**CS604 Assignment No.2 2020**

**Question No: 1**

Consider the following set of processes, with the CPUburst time given in milli seconds:

**Process Burst Time**

*P*1 10

*P*2 1

*P*3 2

*P*4 1

*P*5 5

The processes are arrived in the order *P*1, *P*2, *P*3, *P*4, *P*5, all at time 0.

* Draw Gantt chart showing the execution of these processes using FCFS and SJF scheduling.
* Calculate the turnaround time of each process for FCFS scheduling algorithm as per part Calculation of part **A?**
* Calculate the waiting time of each process for SJF scheduling algorithm as per calculation of Part**A**?

**Solution (A):**

|  |  |  |
| --- | --- | --- |
|  **Process** |  **Arrival time** |  CPU burst time(milliseconds) |
|  P1 |  0 |  10 |
|  P2 |  0 |  1 |
|  P3 |  0 |  2 |
|  P4 |  0 |  1 |
|  P5 |  0 |  5 |

**Gantt Chart using FCFS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **P1** | **P2** | **P3** | **P4** | **P5** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | **10** | **11** |  | **13** | **14** |  |  |  |  | **19** |

**Gantt Chart using SJF**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **P2** | **P2** |  **P3**  |  |  **P5** |  **P1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**0 1 2 4 10 20**

**Solution (B):**

**TURN AROUND TIME OF EACH PROCESS FOR FCFS SCHEDULING ALGORITHM**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Process** | **Arrival Time** **(AT)****(milliseconds)** | **CPU Burst Time** **(BT)****(milliseconds)** | **Completion Time (CT)****(milliseconds)**  | **Turn Around time****TAT = CT-AT****(milliseconds)** |
|  **P1**  |  **0** |  **10** |  **10** | **10– 0 = 10**  |
|  **P2** |  **0** |  **1** |  **11** | **11 – 0 = 11** |
|  **P3** |  **0** |  **2** |  **13** | **13 – 0 = 13** |
|  **P4** |  **0** |  **1** |  **14** | **14 – 0 = 14** |
|  **P5** |  **0** |  **5** |  **19** | **19 – 0 = 19** |

**Solution (C):**

**WAITING TIME OF EACH PROCESS FOR SJF SCHEDULING ALGORITHM**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Processes** | **Arrival Time****(AT)****(Millisecond)** | **CPU Burst Time****(BT)****(Milliseconds)** | **Completion Time****(CT)****(Milliseconds)** | **Turnaround Time****TAT=CT-AT****(milliseconds)** | **Waiting Time** **WT=TAT-BT****(milliseconds)** |
|  **P1** |  **0** |  **10** |  **19** | **19 – 0 = 19** | **19 - 10 = 9** |
|  **P2** |  **0** |  **1** |  **1** | **1 – 0 = 1** | **1 – 1 = 0** |
|  **P3** |  **0** |  **2** |  **4** | **4 – 0 = 4** | **4 – 2 = 2** |
|  **P4** |  **0** |  **1** |  **2** | **2 – 0 = 2** | **2 – 1 = 1** |
|  **P5** |  **0** |  **5** |  **9** | **9 – 0 = 9** | **9 – 5 = 4** |