Date . .

Task 3 :- Shortest Remaining Time First (SRTF) - Preemptive SJF

Process	Arrival time	Burst time	Exit time	turn around	waiting time
P1	0	9	22	22	13
P2	1	4	5	4	0
P3	2	7	14	12	5
P4	3	2	7	4	2

Gantt chart :-

```
0     1       5       7           14              22
| P1 |  P2   |  P4   |   P3      |      P1        |
```

waiting time = total waiting time - No. of ms
process executed - arrival time.

turn around time = Exit time - arrival time

waiting time = turn around time - Burst time

Average turn around time = $(22 + 4 + 12 + 4)/4$

≈ 10.5 unit
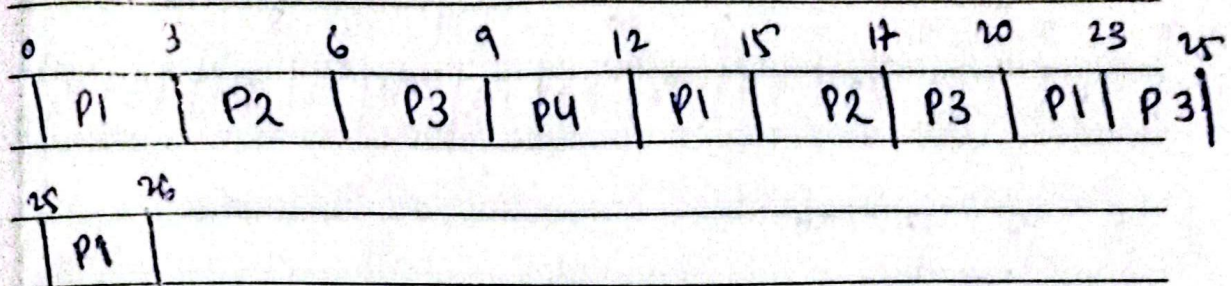
Average waiting time = $(13 + 0 + 5 + 2)/4$ = 20/4

= 5 unit

Time Quantum = 3ms

Task 4 :- Round Robin (RR) Scheduling

Process	Arrival time	Burst time	Exit time	turn around	waiting time
P1	0	10	26	26	16
P2	1	5	17	16	11
P3	2	8	25	23	15
P4	3	3	12	9	6

Gantt chart:-

```
0    3    6    9    12   15   17   20   23   25
| P1 | P2 | P3 | P4 | P1 | P2 | P3 | P1 | P3 |
```

```
25   26
| P1 |
```

Average turn around time $= (26 + 16 + 23 + 9)/4$
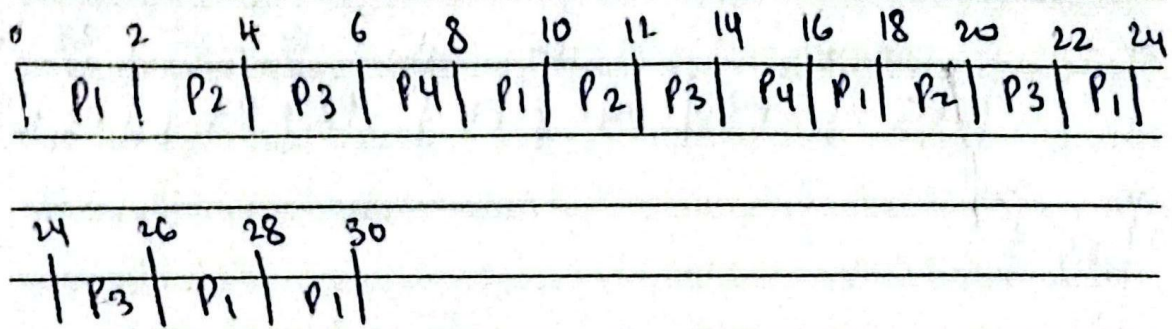$= 18.5$ unit

Average waiting time $= (16 + 11 + 15 + 6)/4$
$= 12$ unit

Time Quantum = 2ms.

Task5 :- Round Robin (RR) scheduling

Process	Arrival time	Burst time	Exit time	turn around	waiting time
P1	0	12	30	30	18
P2	2	6	20	18	12
P3	4	8	26	22	14
P4	6	4	16	10	6

Gantt chart :-

```
0   2    4    6    8   10   12   14   16   18   20   22  24
| P1 | P2 | P3 | P4 | P1 | P2 | P3 | P4 | P1 | P2 | P3 | P1 |
```

```
24   26   28   30
| P3 | P1 | P1 |
```

Average turn around time $= (30+18+22+10)/4$

$= 20$ unit

Average waiting time $= (18+12+14+6)/4$

$= 12.5$ unit

Task 6 :- Priority Scheduling (Non - Preemptive)

Process	Arrival time	Burst time	Priority	C.T	turn around	waiting time
P1	0	7	3	7	7	0
P2	1	4	1	11	10	6
P3	2	6	2	17	15	9
P4	3	5	4	22	19	14

Gantt chart :-

0	7	11	17	22
P1	P2	P3	P4	

C.T → completion time

turn around time = Completion time - arrival time.

waiting time = turn around time - burst time

Average turn around time $= (7 + 10 + 15 + 19)/4$

$\qquad = 12.75$ unit

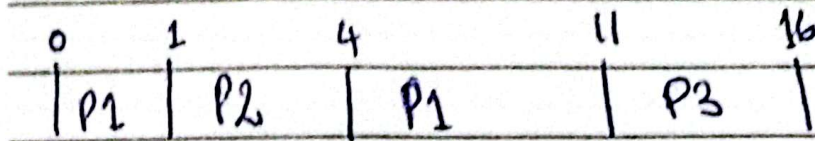Average waiting time $= (0 + 6 + 9 + 14)/4$

$\qquad = 7.25$ unit

lower number = higher priority

Task 7:- Priority Scheduling (Preemptive)

Process	Arrival time	Burst time	Priority	C.T	Turn around	Waiting time
P1	0	8	2	11	11	3
P2	1	3	1	4	3	0
P3	2	5	3	16	14	9

Gantt chart:-

```
0     1      4        11       16
| P1 | P2  |   P1   |   P3   |
```

Average turn around time $= (11 + 3 + 14)/3$

$\qquad = 9.33$ unit

Average waiting time $= (3 + 0 + 9)/3$

$\qquad = 4$ unit