

Assignment 4:
Calculation of CPU Scheduling Algorithms

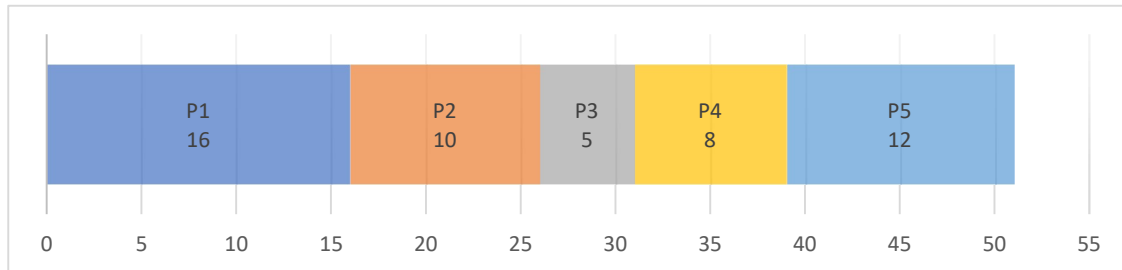
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COMP 3411 – Operating System

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October 1, 2021

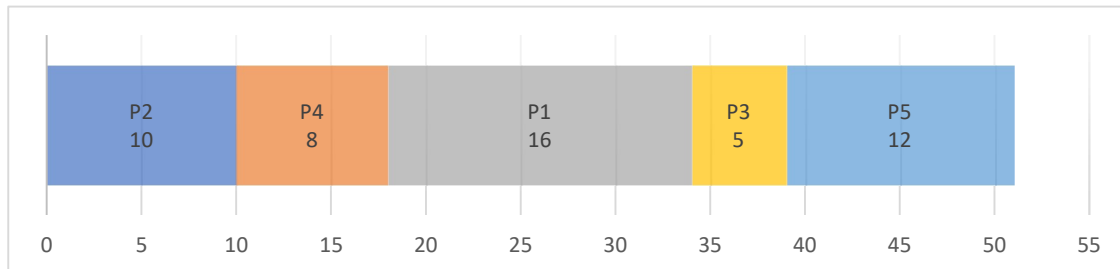
Question 1

First Come First Serve



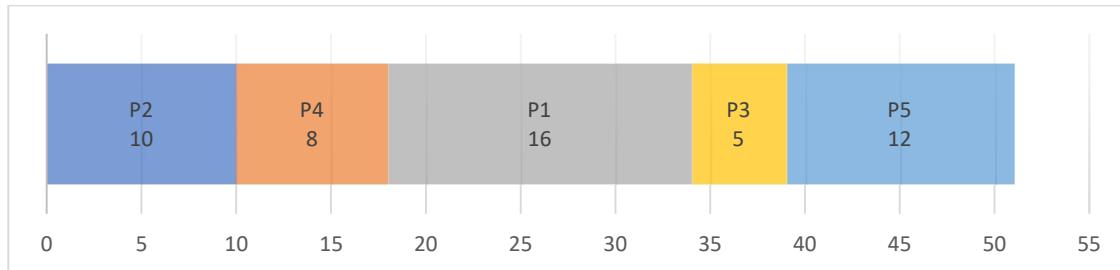
Process	Completion Time	Turnaround Time	Waiting Time
P1	16	16	0
P2	26	26	16
P3	31	28	23
P4	39	34	26
P5	51	43	31

Priority Non-Preemptive



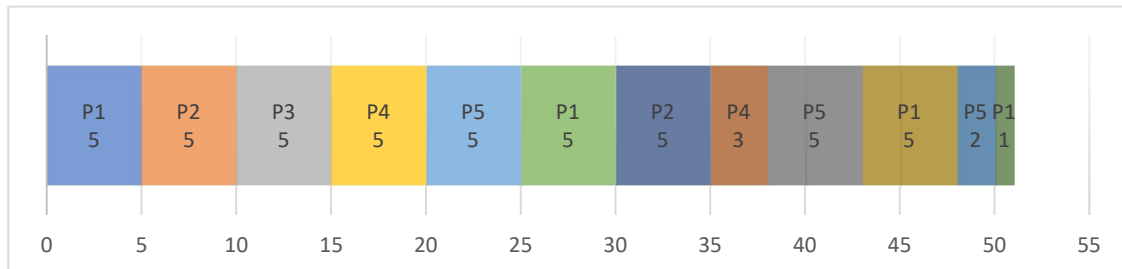
Process	Completion Time	Turnaround Time	Waiting Time
P1	34	34	18
P2	10	10	0
P3	39	36	29
P4	18	13	5
P5	51	43	31

Priority Preemptive



Process	Completion Time	Turnaround Time	Waiting Time
P1	34	34	18
P2	10	10	0
P3	39	36	29
P4	18	13	5
P5	51	43	31

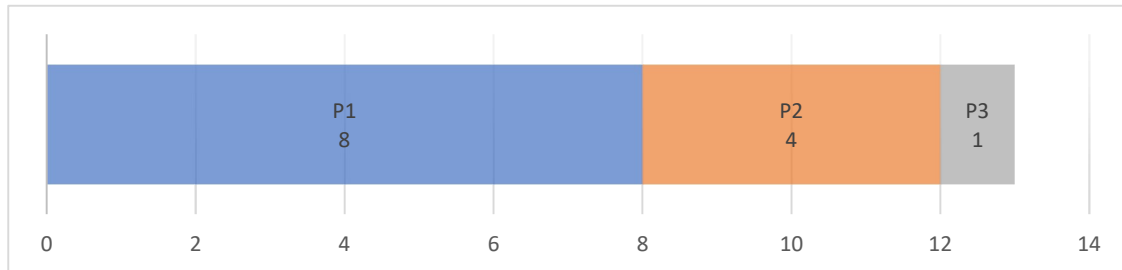
Round Robin



Process	Completion Time	Turnaround Time	Waiting Time
P1	51	51	35
P2	35	35	25
P3	15	12	7
P4	38	33	25
P5	50	42	30

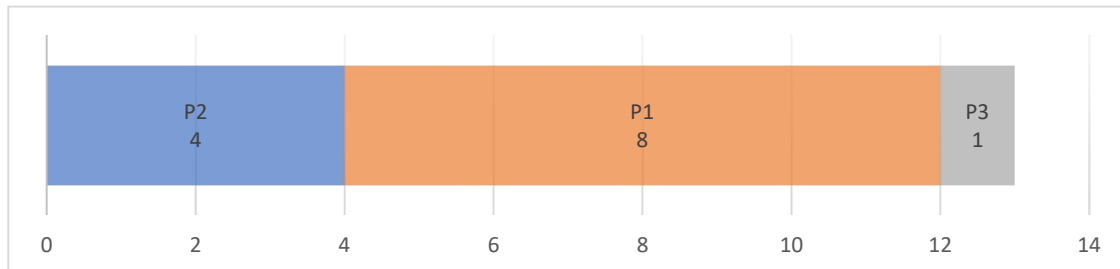
Question 2

First Come First Serve



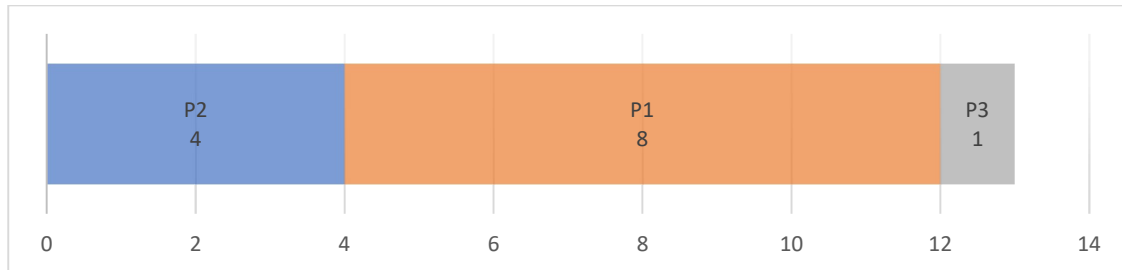
Process	Completion Time	Turnaround Time	Waiting Time
P1	8	8	0
P2	12	12	8
P3	13	9	8

Priority Non-Preemptive



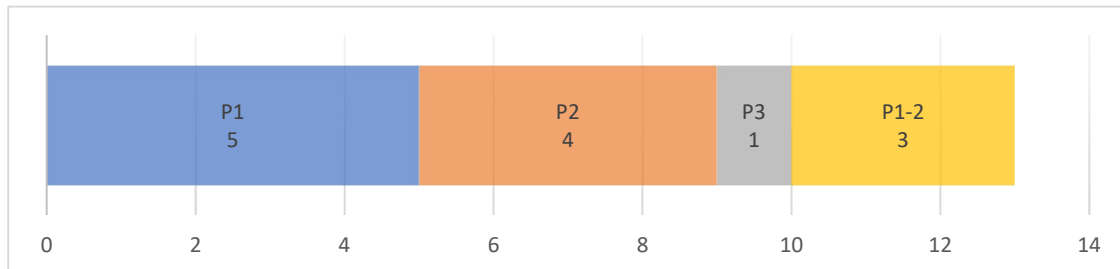
Process	Completion Time	Turnaround Time	Waiting Time
P1	12	12	4
P2	4	4	0
P3	13	9	8

Priority Preemptive



Process	Completion Time	Turnaround Time	Waiting Time
P1	12	12	4
P2	4	4	0
P3	13	9	8

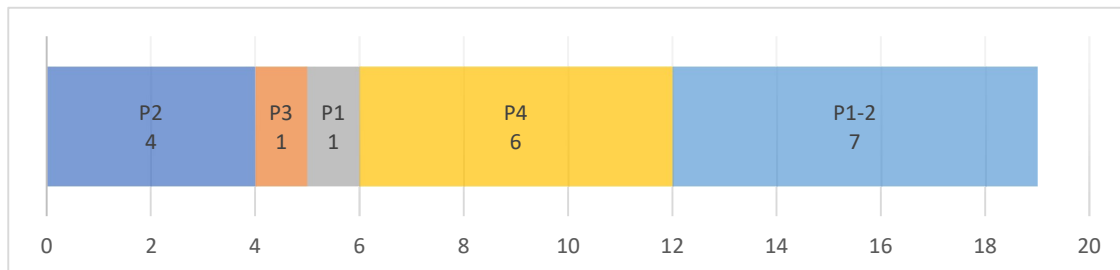
Round Robin



Process	Completion Time	Turnaround Time	Waiting Time
P1	13	13	5
P2	9	9	5
P3	10	6	5

Question 3

Shortest Remaining Time



Process	Completion Time	Turnaround Time	Waiting Time
P1	19	19	11
P2	4	4	0
P3	5	1	0
P4	12	6	0

Question 4

The priority scheduling algorithm suffers from starvation (aka infinite blocking) as it can leave some low-priority processes waiting indefinitely. In a heavily loaded computer system, a steady stream of higher-priority processes can prevent a low-priority process from ever getting the CPU.

A solution to the problem of indefinite blockage of low-priority processes is aging, which involves gradually increasing the priority of processes that wait in the system for a long time.