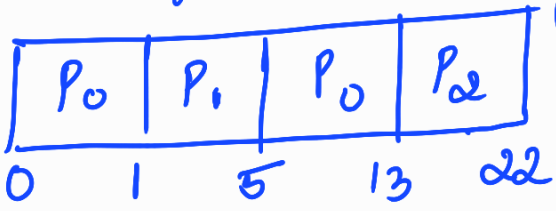
①

Process	Arrival Time	Burst Time
P_0	0	9
P_1	1	4
P_2	2	9

SJF (Pre-emptive scheduling)



W.T for P_0 = 0 + (5-1) = 4ms

P_1 = 1-1 = 0ms

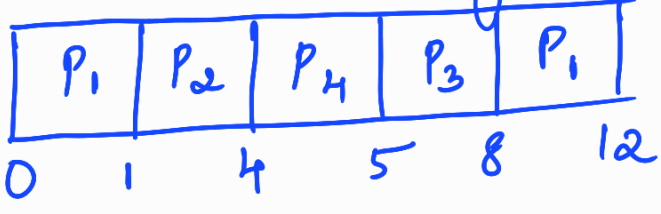
P_2 = 13-2 = 11ms

Avg. W.T = $\frac{4+0+11}{3} = \frac{15}{3}$ = 5ms

②

Process	Arrival Time	Burst time
P_1	0	5
P_2	1	3
P_3	2	3
P_4	4	1

Preemptive shortest remaining time first



W.T for P_1 = 0 + (8-1) = 7ms

P_2 = 1-1 = 0ms

P_3 = 5-2 = 3ms

P_4 = 4-4 = 0ms

Avg. W.T = $\frac{7+0+3+0}{4} = \frac{10}{4} = 2.5$ms

TT for P_1 = 5 + 7 = 12ms

P_2 = 3+0 = 3ms

P_3 = 3+3 = 6ms

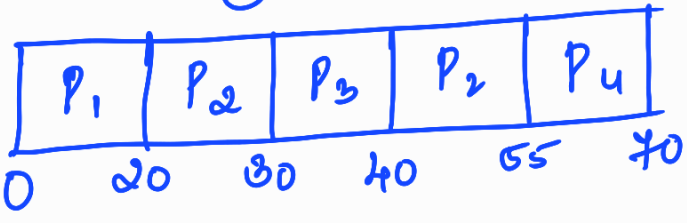
P_4 = 1+0 = 1ms

Avg. TT = $\frac{12+3+6+1}{4} = \frac{22}{4} = 5.5$ms

(3)

Process	Execution Time	Arrival Time
P_1	20	0
P_2	25	15
P_3	10	30
P_4	15	45

Shortest Remaining Time First (SRTF)



W.T for P_1 = 0

P_2 = (20-15) + (40-30) = 15ms

P_3 = 30-30 = 0

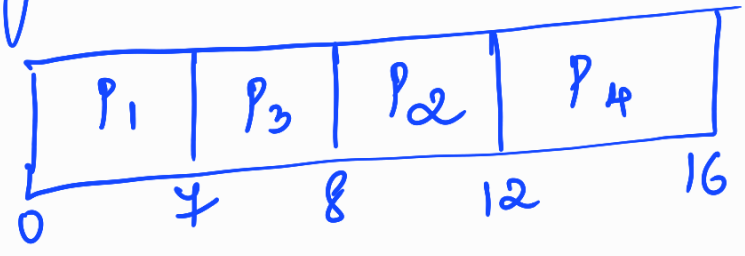
P_4 = 55-45 = 10ms

Avg. W.T = $\frac{0+15+0+10}{4} = \frac{25}{4} = 6.25$ ms

(4)

Process	Arrival Time	Burst Time
P_1	0	7
P_2	2	4
P_3	4	1
P_4	5	4

a) Non preemptive SJF



W.T for $P_1 = 0$

$P_2 = 8-2 = 6$ ms

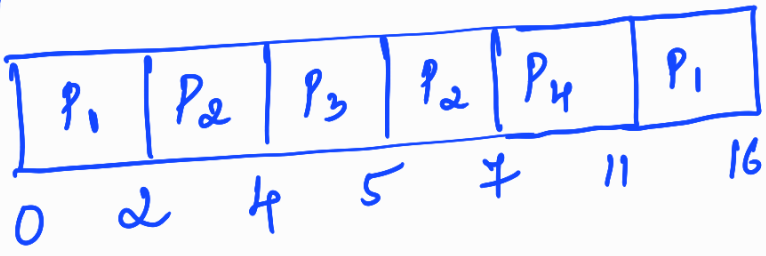
$P_3 = 7-4 = 3$ ms

$P_4 = 12-5 = 7$ ms

Avg. W.T = $\frac{0+6+3+7}{4}$

$= \frac{16}{4} = 4$ ms

b) Preemptive SJF



W.T for $P_1 = 0 + (11-2) = 9$ ms

$P_2 = (2-2) + (5-4) = 1$ ms

$P_3 = 4-4 = 0$

$P_4 = 7-5 = 2$ ms

Avg. W.T = $\frac{9+1+0+2}{4}$

$= \frac{12}{4} = 3$ ms