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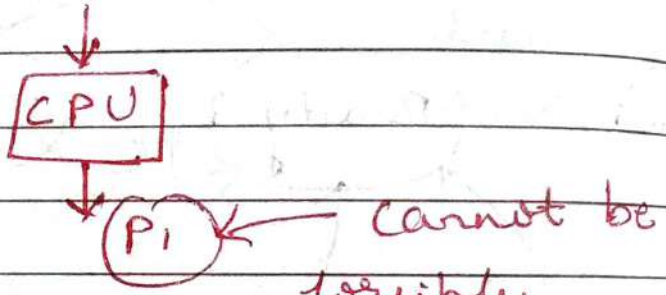
* CPU Scheduling Algorithms:

1) FCFS :-

It assigns CPU to the process which comes first in ready queue.

It is non-preemptive.



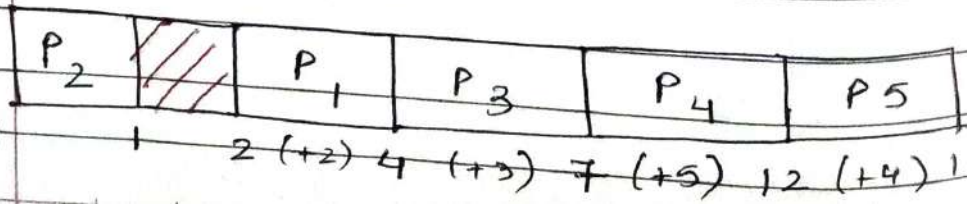
Numerical

1)

Process	Arrival Time	Burst Time ← CPU time
P_1	2	2
P_2	0	1
P_3	2	3
P_4	3	5
P_5	4	4

→ Solution

Gantt chart



Process	A.T.	B.T.	CT	TAT	WT	Response Time
P_1	2	2	4	2	0	0
P_2	0	1	1	1	0	0
P_3	2	3	7	5	2	2
P_4	3	5	12	9	4	4
P_5	4	4	16	12	8	8

~~C.T=~~ Turnaround Time = CT − AT

Waiting Time = TAT − BT

Response Time = Left values − AT

Average waiting Time = 2.8

Average TAT = 5.8

2)

Process	AT	BT
P_1	2	6
P_2	5	3
P_3	1	8
P_4	0	3
P_5	4	4

→ Gantt chart

P_4	P_3	P_1	P_5	P_2

0 (+3) 3 (+8) 11 (+6) 17 (+4) 21 (+3) 24

P_3, P_4

Process	AT	BT	CT	TAT	WT	RT
P_1	2	6	17	15	9	9
P_2	5	3	24	19	16	16
P_3	1	8	11	10	2	2
P_4	0	3	3	3	0	0
P_5	4	4	21	17	13	13

TAT = CT - AT

WT = TAT - BT

Avg WT = 8

Avg TAT = 12.8

Advantages of FCFS

1) Simple method

Disadvantage of FCFS

1) Even very small process should wait for its turn to come to utilize the CPU

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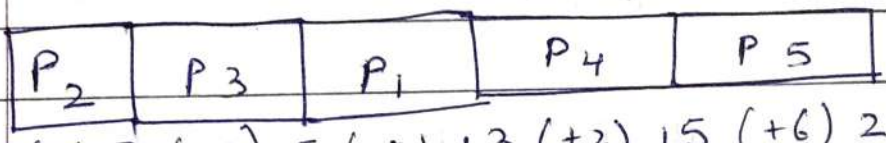
FCFS

3)

Process	Arrival T.	Burst Time
P_1	3	8
P_2	1	1
P_3	2	3
P_4	3	2
P_5	4	6

→ Gantt chart



Process	A T	B T	C T	TAT	WT	R T
P_1	3	8	13	10	2	2
P_2	1	1	2	1	0	0
P_3	2	3	5	3	0	0
P_4	3	2	15	12	10	10
P_5	4	6	21	17	11	11

TAT = CT − AT

WT = TAT − BT

RT = 1st values − AT.

Avg TAT = 8.6

Avg WT = 4.6

4)

Process	Burst Time
P_1	21
P_2	3
P_3	6
P_4	2

Cal avg. W.T & avg TAT by FCFS.

WT = 18.75

TAT = 26.75

5)

Process	B.T	AT
P_1	10	0
P_2	6	0
P_3	7	1
P_4	4	1
P_5	5	2

Avg WT = 14.4

Avg TAT = 18.8