**Name :- Prateek Choudhary**

**Roll no.:- 220350320103**

**Operating System (Assignment 1)**

**Sol1:- First Come First Serve**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Process Id** | **Arrival Time** | **Burst Time** | **Completion**  **Time** | **Turn-Around Time** | **Waiting Time** | **Response Time** |
| P1 | 3 | 4 | 7 | 4 | 0 | 0 |
| P2 | 5 | 3 | 13 | 8 | 5 | 5 |
| P3 | 0 | 2 | 2 | 2 | 0 | 0 |
| P4 | 5 | 1 | 14 | 9 | 8 | 8 |
| P5 | 4 | 3 | 10 | 6 | 3 | 3 |

**# Gantt Chart:-**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **P3** |  | **P1** | **P5** | **P2** | **P4** |

**0 2 3 7 10 13 14**

**# Turn-Around Time = Waiting Time + Burst Time**

**# Waiting Time = Turn-Around Time – Burst Time**

**# Average TAT = Sum of Processes of TAT / Number of Processes**

**= (4 + 8 + 2 + 9 + 6) / 5**

**= 29 / 5**

**Avg TAT = 5.8**

**# Average Waiting Time = Sum of Processes of WT / Number of Processes**

**= (0+5+0+8+3) / 5**

**= 16 / 5**

**# Avg Waiting Time = 3.2**

**Sol2:- Shortest Job First**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Process Id** | **Arrival Time** | **Burst Time** | **Completion**  **Time** | **Turn-Around Time** | **Waiting Time** | **Response Time** |
| P1 | 3 | 1 | 7 | 4 | 3 | 3 |
| P2 | 1 | 4 | 16 | 15 | 11 | 11 |
| P3 | 4 | 2 | 9 | 5 | 3 | 3 |
| P4 | 0 | 6 | 6 | 6 | 0 | 0 |
| P5 | 2 | 3 | 12 | 10 | 7 | 7 |

**# Gantt Chart:-**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **P4** | **P1** | **P3** | **P5** | **P2** |

**0 6 7 9 12 16**

**# Turn-Around Time = Waiting Time + Burst Time**

**# Waiting Time = Turn-Around Time – Burst Time**

**# Average TAT = Sum of Processes of TAT / Number of Processes**

**= (4+15+5+6+10) / 5**

**= 40 / 5**

**Avg TAT = 8**

**# Average Waiting Time = Sum of Processes of WT / Number of Processes**

**= (3+11+3+0+7) / 5**

**= 24 / 5**

**# Avg Waiting Time = 4.8**

**Sol3:- Shortest Remaining Time First**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Process Id** | **Arrival Time** | **Burst Time** | **Completion**  **Time** | **Turn-Around Time** | **Waiting Time** | **Response Time** |
| P1 | 0 | 7 | 19 | 19 | 12 | 0 |
| P2 | 1 | 5 | 13 | 12 | 7 | 0 |
| P3 | 2 | 3 | 9 | 7 | 4 | 0 |
| P4 | 3 | 1 | 4 | 1 | 0 | 0 |
| P5 | 4 | 2 | 7 | 3 | 1 | 0 |
| P6 | 5 | 1 | 6 | 1 | 0 | 0 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **P1** | **P2** | **P3** | **P4** | **P5** | **P6** | **P5** | **P3** | **P2** | **P1** |

**# Gantt Chart:-**

**0 1 2 3 4 5 6 7 9 13 19**

**#Turn-Around Time = Waiting Time + Burst Time**

**# Waiting Time = Turn-Around Time – Burst Time**

**# Average TAT = Sum of Processes of TAT / Number of Processes**

**= (19+12+7+1+3+1) / 6**

**= 43 / 6**

**Avg TAT = 7.1**

**# Average Waiting Time = Sum of Processes of WT / Number of Processes**

**= (12+7+4+0+1+0) / 6**

**= 24/ 6**

**# Avg Waiting Time = 4**

**Sol4:- Round Robin**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Process Id** | **Arrival Time** | **Burst Time** | **Completion**  **Time** | **Turn-Around Time** | **Waiting Time** | **Response Time** |
| P1 | 0 | 5 | 13 | 13 | 8 | 0 |
| P2 | 1 | 3 | 12 | 11 | 8 | 1 |
| P3 | 2 | 1 | 5 | 3 | 2 | 2 |
| P4 | 3 | 2 | 9 | 6 | 4 | 4 |
| P5 | 4 | 3 | 14 | 10 | 7 | 5 |

**# Gantt Chart:-**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **P1** | **P2** | **P3** | **P1** | **P4** | **P5** | **P2** | **P1** | **P5** |

**0 2 4 5 7 9 11 12 13 14**

**# Turn-Around Time = Waiting Time + Burst Time**

**# Waiting Time = Turn-Around Time – Burst Time**

**# Average TAT = Sum of Processes of TAT / Number of Processes**

**= (13+11+3+6+10) / 5**

**= 43 / 5**

**Avg TAT = 8.6**

**# Average Waiting Time = Sum of Processes of WT / Number of Processes**

**= (8+8+2+4+7) / 5**

**= 29 / 5**

**# Avg Waiting Time = 5.8**