University of management and Technology

Name: ---------- **Session:** Summer 2025

Roll No: ---------- **Total Marks:** 50

Operating System V1, (CLO 3)

Question # 1:

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 non-preemptive scheduling, and base all decisions on the information you have at the time the decision must be made.

Calculate the TAT and WT for these processes with the FCFS and SJF scheduling algorithm?

Thread	Priority	Burst	Arrival
P_1	40	20	0
P_2	30	25	25
P_3	30	25	30
P_4	35	15	60
P_5	5	10	100
P_6	10	10	105

Part 2:

Solve the following problem using Priority-based Scheduling:

Given the following processes with their arrival times and priority levels (lower number indicates higher priority), calculate the Waiting Time, Response Time, and Turnaround Time for each process:

Process	Burst time	Arrival	Priority
P0	5	0	3
P1	8	2	2
P2	3	3	1
P3	6	4	0
P4	2	8	4

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

Process	Burst Time	Priority
P_1	2	2
P_2	1	1
P_3	8	4
P_4	4	2
P_5	5	3

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5, all at time 0.

a. Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, nonpreemptive priority (a larger priority number implies a higher priority), and RR (quantum = 2).

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)?

Note: Submissions will be August 25, 2025