

Name: Om Sunil Gurav

Class: T.E Div: 'A'

Roll no.: 50

PRN: 71918065B

Subject: System Programming And Operating

System (310251)

Teacher: Ms. Vrushali S. Nikam

Semester: VI

GROUP No. : 10

PROBLEM STATEMENT:

4] Calculate Average waiting Time and Average Turn Around Time for following Scheduling Algorithm and State which is the best and Why?

1. FCFS

2. SJF

3. RR

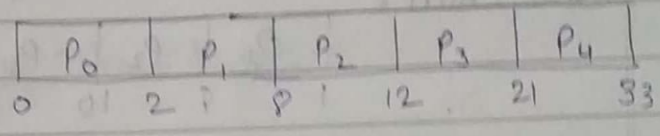
4. Non Priority

SPOS PBL [GROUP No. : 10]

1. FCFS
→

Process ID	Arrival Time	Burst time
0	0	2
1	1	6
2	2	4
3	3	9
4	4	12

Gantt Chart :



Process ID	Arrival Time	Burst Time	Completion Time	Turnaround Time
0	0	2	2	2
1	1	6	8	7
2	2	4	12	10
3	3	9	21	18
4	4	12	33	29

$$\text{Average Waiting Time} = \frac{33}{5}$$

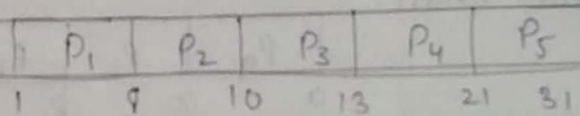
$$\text{Average Turnaround Time} = \frac{66}{5}$$

SPOS PBL [GROUP No. : 10]

2. SJF
→

Process ID	Arrival Time	Burst Time
1	1	7
2	3	3
3	6	2
4	7	10
5	9	8

Gantt Chart :



Process ID	Arrival Time	Burst Time	Completion Time	Turn Around Time	Waiting Time
1	1	7	8	7	0
2	3	3	13	10	7
3	6	2	10	4	2
4	7	10	31	24	14
5	9	8	21	12	4

$$\text{Average Waiting Time} = \frac{27}{5}$$

$$\text{Average Turn Around Time} = \frac{57}{5}$$

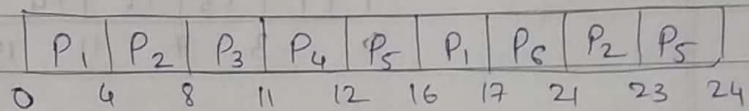
SPOS PBL [GROUP No. : 10]

3. RR

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

Time slice = 4 units

Gantt Chart:



Process ID	Arrival Time	Burst Time	Completion Time	Turn Around Time	Waiting Time
1	0	5	17	17	12
2	1	6	23	22	16
3	2	3	11	9	6
4	3	1	12	9	8
5	4	5	24	20	15
6	6	4	21	15	11

Average Waiting Time : $\frac{76}{6}$

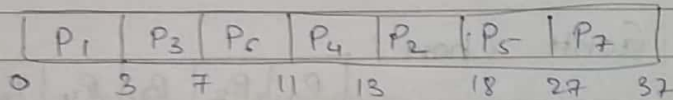
Average Turn Around Time : $\frac{92}{6}$

SPOS PBL [GROUP No. : 10]

4. Non Priority.

Process ID	Priority	Arrival Time	Burst Time
1	2	0	3
2	6	2	5
3	3	1	4
4	5	4	2
5	7	6	9
6	4	5	4
7	10	7	10

Gantt chart :



Process ID	Priority	Arrival Time	Burst Time	Completion Time	Turn Around Time	waiting Time	Reference Time
1	2	0	3	3	3	0	0
2	6	2	5	18	16	11	13
3	3	1	4	7	6	2	9
4	5	4	2	13	9	7	11
5	7	6	9	24	24	12	18
6	4	5	4	11	6	2	7
7	10	7	10	37	30	18	27

$$\text{Average waiting Time} = \frac{52}{7}$$

$$\text{Average Turn Around Time} = \frac{91}{7}$$

Answer:

SJF Algorithm is the Best because it has the Shortest Waiting Time And Shortest Turn-Around Time of all the algorithms.