**INSTALLATION AND MAINTENANCE OF HARDWARE AND ITS COMPONENTS**

**Section 1: MCQ**

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

hardware?

Ans - Work on carpeted surfaces to prevent slipping.

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

Ans - To insulate the CPU from heat.

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

Ans - Multimeter

4.Which component is responsible for storing BIOS settings, such as date and time,

even when the computer is powered off?

Ans -CMOS battery.

**Section 2: True or False**

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

Ans -False

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

Ans - False

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

Ans - False

**Section-3 Short answer**

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

Computer?

ANS – This are the following steps involved in installing new graphics card.

* Shutdown system
* Open system and motherboard
* Remove old graphic card
* Clean area
* Insert new graphic card
* Start the system
* Install driver

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

ANS - RAID stands for Redundant Array of Independent Disks. It is a data storage technology that combines multiple physical hard drives into one logical unit to achieve data redundancy, performance improvement, or both. RAID can be implemented in hardware (via a RAID controller) or software (via the operating system).

Benefits of RAID:

* Increased data reliability through redundancy
* Improved performance in some configurations
* Data protection against hardware failures (depending on RAID level)

COMMON RAID CONFIGURATION:

1. RAID-0 (Stripping)
2. RAID-1 (Mirroring)
3. RAID-2 (Bit-Level Stripping with Dedicated Parity)
4. RAID-3 (Byte-Level Stripping with Dedicated Parity)
5. RAID-4 (Block-Level Stripping with Dedicated Parity)
6. RAID-5 (Block-Level Stripping with Distributed Parity)
7. RAID-6 (Block-Level Stripping with two Parity Bits)

**Section 4. Practical Application**

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

Step 1: Remove the Computer Side Panel

Step 2: Remove the CPU Cooler.

Step 3: Clean the Cooler Contact Patch.

Step 4: Lift the Retention Arm of the CPU Socket.

Step 5: Remove the Old Processor.

Step 6: Insert the New Processor.

Step 7: Apply Thermal Paste.

Step 8: Reinstall the CPU Cooler

**Section 5: Essay**

11. Discuss the importance of network documentation and provide examples of information that should be documented?

ANS - A Network documentation is important for the following reasons:

Network documentation is a critical aspect of network management and maintenance. It involves the systematic recording of all relevant information about a network’s configuration, devices, connections, and protocols. Proper documentation ensures that IT teams can efficiently manage, troubleshoot, and scale a network, and it helps reduce downtime and operational costs.

Tools for Network Documentation

1. Network mapping tools: SolarWinds, NetBrain, Nmap, Lucidchart
2. Configuration management: RANCID, Git, Ansible
3. IP address management (IPAM): phpIPAM, Infoblox
4. Documentation platforms: Confluence, Notion, SharePoint, OneNote

Examples

Here are key components that should be included in network documentation:-

1. Hardware Inventory - Device names, types, models, serial numbers, MAC addresses, locations
2. IP Address Management - IP address allocation, subnets, DHCP scopes, reserved IPs
3. Network Topology - Logical and physical diagrams, VLANs, link types and bandwidth