

Operating Systems: Questions

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Short Answer / Multiple Choice:

#1 - The login window where you enter your school username is an example of what OS function described in the text?

Authentication

#2 - The Operating System manages:

- A> The CPU
- B> Memory and Storage
- C> Peripherals and attached devices
- D> All of the above

#3 - If you can run more than one program/process at a time — would it be possible to run more than one *Operating System* at a time on a particular piece of hardware? Do some online research using terms above and write a few sentences on why it is or is not possible and/or practical to do so, include any important references as necessary. (this isn't for academic publication, so casual references of any reasonable source are fine...)

Technically you can run a virtual machine on top of a existing os but running oses in parallel isn't possible / or really that practical as you would have to split system usage in a strange unorthodox manner

True or False:

#4 - The OS is the only software running on the system. False

#5 - A computer usually runs multiple Operating Systems simultaneously. False

#6 - Microsoft invented the Disk Operating System (DOS). False

#7 - Booting a computer is only ever done once, when the computer is brand new. False

#8 - No computer could ever function without an OS. False

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Logic Puzzle:

#9 Imagine you were building a custom computer operating system for a NASA project. The computer typically performed 3 types of tasks with different run times. Certain task types also need a certain minimum **response time** — that is, the task needs to be available to accept input and/or display output every so often. The chart below describes the task, the desired minimum response time and the typical run time ranges in seconds.

Task	Description	Run Time	response time
Analysis	Complex mathematical tasks to compute trajectories, examine sensor data, etc.	1 - 100,000+ Seconds	10 sec
Control	Accept control input from the pilots to control the craft.	1-10ms (.001 - .01) Sec	.02sec
Life Support	Monitor and Manage basic life support & Climate Control systems	5-100ms	1 sec

Given this information, what's the minimum time slice that should be used in a round-robin style scheduler to be sure the response time requirements are met? Explain briefly the logic behind your answer.

accounting for the run time in the minimum time slice for all process to be run and have enough time for response a minimum of 11 seconds would be required, because the minimum time would be the 10 secs response plus the one second for the previously mentioned run time. This set up is not ideal because the requirements for the other 2 process is not nearly as high.

Internet Research:

#10 Multitasking Operating Systems are often categorized as either preemptive, or co-operative. Use your Internet research skills to determine the difference between them and summarize your finding in a sentence or two, including an example or two of each type (that is, list a current or past Operating System using cooperative multitasking and preemptive multitasking)

In a preemptive system the os stops the processing of one application to start another. where in as cooperative the application willing slows down the processing it doesnt need to start the new application.

preemptive - UNIX, Windows 95

Cooperative - mac os 8-9.2, windows 3.x