screws.
10. . Plug in the computer and power it on to ensure the fan is running properly and the system boots without overheating.

Section 5 : - Essay

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

Answer : Regular maintenance of computer hardware is very important because it helps ensure reliability, performance, and long lifespan of the system. Without proper care, computers can slow down, overheat, or even fail completely.

Importance of Regular Maintenance

Improves Performance – Dust and clutter can slow down cooling systems, while outdated drivers or firmware may reduce efficiency. Regular maintenance keeps the system running smoothly.

Prevents Hardware Damage – Cleaning and proper handling reduce the risk of overheating, short circuits, or mechanical failures.

Extends Lifespan – Components like fans, hard drives, and power supplies last longer when properly maintained.

Reduces Downtime and Costs – Preventive care is cheaper than replacing damaged components or losing data due to sudden failures.

Enhances Security – Updating firmware and drivers helps fix vulnerabilities that hackers might exploit.

Examples of Maintenance Tasks

Cleaning: Removing dust from fans, vents, and heat sinks to prevent overheating.

Checking Connections: Making sure cables, RAM, and expansion cards are securely seated.

Updating Drivers and BIOS: Ensuring hardware runs with the latest updates for stability and performance.

Hard Drive Care: Running disk cleanup, defragmentation (for HDDs), and health checks.

Cooling System Check: Inspecting fans and thermal paste on CPU/GPU to ensure proper cooling.

Power Supply Maintenance: Checking for stable power and using a UPS to prevent surges.

Peripheral Maintenance: Cleaning keyboards, mice, and monitors to improve usability and hygiene.

Data Backup: Regularly backing up files to prevent data loss in case of hardware failure.