RGPV 2020 CPU Scheduling Algorithm

Consider the following set of processes.

Process	Burst Time	Arrival Time
P1	3	0
P2	5	1
P3	2	2
P4	5	3
P5	5	4

Develop a Gantt-chart and calculate the average waiting time using:

i) FCFS

ii) SJF

iii) Round Robin (q = 1)

Solution:

i) FCFS

Gantt Chart for FCFS

From above Gantt Chart waiting time for each process:

Waiting time = Turnaround time – Burst time

Process	Waiting time
P1	3-3=0
P2	7-5=2
P3	8-2=6
P4	12-5=7
P5	16-5=11

Average waiting time = Sum of waiting time / Number of processes

Average waiting time = (0+2+6+7+11)/5 = 5.2

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ii) SJF

Gantt Chart SJF

From above Gantt Chart waiting time for each process:

Waiting time = Turnaround time – Burst time

W a i t i n g t i m e P 1 = P 2 = 4

P3
3
2
=
1

P2
4
-
5
=
7

P6
-
5
=
1
1

Average waiting time = Sum of waiting time / Number of processes

Average waiting time = (0+4+1+7+11)/5 = 4.6

iii) Round Robin (q = 1)

Gantt Chart RR

From above Gantt Chart waiting time for each process:

Waiting time = Turnaround time – Burst time

Process	Waiting time
P1	1-3=8
P2	2-5=12
P3	6-3=4
P4	4-5=11

P
6
-
5
=
1
1

Average waiting time = Sum of waiting time / Number of processes

Average waiting time = (8+12+4+11+11)/5 = 9.2

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