

Shortest Job First / Shortest Job Next

Out of all the available process, it selects the process with the smallest burst time to execute next.

SJF versions

- 1) Pre-emptive (SRTF) / SRTN
- 2) Non Pre-emptive

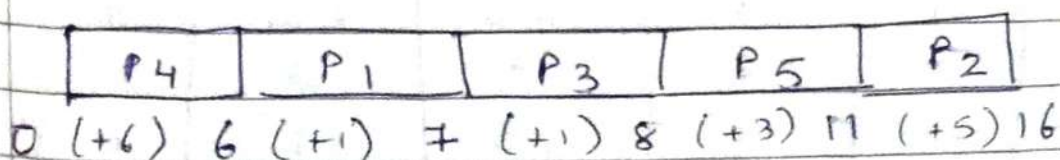
SRTF - Shortest Remaining Time First

SRTN - Shortest Remaining Time Next

Numerical (Non-Preemptive)

Process	Arrival Time	Burst Time
P ₁	2	1
P ₂	1	5
P ₃	4	1
P ₄	0	6
P ₅	2	3

→ Gantt chart



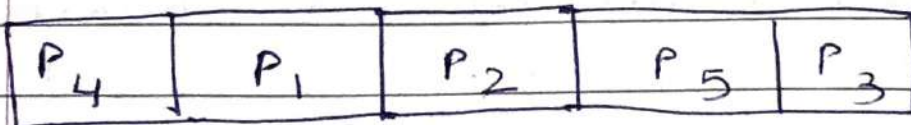
Process	A.T.	B.T.	C.T.	TAT.	WT	R.T.
P ₁	2	1	7	5	4	4
P ₂	1	5	16	15	10	10
P ₃	4	1	8	4	5	5
P ₄	0	6	6	6	0	0
P ₅	2	3	11	9	6	6

Avg waiting Time = 4.6

Avg TAT = 7.8

2)

Process	B.T.	A.T.
P ₁	6	2
P ₂	2	5
P ₃	8	1
P ₄	3	0
P ₅	4	4



0 (+3) 3 (+6) 9 (+2) 11 (+4) 15 (+8) 23

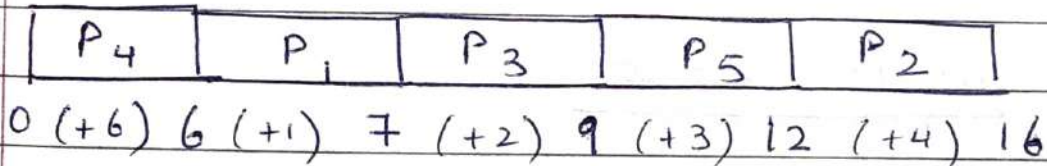
Process	A.T.	B.T.	C.T.	TAT	WT	RT
P ₁	2	6	9	7	1	1
P ₂	5	2	11	6	4	4
P ₃	1	8	23	22	14	14
P ₄	0	3	3	3	0	0
P ₅	4	4	15	11	7	7

$$\text{Avg. waiting Time} = \underline{5.2}$$

$$\text{Avg. TAT} = \underline{9.8}$$

3) Process	A.T.	B.T.
P ₁	3	1
P ₂	1	4
P ₃	4	2
P ₄	0	6
P ₅	2	3

→ Gantt chart



$$\text{Avg. waiting time} = 4.8$$

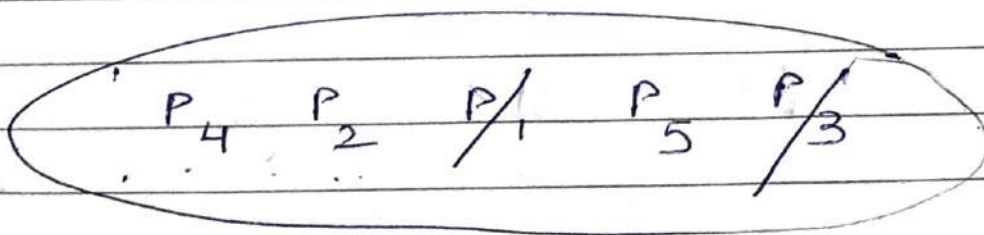
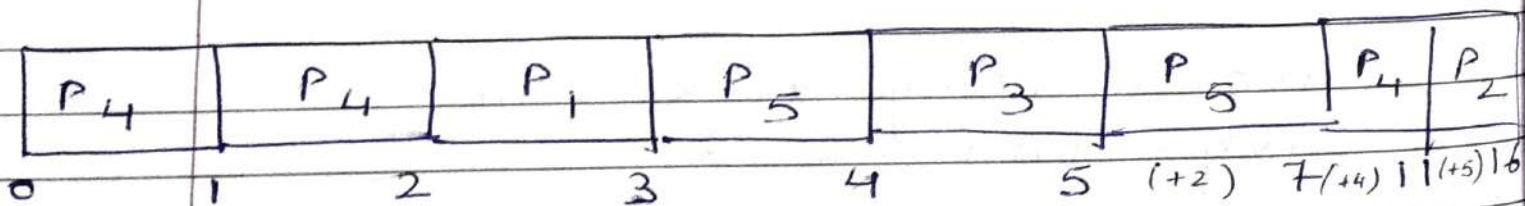
$$\text{Avg. TAT} = 8$$

* SJF with Preemption (SRTN/SRTIF)

Whenever new process arrives, there may be pre-emption of the running process.

Process	Arrival Time	Burst Time
✓ P ₁	2	1
P ₂	1	5
✓ P ₃	4	1
P ₄	0	6 4
P ₅	2	3 2

→ Gantt chart



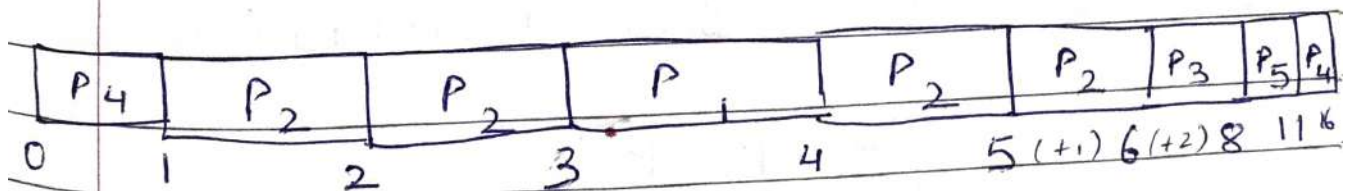
Process	A.T.	B.T.	C.T.	TAT	WT	R.T.
P ₁	2	1	3	1	0	0
P ₂	1	5	16	15	10	10
P ₃	4	1	5	1	0	0
P ₄	0	6	11	11	5	0
P ₅	2	3	7	5	2	1

$$\text{Avg. WT} = 3.4$$

$$\text{Avg TAT} = 6.6$$

2) Process	Arrival Time	Burst Time
P ₁	3	1 → 0
P ₂	1	4 3 1
P ₃	4	2
P ₄	0	5
P ₅	2	3

→ Gantt chart



P₄ P₂ P₅ P₁ P₃

Process	A.T.	B.T.	C.T.	TAT	WT	R.T
P ₁	3	1	4	1	0	0
P ₂	1	4	6	5	1	0
P ₃	4	2	8	4	2	2
P ₄	0	6	16	16	10	0
P ₅	2	3	11	9	6	6

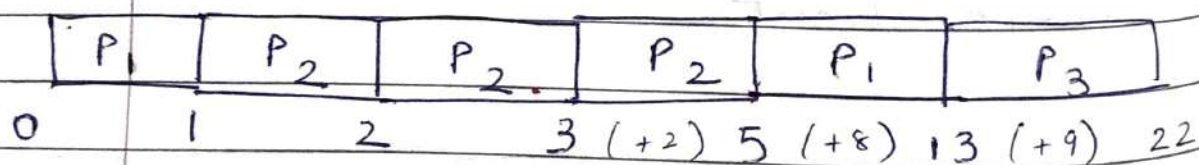
$$\text{Avg WT} = \underline{3.8}$$

$$\text{Avg TAT} = \underline{7}$$

3)

Process	Arrival Time	Burst Time
P ₁	0	9
P ₂	1	4
P ₃	2	9

Gantt chart



P₁ P₂ P₃

Process	A.T	B.T	C.T	TAT	WT	R.T
P ₁	0	9	13	13	4	0
P ₂	1	4	5	4	0	0
P ₃	2	9	22	20	11	11

Page No.

Date

$$\text{Avg. WT} = \underline{5}$$

$$\text{Avg TAT} = \underline{12.33}$$