East Delta University

Lab Assignment – 2 (SJF)

Name - Pranesh Chowdhury

ID – 202003112

Write down briefly about the difference between Waiting Time and Response Time?

Answer: Response time is the time spent between the ready queues and getting the CPU for the first time. But the waiting time is the total time taken by the process in the ready queue.

Shortly I can say that response time is the **first time response** to the CPU. Waiting time is the process of **waiting in the ready queue**.

Solve the following SJF problem to find out Average Waiting Time and Average Turnaround Time

Processes	Burst time (in ms)
P2	3
P3	3
P1	24

Answer:

The given Shortest-Job-First (SJF) Scheduling problem is a Non-preemptive schedule.

Gantt chart:

The process arrive P2, P3 and P1.

P2	P3	P1
0 3	6	30

First select that process which has minimum arrival time and minimum Burst time. Each of the processes is scheduled based on their burst time.

Waiting time: Waiting time is an amount of time a process has been waiting in the ready queue.

Since this Shortest-Job-First (SJF) Scheduling problem don't have arrival time. So first process (P2) start with 0 ms. After Completing P2 process with 3 ms burst time; then the P3 Process start at 3 ms. Now P3 process of waiting time is 3ms. Then P1 waiting time is sum of P2 and P3 burst time. The P1 waiting time is 6 ms (3 ms+3 ms).

Now I get the waiting time for each process,

For P2, waiting time = 0 ms

For P3, waiting time = 3 ms

For P1, waiting time = 6 ms

Average Waiting Time: Average waiting time is the sum of all processes waiting time and divide by number of process.

Average waiting time = (P2 + P3 + P1)/number of process = (0+3+6)/3 ms = 3 ms

Turnaround Time: Turnaround time is the sum of burst time and the waiting time.

For P2 turnaround time = Burst time + Waiting time = (3 + 0) ms = 3 ms

For P3 turnaround time = Burst time + Waiting time = (3 + 3) ms = 6 ms

For P1 turnaround time = Burst time + Waiting time = (24+ 6) ms = 30 ms

Average Turnaround Time: Average turnaround time is the sum all turnaround time of all processes and divide by the number of process.

Average Turnaround time = (P2+P3+P1)/Number of Process = (3 + 6 + 30)/3 ms = 13 ms