Tutorial 5

CSN 232 Operating System

1. How many context switches are required if the operating system implements a shortest remaining time first scheduling algorithm with four CPU-intensive processes P1, P2, P3 and P4 with arrival time 0, 4, 3 and 6 units. The burst time of processes P1, P2 , P3 and P4 are 10, 4, 6 and 3 respectively. Do not count the context switches at the time zero and at the end.
    a. 5
    b. 6
    c. 4
    d. 8

2. Consider 3 processes P1, P2 and P3. These three processes are to be scheduled as per SRTF algorithm. The process P1 is to be scheduled first and when it has been running for 7 units of time, process P3 arrives, P3 runs for 1 unit of time when process P2 arrives and completed running in 2 units of time. What would the burst time for processes P1 and P3?
    a. P1 = 3 and P3 = 12
    b. P1 = 12 and P3 = 4
    c. P1 = 10 and P3 = 6
    d. P1 = 8 and P3 = 6

3. In a hypothetical system with preemptive operating system, we have a process which require the burst time of 60 seconds. The multilevel Feed Back Queue scheduling algorithm is used and the queue time quantum '5' seconds and in each level, it is incremented by '3' seconds. Then how many times the process will be interrupted, and on which queue the process will terminate the execution?
    a. Time = 6 and queue = 5
    b. Time = 7 and queue = 6
    c. Time = 5 and queue = 6
    d. Time = 6 and queue = 6

4. There are 3 processes with same arrival time i.e., t = 0 with CPU burst time of 12, 19 and 5 units. What is the shortest attainable average waiting time for these three processes under a non-pre-emptive scheduler if the scheduler has prior knowledge of the duration of the CPU bursts?
    a. 7.66 units
    b. 8.54 units
    c. 8.23 units
    d. 7.33 units