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Open-Ended Questions (Page 1 of 2)

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

System software is a program designed to run a computer's hardware and applications and manage its resources such as memory, processors and devices.

- System Software : Operating Systems and essential utilities.
 - Manages hardware resources and provides basic functions like such as File management, Task scheduling and Device control
 - Examples: Windows, Linux, macOS
- Application Software.
 - To perform specific user tasks: MS Word, Excel, Web Browsers
- Programming Software
 - Tools used by developers
 - Machine code that convert by human readable code
 - Examples:
 - Compilers (GCC)
 - Interpreters (Python)
 - Debuggers
 - Text Editors (VS Code, Notepad++)
- Malicious Software (Malware)
 - Harmful software which installed without user consent; disrupt operation.
 - Types include: Viruses, Trojans, Spyware and Ransomware

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

An Operating System is a collection of programs that manage computer hardware and software resources. A collection of programs that handle technical tasks

Functions

- Coordinate memory, processing storage, printers and monitors
- Monitors system performance
- Schedules Tasks
- Provides Security
- Start-up the computer

Provides User Interface : Graphical User Interface (GUI)

Runs Applications : Supports foreground and background processes and manages computer resources

Basic Features of an Operating System

- Booting: Starting or restarting the computer
- GUI Elements:
 - Icons
 - Pointer
 - Windows
 - Menus & Tabs
 - Dialog Boxes
 - Help Features
 - Gesture Control
- Files and Folders:
 - Files: Store data and programs.
 - Folders: Organize related files.

Three basic categories

- Embedded operating systems – RTOS (real-time operating systems)
 - Smartphones
 - Smartwatches
 - Video game systems
- Stand-alone operating systems
 - Also called desktop operating system
- Network operating systems (linked computers)
 - Windows Server, Linux, Unix
 - OS stored on network server which coordinates all communication between the other computers

3) What are mobile operating systems? Describe leading mobile operating systems.

A Mobile Operating System (Mobile OS) is system software designed to run on mobile devices like smartphones and tablets.

- Embedded operating system : Less complicated and more specialized for wireless

Leading Mobile Operating Systems

1. Android

- Developed by Google.
- Highly customizable and open source
- Brands : Samsung, Redmi, Lenovo, Oppo, VIVO and more.
- All the apps available on google app store.

2. iOS

- Developed by Apple Inc.
- Closed-source, designed only for Apple devices
- Apps available on the Apple App Store.

3. Windows Phone

- Developed by Microsoft.
- Support discontinued due to low market share.

Open-Ended Questions (Page 2 of 2)

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

Operating systems commonly used by individuals

Windows – most widely used

Mac OS – powerful and easy to use

UNIX – network; originally designed for Web

LINUX – non proprietary; free from the Web

Virtualization

- Ability to support multiple operating systems on a single physical machine
- Software virtualization
 - Each virtual machine appears as a separate independent computer
 - Host operating system
 - Guest operating system
- Parallels
 - Mac to run Windows programs in Mac OS and Mac OS X

Types of Virtualization

- Operating System Virtualization
- A hardware is used which consists of software on which different operating systems work
- Application Virtualization
- Refer to running an application on a thin client
- Service Virtualization
- A technique to simulate the behaviour of some components in a mixture of component-based applications

5) Discuss utilities. What are the most essential utilities? What is a utility suite?

- Specialized programs to make computing easier

Most essential utilities

- Troubleshooting or diagnostic programs
 - Recognizes and correct problems
- Antivirus programs
 - Guard your computer against viruses
- Backup programs
 - Copies of files to restore if necessary
- File compression programs
 - Reduces the size of files for more efficient storage

Utility Suite

- Combine several programs into one package
- Less expensive
- Popular suites
 - Bit Defender
 - Norton Utilities
 - Kaspersky