National University of Computer & Emerging Sciences

Department of Computer Science

CL220 Operating Systems Lab

Instructions:

1. Make a word document with the convention "SECTION_ROLLNO _LAB-NO".
2. You have to submit a Word File (Code implementation + Numerical Solution)

Note: Implement the following Scheduling algorithms (FCFS, Preemptive SJF, Non-Preemptive SJF) in C/C++ and also solve numerically.

TASK 1

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

Process	Burst Time	Priority
P_1	3	2
P_2	1	1
P_3	7	4
P_4	4	2
P_5	5	3

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at time 0.

a. Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms**: FCFS, nonpreemptive SJF.**

b. What is the **turnaround time** of each process for each of the scheduling algorithms in part a?

c. What is the **waiting time** of each process for each of these scheduling algorithms?

d. Which of the algorithms results in the **minimum average waiting time** (over all processes)?

TASK 2

Suppose that the following processes arrive for execution at the times indicated. Each process will run for the amount of time listed. In answering the questions, use nonpreemptive scheduling, and base all decisions on the information you have at the time the decision must be made.

Process	Arrival Time	Burst time
P_0	0	6
P_1	0.3	3
P_2	0.9	1

a. What is the **average turnaround time** for these processes with Preemptive SJF scheduling algorithm?