**What is Computer? Differentiate between Analog and Digital Computer. 1 + 4 = 5 marks**

**A screenshot of a computer

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**Explain the concept of RAM and Cache Memory. Write the types of cache Memory.**

**RAM (Random Access Memory)**  
RAM is a volatile memory that stores data and instructions that are currently executed by the CPU.  
*Example:* 8 GB of DDR4 RAM in Computer

**Features**

1. It is volatile, which means the data is lost when the computer is turned off.
2. Larger capacity compared to Cache Memory.
3. Cheap as compared to Cache Memory.

**Cache Memory**  
Cache memory is small, high-speed memory located near the CPU. It stores frequently accessed data and instructions. It is designed to make processing speed faster by reducing CPU reliance on main memory.  
*Example:* L1, L2, and L3 cache within a CPU

**Features**

1. It is volatile memory.
2. Small capacity compared to RAM.
3. Expensive.

**Types of Cache Memory**

1. **Level 1 (L1) Cache**
   * Located directly on the CPU chip.
   * Smallest and fastest cache level.
   * Stores data that is most frequently accessed by the CPU.
2. **Level 2 (L2) Cache**
   * Can be located on the CPU or near it (on the motherboard).
   * Larger than L1 cache but slower.
   * Stores less frequently accessed data than L1 Cache.
3. **Level 3 (L3) Cache**
   * Largest than L1 and L2 and slower.
   * Shared among multiple cores.

**What is control panel in windows operating system? List down the tasks that you can perform through control panel. 5 marks**

Control panel in windows

The control panel is a centralized interface in windows operating system that allows users to manage and configure various settings of the computer. It provides access to a wide range of tools for the system customization, hardware manages, and software configuration.

Task you can perform through control panel

**What is operating system? Describe its functions and classifications.**

Classification => Types of Operating system

**What is BIOS? Explain the major features and settings available int the BIOS. 5 marks**

BIOS (Basic Input/Output System) is a firmware integrated on the motherboard ROM chip that initializes the hardware component and provides the necessary instructions to boot the system. BIOS checks the hardware component (RAM, CPU, storage device, other) and hand over control to the operating system.

**Major Features and Settings of BIOS**

1. **Boot Sequence**
   * BIOS decides which device the computer starts from (such as hard drive, USB, or network device).
   * Boot allows choosing between modern (UEFI) or older (legacy) startup methods.
2. **System Configuration**
   * Allows configuring hardware settings like boot priority, clock speeds, and storage modes.
3. **Hardware Configuration**
   * Runs POST (Power-On Self-Test) to verify hardware components (RAM, CPU, Storage devices) are functioning properly.
4. **Power Management**
   * BIOS supports energy-saving modes like turning off unused parts of the system (such as the screen or hard drive) when the computer is idle.
5. **Security Settings**
   * Enables setting up system passwords to protect against unauthorized access.

**What is the difference between RAM, ROM, Cache Memory? 5 marks**

A screenshot of a computer

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**What are the different types of system tools provided by the windows OS for improvement of system performance? Explain. 5 marks**

Windows OS provides a variety of system tools to improve system performance. Below are some of the key system tools:

**1. Task Manager**

* **Purpose**: Monitors system resources like CPU usage, memory usage, disk activity, and network activity.
* **How it Improves Performance**: Allows users to identify and terminate unnecessary or resource-heavy applications.

**2. Disk Cleanup**

* **Purpose**: Removes unnecessary files such as temporary files, system files, and downloaded program files.
* **How it Improves Performance**: By freeing up disk space, it can improve system responsiveness.

**3. Disk Defragmenter**

* **Purpose**: Rearranges fragmented data on the hard drive.
* **How it Improves Performance**: Improves disk read/write speed.

**4. System Configuration (msconfig)**

* **Purpose**: Allows users to manage startup applications, boot settings, and services that run during system startup.
* **How it Improves Performance**: By disabling unnecessary services, the boot time is reduced.

**5. Windows Defender**

* **Purpose**: Protects the system from malicious activities.
* **How it Improves Performance**: Prevents the system from slowing down due to malware or malicious software.

**What do you mean by DBMS? Write down the features of DBMS in data management and security. 5 marks**

Data Management Features

1. Data Integrity
2. Data Manipulation
3. Transaction Management

Data Security Features

1. Data Security
2. Data Backup and Recovery
3. Data Encryption: Secure sensitive data by encrypting it to prevent unauthorized access.

**Define IP Address and subnet mask in computer networking. How do you find the IP address and subnet mask of your computer and network? 5 marks**

**Finding IP Address and Subnet Mask**

**On Windows:**

1. Open the **Command Prompt**.
2. Type ipconfig and press Enter.
3. Look for the network adapter (e.g., Ethernet, or Wi-Fi).
4. The IP Address and subnet mask will be listed below the active network adapter.

**On Kali Linux:**

1. Open the **terminal**.
2. Type ifconfig and press Enter.
3. Look for the **inet** (IP Address) and **netmask** listed under the active network interface.

**Router’s Web Interface:**

1. Log into the router’s admin panel (usually via 192.168.0.1 or 192.168.1.1 in a browser).
2. Navigate to the **Network Settings**.
3. Look for the IP Address and subnet mask assigned to devices.

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