

1. Go through the steps that must take place in a context switch. Make sure that you give the conditions under which a context switch could actually occur. Give two scenarios, one that is the result of a program action, one that is not.
2. What is the bounded buffer problem? Create a bounded buffer implementation assuming that the buffer has 10 slots. Why doesn't counting used buffer slots work? Is there any way the messages in the buffer can get out of sequence?
3. Define the term "System Call." Give a list of the various system calls that could be performed by a program.
4. Explain the concept of memory protection, and why it is needed.
5. What kinds of things get saved in a PCB? Why do I need a PCB in the first place?
6. What are the three types of threading? How do they differ from one another.
7. When using pthreads, why do I need a pthread_exit() function call at the end of my main routine?
8. When I use pthreads, what is the only way to switch from one thread to another?
9. In messaging, explain how a zero-capacity buffer system works. Contrast this with a buffered system.
10. What are the main categories of OS services? Give one or two examples of each.
11. Explain the difference between the fork and the clone system calls.
12. How does a new process get created?
13. When your program is running, what is the OS doing?