CS 162 – Section 4

1. Scheduling techniques

Assumptions: All timeslice-based algorithms have a timeslice of one unit; The currently running thread is not in the ready queue while it is running; An arriving thread is run at the beginning of its arrival time, if the scheduling policy allows it. Turnaround time is defined as the time a process takes to complete after it arrives.

Fill in ALL blanks in EACH table – each blank has an unambiguous answer.

For the missing schedulers, the possibilities are SRTF, RR, and Priority.

Priority is a preemptive scheduler.

Hint: Fill in the entry time (below) for Thread C first!

Entry Times			
1			
2			
8			

Priorities			
А	3		
В	4		
С	5		
D	6		

↓Current Time	Currently Scheduled Process		
Scheduler \rightarrow	FIFO		
1	А	А	А
2	А	А	В
3	А	А	В
4	В		
5	В		
6	В		
7	С		
8	D		
9	D		
10	D		
Avg Turnaround Time	3.5		

- 2. Short-answer scheduling potpourri
 - a. Give two ways in which to predict runtime in order to approximate SRTF.

b. What scheduling problem did the original Mars rover experience? What were the consequences of this problem?

c. Five jobs are waiting to be run. Their expected running times are 10, 8, 3, 1, and X. In what order should they be run to minimize average completion time? State the scheduling algorithm that should be used AND the order in which the jobs should be run. HINT: Your answer will explicitly depend on X.

d. Can any of the three scheduling schemes (FCFS, SRTF, or RR) result in starvation? If so, how might you fix this?

e. Explain why a chess program running against another program on the same machine might want to perform a lot of superfluous I/O operations.