[EURCS 404 / EURIT 404]

B.Tech. DEGREE EXAMINATION

CSE & IT
IV SEMESTER

OPERATING SYSTEMS

(Effective from the admitted batch 2007–08)

Time: 3 Hours **Max.Marks: 60**

Instructions: Each Unit carries 12 marks.
Answer all units choosing one question from each unit.
All parts of the unit must be answered in one place only.
Figures in the right hand margin indicate marks allotted.

UNIT-I

1. a) Discuss any 4 major functions of an operating system. 6
   b) What are the various operating system Kernal structures. 6

OR

2. a) What is a Process Control Block (PCB)? 4
   b) Explain the basic advantages of Shortest Job First (SJF) scheduling over First in First Out (FIFO) algorithms. 6

UNIT-II

3. What are Race conditions? Explain the use of semaphores to achieve synchronization in producer-consumer problem. 12

OR

4. What are Monitors? Explain the structure of a monitor and using the dining philosophers problem explain how mutual exclusion can be achieved? 12

UNIT-III

5. What is demand paging? Explain using an example the paging Mechanism and how the logical addresses are mapped to physical addresses? 12

OR

6. Discuss how LRV and FIFO page replacement algorithms can be implemented on the following reference string when the numbers of frames is 4. Also calculate the number of page faults. 12
1,0,2,2,1,7,6,7,0,1,2,0,3,0,4,5,1,5,2,4,5,6,7,6,7,2,4,2,7,3,3,2,3.

UNIT-IV

7. a) What is a wait for graph? Explain how it can be used for deadlock prevention? 6
   b) Explain the various methods of deadlock recovery. 6

OR

8. a) Explain the structure of Kernel I/O subsystem. 6
   b) Explain the various file access methods. 6

UNIT-V

9. a) Explain any 3 free space management techniques. 6
   b) Explain the hierarchial directory implementation of UNIX operating system. 6

OR

10. a) Explain the SCAN disk scheduling algorithm and its advantages and disadvantages. 6
    b) Explain the protection mechanism used in UNIX and windows operating systems. 6

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