

1. What is the difference between a trap and an interrupt?
2. What is multiprogramming?
3. How is the processor cache used to improve performance in a computer?
4. What is the difference between a system call and a system program?
5. What is the purpose of swapping?
6. Describe the difference between the long-term, medium-term, and short-term schedulers.
7. Draw a finite state diagram that illustrates the execution states of a process. Provide two programming examples in which multithreading does not provide better performance than a single-threaded solution.
8. Given the sequence of processes below, for FCFS, SJF, SRTF, RR with quantum =2, draw the Gantt chart and compute the average turnaround and waiting times.

Process ID	Arrival Time	Burst Time
$P_0$	0	8
$P_1$	2	5
$P_2$	3	3
$P_3$	7	4
$P_4$	7	4

9. What is one method of approximating the behavior of SJF?
10. Write the definition of the *Swap* instruction in software.
11. Give an example of a race condition.
12. What is a critical section?
13. What three conditions must a solution to the critical section problem satisfy?
14. What is deadlock?