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**Department of Computer Science and Technology**

**Subject Name:** Operating System  **Subject Code: CSH206B-T**

**Topic:** Scheduling Algorithm****

**Tutorial: 5**

**Aim: To gain familiarity with concept of CPU Scheduling Algorithm**

**Course Outcome : CO3**

**Blooms Taxonomy: BT1, BT2**

**Section – A**

**Multiple Choice Question:**

1. FCFS is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ scheduling algorithm.
2. Pre-emptive b. Non Pre-emptive c. both d. none
3. SJF \_\_\_\_\_\_\_\_\_\_\_\_\_\_ scheduling algorithm.
4. Pre-emptive b. Non Pre-emptive c. both d. none
5. The real difficulty with SJF in short term scheduling is :

a. it is too good an algorithm b. Knowing the length of the next CPU request

c. it is too complex to understand d. None of these

4. Preemptive Shortest Job First scheduling is sometimes called:

a. Fast SJF scheduling b. EDF scheduling – Earliest Deadline First

c. HRRN scheduling – Highest Response Ratio Next

d. SRTN scheduling – Shortest Remaining Time Next

5. Which of the following is FALSE about SJF (Shortest Job First Scheduling)?

S1: It causes minimum average waiting time

S2: It can cause starvation

1. Only S1 b. Only S2 c. Both S1 and S2 d. Neither S1 nor S2

**Section – B**

Q1. Define the following scheduling criteria:

1. CPU utilization b) Throughput c) Turn Around Time

d) Waiting time e) Response Time

Q2. What is convoy effect?

Q3. Consider the following scenario of processes in a system:

|  |  |  |
| --- | --- | --- |
| Process | Arrival Time | Execution Time |
| P1 | 0 | 5 |
| P2 | 2 | 4 |
| P3 | 3 | 7 |
| P4 | 5 | 6 |

1. Draw the Gantt chart for the execution of the processes, showing their start time and end time, using FCFS scheduling algorithm. Calculate Turn Around time, Average Turn around Time, Waiting Time, and Average Waiting Time.
2. Draw the Gantt chart for the execution of the processes, showing their start time and end time, using SJF scheduling algorithm. Calculate Turn Around time, Average Turn around Time, Waiting Time, and Average Waiting Time.

Q4. Consider the following scenario of processes in a system:

|  |  |  |
| --- | --- | --- |
| Process | Arrival Time | Execution Time |
| P1 | 0 | 9 |
| P2 | 1 | 5 |
| P3 | 2 | 3 |
| P4 | 3 | 4 |

Draw the Gantt chart for the execution of the processes, showing their start time and end time, using FCFS, SJF, and SRTF scheduling algorithm. Calculate Turn Around time, Average Turn Around Time, Waiting Time, and Average Waiting Time.