AI in Industry

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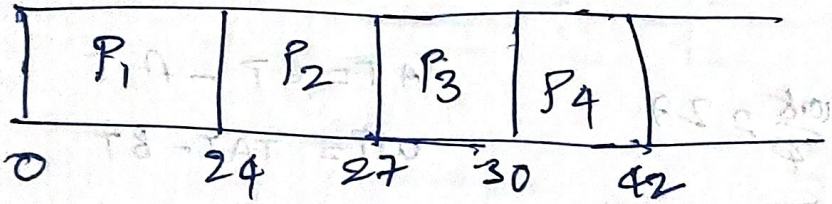
SE20UARI071

Q1

FCFS

Process	A.T	B.T	Priority	C.T	TAT	WT
P_1	0	24	3	24	24	0
P_2	4	3	1	27	23	20
P_3	5	3	4	30	25	22
P_4	6	12	2	42	36	24
					108	66

~~In FCFS~~ :



TAT = CT − AT

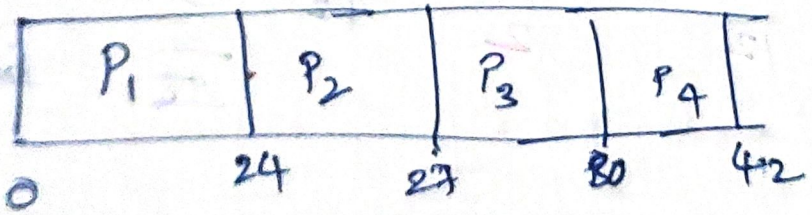
WT = TAT − BT

Avg TAT = $\frac{108}{4}$ = 27

Avg WT = $\frac{66}{4}$ = 16.5

SJF

Process	A.T	B.T	C.T	TAT	WT
P_1	0	24	24	24	0
P_2	4	3	27	23	20
P_3	5	3	30	25	22
P_4	6	12	42	36	24



TAT = CT − AT

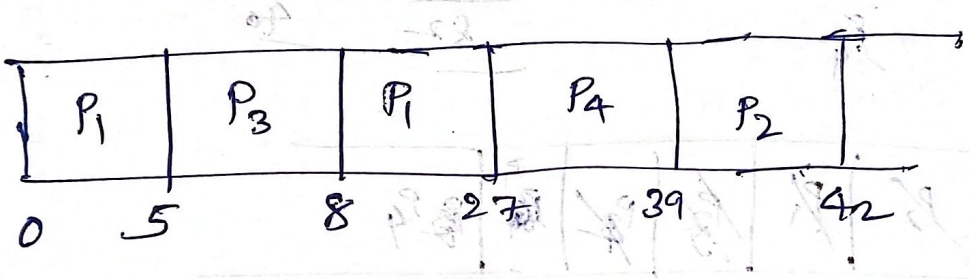
WT = TAT − BT

Avg. TAT = $\frac{108}{4} = 27$

Avg WT = $\frac{66}{4} = 16.5$

PS (Priority scheduling) (Assuming high priority is high number)

Process	A-T	B-T	Priority	C-T	TAT	W-T
P_1	0	24 19	3	27	27	3
P_2	4	3	1	42	38	35
P_3	5	3	4	8	3	0
P_4	6	12	2	39	33	21
					101	59



TAT = CT − AT

WT = TAT − BT

Avg. TAT = $\frac{101}{4}$ = 25.25

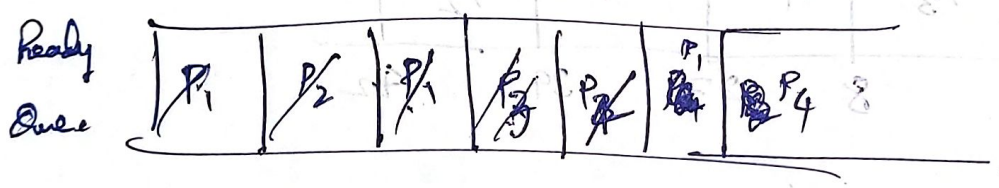
Avg. WT = $\frac{59}{4}$ = 14.75

Round - Robin.

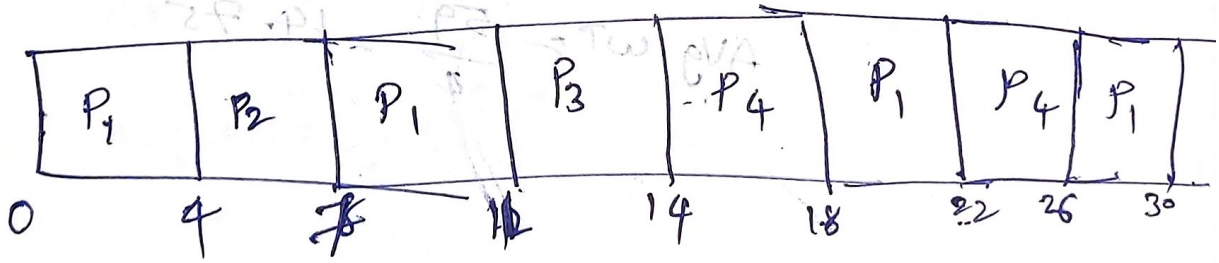
TAT = CT − AT ; WT = TAT − BT

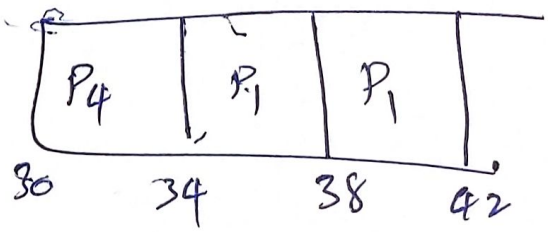
Process	A.T	B.T	C.T	TAT	W.T
P_1	0	24	42	42	18
P_2	4	3	7	3	0
P_3	5	3	14	9	6
P_4	6	16	34	28	12

Ready Queue



Running Queue





Avg - TAT = $\frac{82}{4}$ = 20.5 ; Avg. WT = $\frac{40}{4}$ = 10

According to the Avg. waiting time and Turn-Around time, Round-Robin is best Algorithm and more suitable Algorithm.

Q2

Priority scheduling

Process	A.T	B.T	Priority	C.T	T.A.T	W.T
P_1	00:00	20min	3	01:05	65min	35min
P_2	00:10	30min	5	00:30	20min	0
P_3	00:15	40min	7	01:45	40min	50min
P_4	00:20	15min	4	00:45	25min	10min

Gantt chart

TAT = CT − AT ; WT = T.AT − B.T

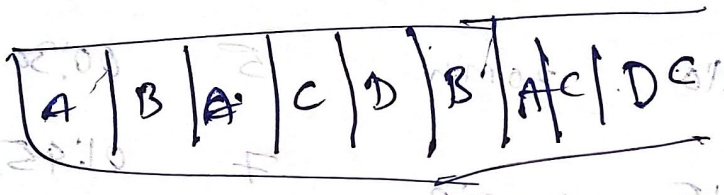
Avg. W.T = $\frac{95\text{min}}{4}$ = 23.75 min

Avg. TAT = $\frac{200\text{min}}{4}$ = 50 min

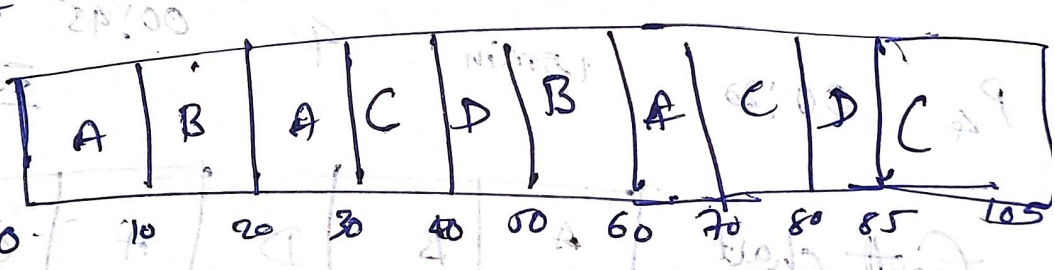
Round-Robin (Assuming time quantum = 10min)

Patient	A.T	B.T	Priority	C.T	TAT	W.T
A	00:00	30min	3	01:10	70min	40min
B	00:10	20min	5	01:00	50 min	30min
C	00:15	40min	2	01:45	90min	50min
D	00:20	15min	4	01:25	65min	30min
					275min	120min

Ready Queue



Running Queue



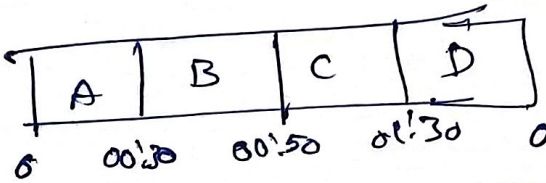
Average W.T = $\frac{170\text{min}}{4}$ = 42.5 min

Average TAT = $\frac{275\text{min}}{4}$ = 68.75 min

FCFS

Patient	A.T	B.T	Priority	C.T	TAT	W.T
A	00:00	30min	3	00:30	30min	0
B	00:10	20min	5	00:50	20min	0min
C	00:15	40min	2	01:30	35min	5min
D	00:20	15min	4	01:45	70min	55min
					155min	60min

Gantt chart



TAT = CT - AT

WT = TAT - BT

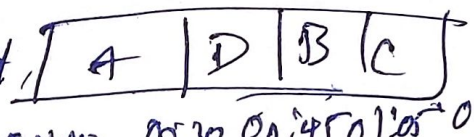
Avg TAT = $\frac{155}{4}$ = 38.75 min

Avg WT = $\frac{60}{4}$ = 15 min

SJF

Patient	AT	B.T	Priority	C.T	TAT	W.T
A	00:00	30min	3	00:20	30min	0
B	00:10	20min	5	01:05	55min	35min
C	00:15	40min	2	01:45	90min	50min
D	00:20	15min	4	00:45	25min	10min
					200min	95min

Gantt chart



Avg TAT = $\frac{200}{4}$ = 50

Avg W.T = $\frac{95}{4}$ = 23.75