

Open – Ended Questions (based on Lecture Note Chapter 3: Software)

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Questions

1. Discuss 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 to manage its resources such as memory, processors and devices.

There are four main types of system software. The first is the operating system, which is responsible for managing the overall operations of a computer system. It handles memory management, file operations, device control, and provides a user interface. The second type is utility software, which includes tools that help maintain, analyze, and optimize system performance. Examples include antivirus programs, backup software, and disk cleanup tools. The third type is programming software, which provides the tools that developers use to write, test, and debug software applications. These tools include compilers, interpreters, assemblers, and integrated development environments (IDEs). The fourth type is malicious software or malware, which refers to programs designed with the intent to harm or exploit systems, such as viruses, worms, spyware, and trojans.

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

Operating systems is a collection of programs that handle the technical tasks. The features of an operating systems include booting, Features that is in common with application software is icons, pointer, windows, menus and tabs. Three categories of operating systems are embedded operating systems which is also known as real time operating system (RTOS) designed for smartphones, smartwatch and video game systems. Another category is stand-alone operating systems which is also known as desktop operating systems are full featured systems used on personal computer and laptop. Lastly is network operating systems (linked computers) such as Windows Server, Linux, Unix.

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

Mobile operating systems are embedded operating systems which is designed to be less complicated and more specialized for wireless. Some of the leading mobile operating systems include Android, an open-source OS developed by Google and widely used across various smartphone brands.

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

Desktop operating systems are stand-alone systems used on personal computers. Examples include Windows, Mac OS, Linux, and Chrome OS. Windows is the most used, with Windows 10 and 11 supporting touches, typing, and voice input. Mac OS is known for its user-friendly interface and security, with versions like Big Sur and Catalina. Linux is an open-source version of UNIX, free to use and ideal for customization. Chrome OS, based on Linux, focuses on internet use and cloud computing, with performance relying on internet speed.

Virtualization allows multiple operating systems to run on one physical machine. The main OS is the host, and others are guests. Tools like Parallels let users run Windows on a Mac. Types of virtualizations include operating system virtualization, application virtualization, and service virtualization.

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

Utilities are system programs that help manage and maintain a computer. Essential utilities include diagnostic tools, antivirus software, backup programs, and file compression tools. Windows includes File History for backups, Disk Cleanup to remove unneeded files, and Disk Defragmenter to organize data for better performance. A utility suite combines multiple utility tools into one package, offering more value. Popular suites include BitDefender, Norton Utilities, and Kaspersky.