The LNM Institute of Information Technology 16UCS126
Operating Systems Lab (CSE223)
Mid-Term Examination (Lab) Odd Semester 2017-18

Lab Session-3
SET-A

Note:- No internet connectivity/usage is permitted. All help is readily available on the system itself. Copy/cheating will get you straight a F grade!
The 'Test Example' given is just for your help to verify the program. Do not hard-code it during implementation.

Write a C program to simulate a multi-threaded Shortest Remaining Time First scheduling algorithm. The main thread will take arrival time and burst time for six processes as user input. Then the main thread will create a new thread named '*scheduler*'. Scheduler thread is responsible for implementing the scheduling algorithm. Following are the rules:

1. If two processes have same remaining time, then the process that arrives first will execute.
2. Scheduler will check for the remaining time after each time unit lapse.

In the end, the main thread will display a chart with the following:

- The order of process completion
- Turnaround Time
- Waiting Time
- CPU Utilization Rate (Assume context switching will take no time)

Test Example: Assume, following are the user inputs

Process	Burst Time	Arrival Time
P_1	10	0
P_2	6	3
P_3	1	7
P_4	3	8
P_5	2	25
P_6	1	26

Output: The program should display the following:

Process	Turnaround Time	Waiting Time
P3	1	0
P2	7	1
P4	5	2
P1	20	10
P5	2	0
P6	2	1

CPU Utilization Rate: 82.1%