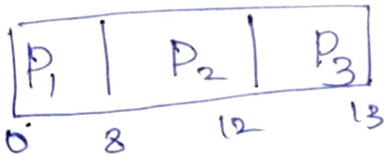
what is the average turnaround time for the following process i) FCFS, ii) Non preemptive SJF iii) Preemptive SJF.

Process	Arrival	Execution time.
P_1	0.0	8
P_2	0.4	4
P_3	1	1

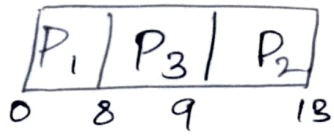
i) FCFS:

Gantt chart



Process	E.T	A.T	W.T	TAT
P_1	8	0.0	0-0.0 = 0	8
P_2	4	0.4	8-0.4 = 7.6	11.6
P_3	1	1	12-1 = 11	12
			18.6	31.6
			18.6/3	31.6/3
			= 6.2 ms	= 10.53 ms.

ii) non preemptive SJF



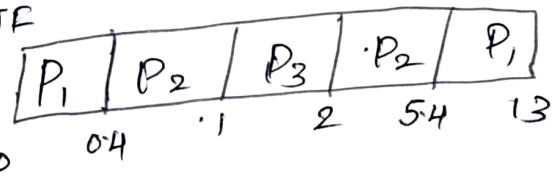
Process	Arrival time	Burst time	waiting time	Turn around time
P_1	0	8	0-0=0	8+0=8
P_2	0.4	4	9-0.4=8.6	4+8.6=12.6
P_3	1	1	8-1=7	7+1=8

Average turnaround time $= \frac{8+12.6+8}{3}$

$= 28.6$

$= 9.53$ ms.

(iii) Preemptive SJF



Process	Arrival time	Burst time	waiting time	Turnaround
P_1	0	8	[0+(5.4-0.4)]-0 = 5	8+5=13
P_2	0.4	4	[0.4+(2-1)]-0.4 = 1	4+1=5
P_3	1	1	1-1=0	1+0=1

avg turnaround time $= \frac{13+5+1}{3} = 19/3 = 6.33$ ms

2) Consider the following process with CPU burst time given ms.

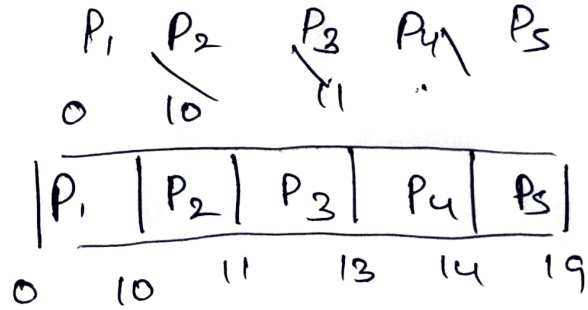
Process	B.T	Priority
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

process are arrived in P_1, P_2, P_3, P_4, P_5 order at time 0.

i) Draw gantt chart to show execution blw.
i) FCFS ii) SJF iii) non preemptive iv) Round Robin (TQ = 1ms)

ii) Calculate waiting time and turn around time for each scheduling algorithm.

i) ii) FCFS

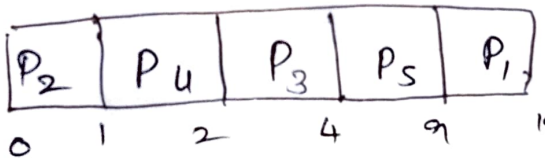


Process	ET	W.T	TAT
P_1	10	0	10
P_2	1	10	11
P_3	2	11	13
P_4	1	13	14
P_5	5	14	19

Avg WT = 48 ms

TAT = 67ms

ii) SJF

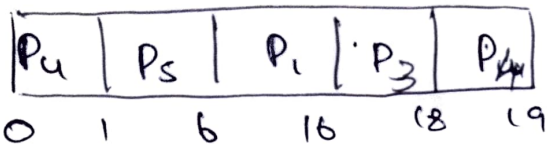


Process	Execute Time	waiting time	T. AT
P_1	10	9	10+9 = 19
P_2	1	0	1+0 = 1
P_3	2	2	2+2 = 4
P_4	1	1	1+1 = 2
P_5	5	4	5+4 = 9

Total waiting Time = 16 ms

TAT = 35 ms.

iii) Non preemptive priority.

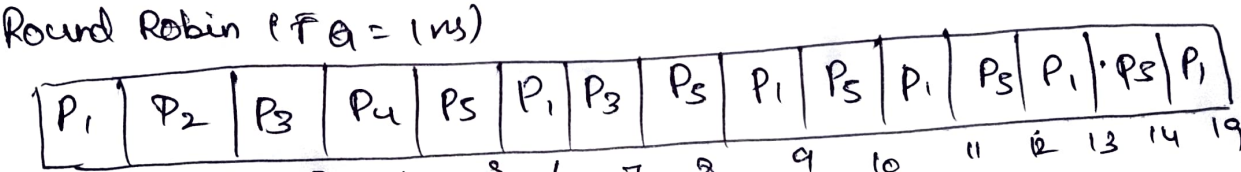


Process	BT	Priority	WT	TAT
P_1	10	3	6	10+6=16
P_2	1	1	0	1+0=1
P_3	2	3	16	2+16=18
P_4	1	4	18	1+18=19
P_5	5	2	1	5+1=6

Total waiting time = 41ms

Total TAT = 60ms.

iv) Round Robin (TQ = 1ms)



Process	ET	W.T	TAT
P_1	10	0+(5-1)+(8-6)+(10-9)+(12-11)+(14-13)=9	10+9=19
P_2	1	1	1+1=2
P_3	2	2+(6-3)=5	2+5=7
P_4	1	3	1+3=4
P_5	5	4+(7-5)+(9-8)+(11-10)+(13-12)=9	5+9=14

Total TAT = 46ms Total WT = 27ms.