

Operating Systems
(IT-357, Dec 05)

Note: Attempt five questions selecting at least one question from each unit.

UNIT-1

1. a) With the help of an example. Explain the purpose of system calls.
b) What are the different states a process can be in at a given instance of time?
How do these states change?
c) Define and explain semaphore. What is its role in process synchronization?
2. a) With the help of an example, Explain Race condition.
b) Give the solution to n-process critical section that satisfies all the desired conditions.

UNIT-2

3. a) State and explain the necessary conditions for deadlock.
b) Differentiate between preemptive and non-preemptive scheduling.
c) Compare FIFO and LRU page replacement techniques.
4. a) Describe the working of Banker's algorithm for deadlock avoidance.
b) Compare Segmentation and Paging techniques.

UNIT-3

5. a) Define and explain dedicated, shared and virtual devices.
b) Write a note on Buffering.
6. Write short notes on the following topics:-
 - a) Device allocation considerations
 - b) Free disk space management.

UNIT-4

7. a) Explain the characteristics of distributed systems.
b) Explain how memory is managed in UNIX operating system.
8. a) Explain the characteristics of Network Operating System.
b) Explain the CPU scheduling for UNIX operating system.