5.1 Define the 5 scheduling criteria used for comparing CPU-scheduling algorithms.

5.2 Explain the difference between preemptive and nonpreemptive scheduling.

5.3 Suppose that the following processes arrive for execution at the times indicated Each process will run for the amount of time listed. In answering the questions, use nonpreemptive scheduling, and base all decisions on the information you have at the time the decision must be made.

Proces	Arrival	Burst
P_1	0.0	8
P_2	0.4	4
P_3	1.0	1

What is the average turnaround time for these processes with the

a. FCFS scheduling algorithm?
b. What is the average turnaround time for these processes with the SJF nonpreemptive scheduling algorithm?
c. What is the average turnaround time for these processes with the SJF preemptive scheduling algorithm?

5.4 Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Proces	Burst	Priorit
P_1	2	2
P_2	1	1
P_3	8	4
P_4	4	2
P_5	5	3

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5, all at time 0.

b. Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, nonpreemptive priority (a larger priority number implies a higher priority), and RR (quantum = 2).

c. What is the turnaround time of each process for each of the scheduling algorithms in part a?

d. What is the waiting time of each process for each of these scheduling algorithms?

e. Which of the algorithms results in the minimum average waiting time (over all processes)?

5.20 Which of the following scheduling algorithms could result in starvation?
- First-come, first-served
- Shortest job first
- Round robin
- Priority