JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2023

B.Tech-V Semester (ECM)

COURSE CODE (CREDITS):23B11EM511 (03) MAX. MARKS: 25

COURSE NAME: OPERATING SYSTEM

COURSE INSTRUCTORS: Dr. Sunil Datt Sharma MAX. TIME: 1 Hour 30 Minutes

*Note: (a)All questions are compulsory.*

*(b)Marks are indicated against each question in square brackets.*

*(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

Q1. Consider the set of 5 processes whose arrival time and burst time are given below

| Process id | Arrival Time | Burst time |
|---|---|---|
| P1 | 3 | 1 |
| P2 | 1 | 4 |
| P3 | 4 | 2 |
| P4 | 0 | 6 |
| P5 | 2 | 3 |

If the CPU scheduling policy is SJF non-preemptive, calculate the average waiting time and average turnaround time. **[05 Marks, CO-3]**

Q2. Consider the set of 5 processes whose arrival time and burst time are given below-

| Process id | Arrival Time | Burst time |
|---|---|---|
| P1 | 0 | 5 |
| P2 | 1 | 3 |
| P3 | 2 | 1 |
| P4 | 3 | 2 |
| P5 | 4 | 3 |

If the CPU scheduling policy is Round Robin with time quantum = 2 unit, calculate the average waiting time and average turnaround time. **[05 Marks, CO-3]**

Q3. What are the necessary conditions for a deadlock to occur? **[03 Marks, CO-2]**

Q4. Explain the terms used in inter process communication: shared memory and message passing. **[03 Marks, CO-2]**

Q5. Explain the importance of swapping, and its steps to manage the memory in OS.

**[03 Marks, CO-4]**

Q6. Write the difference between paging and segmentation methods of memory management.

**[03 Marks, CO-4]**

Q7. What do you mean by the terms: Mutex, critical section and Synchronization?

**[03 Marks, CO-4]**