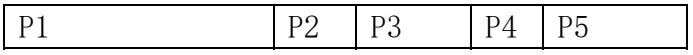
Exercise 1 Solution

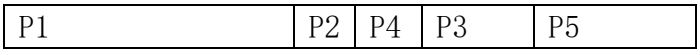
1.

a）

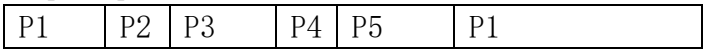
1）FCFS



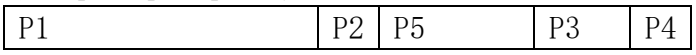
2）nonpreemptive SJF



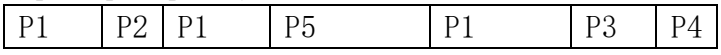
3）preemptive SJF



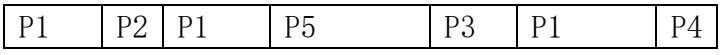
4) nonpreemptive priority



5) preemptive priority

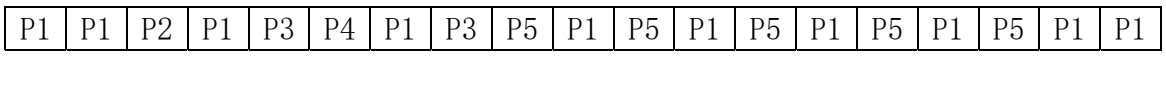


或

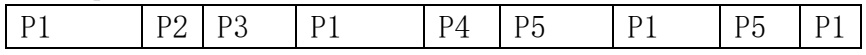


6) RR (quantum = 1)

We assume that when a preempted process and new coming process need to be put in the ready queue at the same time, we prefer to put the new coming process in front of the preempted process in the ready queue.



7) RR (quantum = 3)



b）

1）[0+（10-2）+(11-3)+(13-4)+(14-6)]/5=6.6 ms

2) 6.4 ms

3) 2 ms

4) 8 ms

5) 6.6 ms

6) [(19-10)+0+(8-3-2)+(6-4-1)+(17-6-5)]/5 = 3.8 ms

7) [(19-10)+(4-2-1)+(6-3-2)+(10-4-1)+(18-6-5)]/5 = 4.6 ms

c)

1) [10+(11-2)+(13-3)+(14-4)+(19-6)]/5=10.4 ms

2) 10.2ms

3) 5.8 ms

4) 11.8 ms

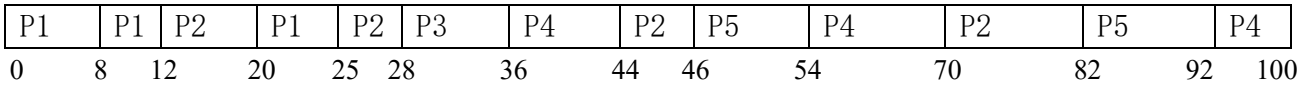
5) 10.4 ms

6) [(19-0)+(3-2)+(8-3)+(6-4)+(17-6)]/5 = 7.6 ms

7) [(19-0)+(4-2)+(6-3)+(10-4)+(18-6)]/5 = 8.4 ms

2.

a)



b) Context switch: The number of context switch is 12.

c) average waiting time:

[(25-17)+(82-12-25)+0+(100-36-32)+(92-46-18)]/5=22.6 ms

average turnaround time:

[(25-0)+(82-12)+(36-28)+(100-36)+(92-46)]/5=42.6 ms

3.

(b) SJF and (d) Priority can cause starvation!

Grading Policy:

Problem 1: (49+10): 3 * 7 + 2 * 7 + 2 * 7 + 10

3 for each gantt chart, 2 for each average waiting time/average turnaround time.

10 base score.

Problem 2: (16+10): 5 + 5 + 3 * 2 + 10

5 for a) and b), 3 for average waiting time/average turnaround time.

10 base score.

Problem 3: (5+5+5): 5 + 5 + 5

5 for choice b) and d) each.

5 base score.

100	[90,100)	[85,90)	[80,85)	[75,80)	[70,75)	[67,70)	[65,67)	[62,65)	[60,62)	[0,60)
A+	A	A-	B+	B	B-	C+	C	C-	D	F