CS350 Operating Systems

In-Class Problems: Scheduling

Suppose that a system has two processes, P_A and P_B. Each process has a single thread. If it were running alone in the system, P_A would alternate between running for t_r time units and then blocking for t_b time units ($t_b > t_r$). If it were running alone in the system, P_B would run continuously, without blocking.

Q1: Suppose that the kernel uses round-robin scheduling, with a quantum of q ($t_r < t_b < q$). Over the long run, for what fraction of time will P_A be running? For what fraction of the time will P_B be running?

Q2: Repeat the question assuming that the kernel uses a multi-level feedback scheduler with three priority levels. The scheduler uses the same quantum, q, for all three levels. Assume that $t_r < t_b < q$.