

These are examples from William Stallings Operating Systems Internal and Principles Design (7th ed). Below are the process arrival times and the service times:

Process	Arrival Time	Service Time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2

In the HRRN question,

At time = 0

Only Process A in the Queue

Priority is not required since only one process in queue

Arrival time = 0

Execution Starting time = 0

Waiting Time = 0

Service time/Execution time/ Burst time = 3

Turnaround time = 3

At time = 3

Only Process B in the Queue

Priority is not required since only one process in queue (A finished executing)

Arrival time = 2

Execution Starting time = 3

Waiting Time = 1

Service time/Execution time/ Burst time = 6

Turnaround time = 9

At time = 9

Process C, D, E in the Queue

Priority value of C =

Arrival time = 2

Execution Starting time = 3

Waiting Time = 1

Service time/Execution time/ Burst time = 6

Turnaround time = 9

the process B executes from 4-7 ms. Since process C arrived at 4ms, it has to wait 3ms. Similarly process D, arrived at 6ms and it has to wait for 1ms.

According to HRRN, ratio for C = $1 + \frac{3}{4} = 1.75$ ratio for D = $1 + \frac{1}{5} = 1.2$, therefore process C executes from 7-11ms.

Now, D has to wait for 4ms more till C completes. Similarly E waits for 3ms.

Ratio for D = $1 + \frac{4+1}{5} = 2$ Ratio for E = $1 + \frac{3}{2} = 2.5$

Therefore E executes next and D gets executed finally. Hope this clarifies.