UMI IZZATUL NATASHA BINTI MOHD FADZIL (SX240227ECJHS01)

OPEN-ENDED QUESTION

1. **Describe system software. Discuss each of the four types of system programs.**

System software is a collection of programs designed to run, control, and extend the processing capabilities of a computer's hardware and provides a platform for running application software.

4 types of system programs:

- **Operating system (OS):**

  A collection of programs that manage hardware and computer resources, also provide user interface.

- **Utilities:**

  A specialised program that makes computing easier such as performing maintenance tasks like disk cleanup, antivirus scanning, and backups.

- **Device drivers:**

  A specialised program that allows the operating system to communicate with hardware components by translating OS commands into device-specific signals.

- **Language Translators:**

  Convert programming code into machine code that can be understood by the CPU to develop the software. Language translator helps to detect errors and optimise code performance.

2. **Define operating systems. Describe the basic features and the three categories of operating systems.**

   A collection of programs that manage hardware and computer resources, also provide user interface. The features include booting the hardware, providing user interface and providing file systems and storage.

   3 categories of operating systems:

   - **Embedded OS (Real-time OS):**
     Designed for devices with limited resources such as smartphones and smartwatch.

   - **Stand-Alone OS (Desktop OS):**
     Designed for general purpose tasks such as browsing and document editing which is installed in personal devices such as laptops.

   - **Networking OS:**
     Installed on servers to manage and coordinate multiple connected computers and enable features like file sharing and printer access.

3. **What Are Mobile Operating Systems? Describe Leading Mobile Operating Systems.**

   Mobile Operating System is designed for devices with limited resources such as smartphones and smartwatch. Mobile OS manages hardware resources, supports touch interfaces, and runs mobile applications. One of the leading mobile OS is iOS (Apple) which is a closed-source that is exclusive for Apple devices. It is known for its performance, security and compatibility with Apple's system and devices.

4. **What are desktop operating systems? Compare Windows, Mac OS, Linux and Chrome OS. Discuss virtualization**

   Desktop Operating System is designed for general purpose tasks such as browsing and document editing which is installed in personal devices such as laptops and personal computers.

   Comparison on Windows, Mac OS, Linux and Chrome OS:

   - **Windows**

     Most widely used due to user-friendly and versatile systems

   - **Mac OS**

     Compatible with Apple's hardware with stable and secure systems.

   - **Linux**

     Open-source software that is customizable, free and secure systems, suitable for developers.

   - **Chrome OS**

     A cloud-based system that is suitable for general users due to fast and simple design.

   Virtualization allows multiple operating systems to run on a single hardware. There are 3 types of system virtualization, which are operating systems virtualization, application virtualization and services virtualization. Virtualization is useful for software testing, running legacy systems, and isolating environments.

5. **Discuss Utilities. What Are the Most Essential Utilities? What Is a Utility Suite?**

   Utilities is a specialised program that makes computing easier such as performing maintenance tasks like disk cleanup, antivirus scanning, and backups. The most essential utilities include troubleshooting and diagnosis program, antivirus program, backup program and file compression program.

   Utility suite is a combination of several programs that provide a range of system maintenance tools that is less expensive.