

Code: CSCS1T5

**I M.Tech - I Semester - Special Supplementary Examinations  
March 2019**

**OPERATING SYSTEMS  
(COMPUTER SCIENCE & ENGINEERING)**

Duration: 3 hours

Max.Marks:70

Answer any FIVE questions. All questions carry equal marks

1. a) Discuss different types of operating systems. 8 M  
b) Differentiate windows and Unix. 6 M
2. a) What is thread? Discuss Various Multi Thread programming models. 7 M  
b) Draw the state diagram of a process from its creation to termination, including all transitions, and briefly elaborate every state and every transition. 7 M
3. a) Define race condition. List the requirements that a solution to critical section problem must satisfy. 6 M  
b) Explain the Readers-Writers problem and give the solution for synchronization using semaphores. 8 M

4. a) Discuss the various approaches used for recovering from a dead lock once a dead lock is detected. 7 M
- b) What is need for concurrency? How the processes are executed concurrently? What are the problems with it ? 7 M
5. a) Calculate the number of page faults for the following reference string 5 0 2 1 0 3 0 2 4 3 0 3 2 1 3 0 1 5 using  
i) FIFO            ii) Optimal page replacement  
iii) LRU algorithms with frame size as 4. 7 M
- b) Discuss the fixed partition memory management system, variable partition memory management system and dynamic partition memory management system. 7 M
6. a) List the Disk Scheduling Algorithms. Describe the FCFS disk Scheduling Algorithms. 6 M
- b) Consider the following set of processes and CPU burst times, calculate the average waiting time, average response time and average turnaround time for the algorithms FCFS, SJF, RR (time quantum=3 Milli seconds) and priority Scheduling. 8 M

Process	Burst time (Milli Seconds)	Priority
P1	5	4
P2	12	1
P3	16	3
P4	18	5
P5	2	2

7. a) Compare different file access methods. 8 M
- b) Differentiate block devices and character devices. 6 M
8. a) Briefly explain the different categories of viruses. 7 M
- b) Discuss various Intrusion detection techniques 7 M