

CPU SCHEDULING CRITERIA IN OPERATING SYSTEM

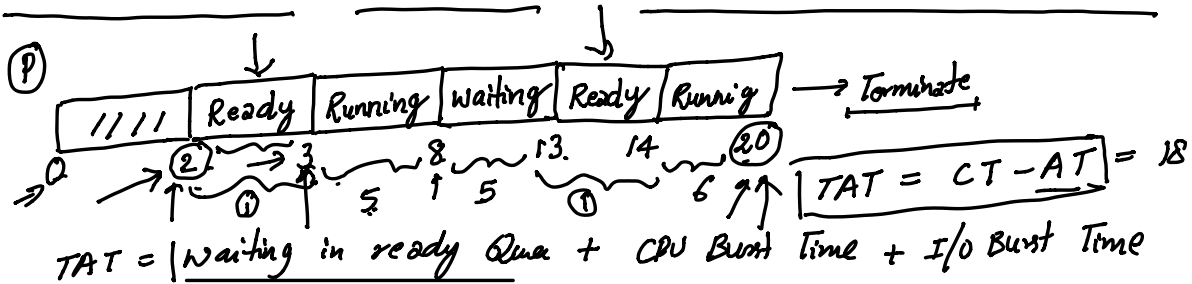
- CPU UTILIZATION** - How much is cpu busy? $\rightarrow \frac{50}{100} \times 100 = 50\%$
- THROUGHPUT** - Number of processes completed per unit time. $\rightarrow \frac{5}{100}$ proc/unit time

TURNAROUND TIME - Interval from the time of submission of a process to the time of completion. Sum of time spent in:

- ☐ Waiting to load in memory $\times 0$
 - ☐ Waiting in ready queue \checkmark
 - ☐ CPU execution - cpu burst time \checkmark
 - ☐ I/O - I/O burst time \checkmark
- $AT \rightarrow$ Process enters ready queue
 $CT \rightarrow$ Completion Time
 $CT - AT$

WAITING TIME - Total time spent by the process in ready queues

RESPONSE TIME - Time from the submission of the process of a request until first response is produced or time spent by the process in ready queue for the first time.



$$TAT = WT + \text{CPU Burst Time} + \text{I/O Burst Time} \quad WT = 2 \quad AT$$

$$WT = TAT - \text{CPU Burst Time} - \text{I/O Burst Time} \quad \text{start time (ST)} \quad ST - AT$$

$$WT = TAT - BT$$

$$18 - 16 = 2$$

$$WT = TAT - \text{Total Burst Time (I/O + CPU)}$$

$$RT = ST - AT = 1$$

$$\left[\frac{1 \rightarrow \text{no of proc}}{\text{Max}(CT) - \text{Min}(AT)} \right] \frac{5+6}{20} = \frac{11}{20} \times 100$$

$$= \frac{1}{20-2} = \frac{1}{18} \text{ proc/unit time}$$

Minimise {

$$TAT = CT - AT$$

$$WT = TAT - \text{CPU Burst Time} - \text{I/O Burst Time}$$

$$RT = ST - AT$$

Maximise {

$$\text{CPU utilization} = \frac{\text{CPU was running some process}}{\text{Total time}}$$

$$\text{Throughput} = \frac{\text{Total no of process}}{\text{Max}(CT) - \text{Min}(AT)}$$

← Schedule length ✓