



First Name :

Last Name :

Group :

TEST (Operating Systems 1)* (Correction)*Date : 03/05/2025****Duration: 30 minutes - No documentation****Exercise 1 : (5 Pts) (20 minutes)**The sequence of actions for jobs **A** and **B** is as follows:

Job A : Arrived at time 0	Job B : Arrived at time 1
➤ 2 Calculation units	➤ 4 Calculation units
➤ 7 I/O units	➤ 4 I/O units
➤ 2 Calculation units	➤ 1 Calculation units

Q1) Illustrate their execution for Uni-programming and Multi-programming systems.**a) Uni-programming System**

CPU	A	A		.						A	A	B	B	B	B					B							
QUEUE		B	B	B	B	B	B	B	B	B	B																
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		

E/S			A	A	A	A	A	A	A							B	B	B	B								
QUEUE																											

b) Multi-programming system

CPU 1	A	A	B	B	B	B				A	A			B														
QUEUE		B																										
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			

E/S			A	A	A	A	A	A	A	B	B	B	B														
QUEUE							B	B	B																		

Exercise 2 : (5 Pts) (10 minutes)

Q1) Consider the set of 5 processes whose arrival time and burst time are given below :

Processes	Arrival time	Burst time	Priority
A	0	4	2
B	1	3	3
C	2	1	4
D	3	5	5
E	4	2	5

Give the execution charts for the following scheduling algorithms:

c) CPU scheduling policy is Priority Preemptive (Higher number represents higher priority)

CPU	A	B	C	D	D	D	D	D	E	E	B	B	A	A	A													
QUEUE		A	B	B	E	E	E	E	B	B	A	A																
			A	A	B	B	B	B	A	A																		
					A	A	A	A																				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		

d) CPU scheduling policy is Round Robin Round Robin (with Quantum=2)

CPU	A	A	B	B	C	A	A	D	D	E	E	B	D	D	D													
QUEUE		B	C	C	A	D	D	E	E	B	B	D																
			A	A	D	E	E	B	B	D	D																	
				D	E	B	B																					
					B																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		

Q2) Calculate the Turnaround Time (TR) for each process and the Waiting Time (WT) of the system in each of the two configurations.

Algorithm	Turnaround Time (TR)					Average	Waiting Time (WT)					Average
	A	B	C	D	E		A	B	C	D	E	
Priority Preemptive	15	11	1	5	6	7,6	11	8	0	0	4	4,6
Round Robin (with Quantum=2)	7	11	3	12	7	8	3	8	2	7	5	5

Good Luck