Problem Set 12

CS 311

Due at the beginning of class the following Monday in hardcopy.
Sections 6.1–3

1. Write an equation expressing a procces' turnaround time as a function of its waiting time.

2. Why is it important for the scheduler to distinguish I/O-bound programs from CPU-bound programs?

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

Process	Burst Time	Priority
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_0, P_1, P_2, P_3, P_4, P_5, all at time 0.

   (a) Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, non-preemptive priority (a larger priority implies a higher priority), and RR with a quantum of 2.

   (b) Compute the average waiting time for each of the algorithms.