Operating System (Tutorial)

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Section-A

1.) Non-preemptive

2.) it can lead to some low priority process waiting indefinitely for the CPU

3.) Increasing the priority of jobs to ensure termination in a finite time.

4.) aging

5.) ~~Abrte~~ Preemptive scheduling

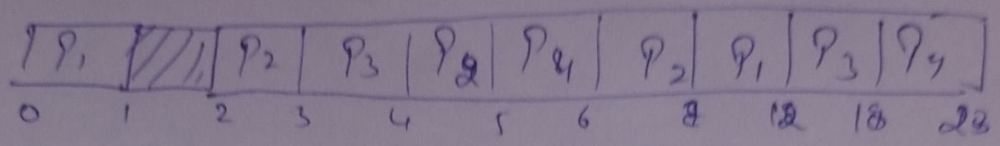
6.) 'i', 'ii', 'iii'

7.) Sjf

8.) First in first out

Section-B

① Gantt Chart



avg TAT = $\frac{12+6+15+18}{4} = \frac{51}{4} = 12.75$

avg WT = $\frac{7+2+8+12}{4} = \frac{29}{4} = 7.25$

Process	AT	ET	priority	CT	TAT	WT
P_1	0	8	2	12	12	7
P_2	2	4	1	8	6	2
P_3	3	7	3	18	15	8
P_4	5	6	4	23	18	12

②

Process	AT	ET	priority	CT	TAT	WT
P_1	0	30	3	19	19	16
P_2	2	70	4	25	23	16
P_3	3	80	1	9	6	1
P_4	5	90	2	17	12	3

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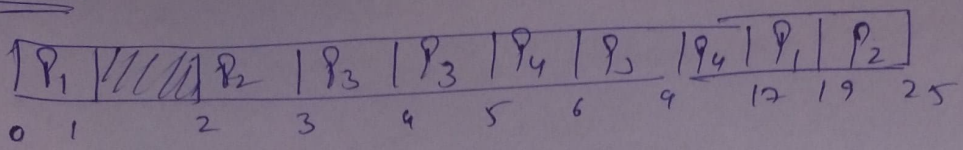


$$\text{avg TAT} = \frac{19+23+6+12}{4} = \frac{60}{4} = 15$$

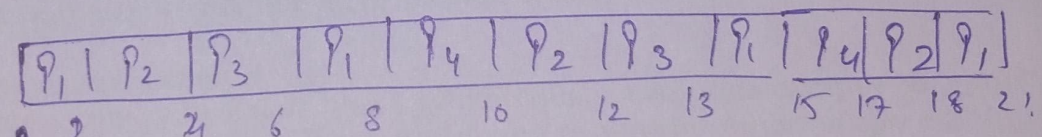
$$\text{avg WT} = \frac{16+16+1+3}{4} = \frac{36}{4} = 9$$

③

Process	AT	ET	CT	TAT	WT
P_1	0	9	21	21	12
P_2	1	8	18	17	12
P_3	2	8	13	11	8
P_4	3	4	17	14	10

ready queue $P_1 | P_2 | P_3 | P_1 | P_4 | P_2 | P_3 | P_1 | P_4 | P_2 | P_1$

Running queue



$$\text{avg TAT} = \frac{21+17+11+14}{4} = \frac{63}{4} = 15.75$$

$$\text{avg WT} = \frac{12+12+8+10}{4} = \frac{42}{4} = 10.5$$

Ans 4.) Multilevel Queue is flexible in implementation w.r.t movement between queues. It enables short CPU bound jobs to be prioritised and therefore processed quickly. It can be preemptive or non-preemptive.

Ans5.) In multilevel queue scheduling algo., processes are permanently assigned to a queue on entry to the system. Processes do not move between queues. This setup has is hence inflexible. It arises a ques. on how to set priorities or time slice for queues. In this process rate may also get changed.