

Q 1: Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

1) FCFS:

Process	BT	TAT	WT = TAT - BT
P1	10	10	10 - 10 = 0
P2	1	11	11 - 1 = 10
P3	2	13	13 - 2 = 11
P4	1	14	14 - 1 = 13
P5	5	19	19 - 5 = 14

Actually Turnaround time is completion time - Arrival time
But all Arrival's are 0's,
So directly take TAT from given chart

WT (waiting Time) = TAT - BT

gantt chart: --

✓

P1	P2	P3	P4	P5
0	10	11	13	14

ii) SUE: -

b)

c)

Process	BT	TAT	WT = TAT - BT
P ₁	10	19	19 - 10 = 9
P ₂	1	1	1 - 1 = 0
P ₃	2	4	4 - 2 = 2
P ₄	1	2	2 - 1 = 1
P ₅	5	9	9 - 5 = 4

gantt chart -

P ₂	P ₄	P ₃	P ₅	A	
0	1	2	4	9	19

iv) $RRCTQ = 1)$ -

b)		c)	
Process	BT	TAT	WT = TAT - BT
P ₁	10	19	19 - 10 = 9
P ₂	1	2	2 - 1 = 1
P ₃	2	7	7 - 2 = 5
P ₄	1	4	4 - 1 = 3
P ₅	5	14	14 - 5 = 9

Gantt Chart -

P ₁	P ₂	P ₃	P ₄	B	P ₁	P ₃	B	P ₁	B	P ₁	B	P ₅	P ₁
0	1	2	3	4	5	6	7	8	9	10	11	12	13

d) i) FCFS Avg WT = $\frac{0+10+14+13+14}{5} = \frac{48}{5} = 9.6$

ii) SJF Avg WT = $\frac{9+0+2+1+4}{5} = \frac{16}{5} = 3.2$

iii) non Pre Priority Avg WT = $\frac{6+0+16+18+1}{5} = \frac{41}{5} = 8.2$

iv) RR Avg WT = $\frac{9+1+5+3+9}{5} = \frac{27}{5} = 5.4$

Among Them SJF have minimal Avg waiting Time

SJF is Best

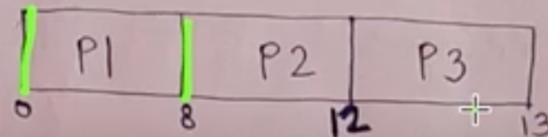
Process	Arrival Time	burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

a] Using FCFS finding the average turnaround time.

Since, FCFS is non pre-emptive scheduling

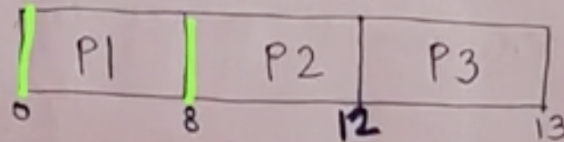
Gantt Chart :-



a] Using FCFS finding the average turnaround time.

Since, FCFS is non pre-emptive scheduling

Gantt Chart :-



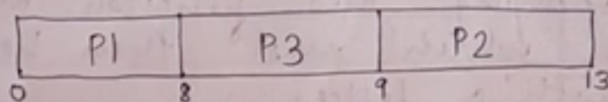
Process	AT+ (Arrival Time)	BT (Burst time)	CT (Calculation time)	TAT (Turn around time) (CT - AT)
P1	0.0	8	8	$(8 - 0.0) = 8$
P2	0.4	4	12	$(12 - 0.4) = 11.6$
P3	1.0	1	13	$(13 - 1) = 12$

$$\begin{aligned}\text{Average Turnaround time} &= \frac{8 + 11.6 + 12}{3} \\ &= \underline{\underline{10.53}}\end{aligned}$$

Process	Arrival Time	burst time
P1	0.0	8
P2	0.4	4
P3	1.0	1

b] Using SJF scheduling, finding the average turnaround time.
Since SJFS is non preemptive scheduling.

Grantt Chart :



Process	AT (Arrival Time)	BT (Burst Time)	CT (Calculated Time)	TAT (Turn around time) CT - AT
P1	0.0	8	8	$(8 - 0.0) = 8$
P2	0.4	4	13	$(13 - 0.4) = 12.6$
P3	1.0	1	9	$(9 - 1) = 8$

$$\begin{aligned}
 \text{Average Turnaround Time} &= \frac{8 + 12.6 + 8}{3} \\
 &= \underline{\underline{9.53}}
 \end{aligned}$$