**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** |