

| | | | | | | | |
|------|---|-------|---|-------|---|-------|----|
| Q.1. | | P_1 | | P_2 | | P_3 | |
| | 0 | | 5 | | 8 | | 13 |

calculate completion time (CT)

$$P_1 = \text{start time} + \text{burst time}$$

$$= 0 + 5$$

$$P_1 = 5$$

$$P_2 = 5 + 3 = 8$$

$$P_3 = 8 + 6 = 14$$

calculate TAT (Turn around Time)

~~$P_1 = CT - \text{Arrival Time}$~~

$$= 5 - 0$$

$$P_1 = 5$$

$$P_2 = 8 - 1 = 7$$

$$P_3 = 14 - 2 = 12$$

Waiting time

$$P_1 = TAT - \text{Burst time}$$

$$P_1 = 5 - 5$$

$$P_1 = 0$$

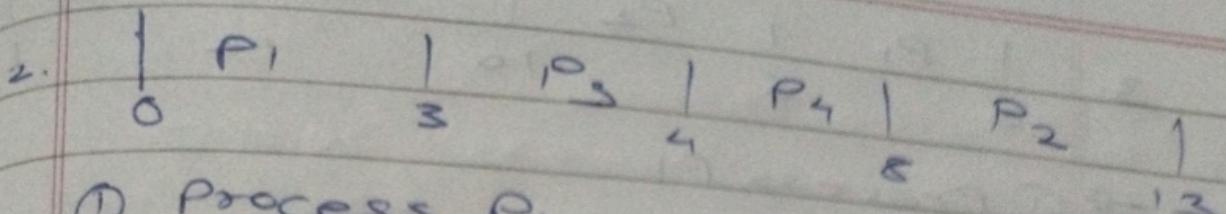
$$P_2 = 7 - 3 = 4$$

$$P_3 = 12 - 6 = 6$$

$$\text{Average waiting time} = \frac{0+4+6}{10}$$

$$= \frac{10}{3}$$

$$\text{Average waiting} = 3.33$$



① Process P₁

- Arrival time = 0

- CT = 3

- Turnaround Time = CT - AT = 3 - 0 = 3

② Process P₂

- Arrival time = 1

- CT = 13

- TAT = CT - AT = 13 - 1 = 12

③ Process P₃

- Arrival Time: 2

- CT = 4

- TAT = CT - AT = 4 - 2 = 2

④ Process P₄

- Arrival Time = 3

- CT = CT - AT = 8 - 3 = 5

- TAT = CT - AT = 8 - 3 = 5

$$\text{Average TAT} = \frac{\text{total TAT}}{\text{no. of processes}}$$

$$= \frac{3+12+2+5}{22}$$

$$\text{Average TAT} = 5.5$$

| | | | | | | | | |
|----|----------------|----------------|--|----------------|--|----------------|--|----|
| 3. | P ₁ | P ₂ | | P ₄ | | P ₃ | | 4. |
| | 0 | 6 | | 10 | | 12 | | 19 |

⇒ ① Process P₁

$$CT = 6$$

$$TAT = CT - \text{Arrival } T = 6 - 0 = 6$$

$$WT = TAT - \text{Burst } T = 6 - 6 = 0$$

② Process P₂

$$CT = 10$$

$$TAT = CT - \text{Arrival } T = 10 - 1 = 9$$

$$WT = TAT - \text{Burst } T = 9 - 4 = 5$$

③ Process P₃

$$CT = 19$$

$$TAT = CT - \text{Arrival } T = 19 - 2 = 17$$

$$WT = TAT - \text{Burst } T = 17 - 7 = 10$$

④ Process P₄

$$CT = 12$$

$$TAT = CT - AT = 12 - 3 = 9$$

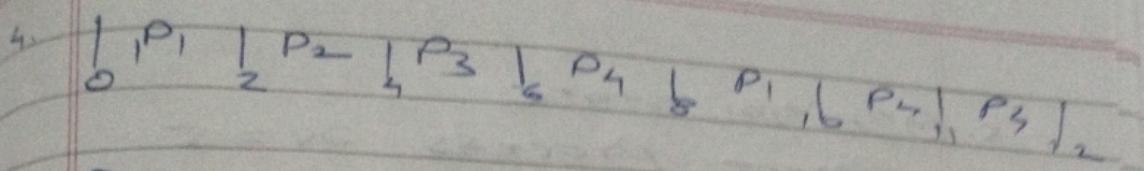
$$WT = TAT - \text{Burst } T = 9 - 2 = 7$$

Average waiting Time = $\frac{\text{Total WT}}{\text{No. of process}}$

$$= \frac{0+5+10+7}{4}$$

$$= \frac{22}{4}$$

Average waiting Time = 5.5



① Process P₁

$$CT = 10$$

$$\underline{\underline{TAT = CT - \text{Arrival Time} = 10 - 0 = 10}}$$

② Process P₂

$$CT = 11$$

$$TAT = CT - \text{Arrival Time} = 11 - 1 = 10.$$

③ Process P₃

$$CT = 6$$

$$TAT = 6 - 2 = 4$$

④ ~~CT~~ Process P₄

$$CT = 12$$

$$TAT = CT - \text{Arrival Time} = 12 - 3 = 9$$

Average Turnaround Time
 $= \frac{\text{Total turnaround time}}{\text{number of process}}$

$$= \frac{10 + 10 + 4 + 9}{4}$$

$$= \frac{33}{4}$$

$$\text{Average.} = 8.25$$

5. ① Initial state :

- Parent process $\alpha = 5$
- Child process $x = 5$ (after the fork())

② Fork call :

- The fork() system call creates a new process which is an exact copy of the parent process at the time of fork.

③ Incrementing 'x' :

- Parent process : The parent process increments its copy of ' α ' by 1.
- Child process : The child process also increments copy of x by 1.

Conclusion :

- Parent Process : The final value of α is 6.
- Child process : The final value of x is 6.