

Code: CSCS1T5

**I M.Tech - I Semester – Regular/Supplementary Examinations –  
January - 2017**

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

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. Write about the following
  - a) Simple batch systems. 7 M
  - b) Multi Programmed batch systems. 7 M
2. a) Explain 7-state process model. 8 M
  - b) Differentiate Thread and Process? Give a suitable example. 6 M
3. a) What is a race condition? Give an example of it. 6 M
  - b) What is semaphore? Give semaphore solution to critical section problem. 8 M
4. a) What is dead lock? How to represent dead lock situation using resource allocation graphs. 10 M

b) Explain concurrency mechanism in Windows. 4 M

5. a) What is external fragmentation? Explain how it occurs in dynamic partitioning? 7 M

b) What is Virtual Memory? Explain its Hardware and Control Structures. 7 M

6. a) Find the average turnaround time and average waiting time by applying shortest Job first (Preemptive approach). 10 M

PID	Burst Time	Arrival time
P <sub>0</sub>	8	0
P <sub>1</sub>	4	1
P <sub>2</sub>	2	2
P <sub>3</sub>	9	3
P <sub>4</sub>	3	4

b) Write briefly about multi processor scheduling. 4 M

7. a) Consider an ordered disk queue with request involving tracks listed as 98, 183, 37, 122, 15, 125, 63 and 67. Apply FCFS disk scheduling algorithm to calculate total head movement. 6 M

b) Write about file organization and access methods. 8 M

8. a) Differentiate Virus, Worm and Bots. 7 M

b) Write about extended access control matrix. 7 M