

1079  
B.E. (Computer Science and Engineering)  
Fourth Semester  
CS-403: Operating System

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. a) What do you mean by Best Fit?  
b) List any four process management system calls.  
c) Differentiate between field and record.  
d) What is the use of Fork system calls?  
e) List any two components of a Linux System.  
f) Define Thrashing.  
g) Write examples of Microkernel.  
h) Define User mode and Kernel mode.  
i) Define Seek time.  
j) What is Starvation in deadlock?

(10X1)

UNIT I

- II. a) Write the operating system services convenient to the users.  
b) What are system calls in Operating System? Explain in detail with its types. (5,5)

- III. a) What is meant by thread? Compare user threads and kernel threads.  
b) Explain the Banker's algorithm for deadlock avoidance. (5,5)

- IV. Calculate average waiting time and average turnaround time for the following algorithms.
- FCFS
  - Preemptive SJF (SRTF)
  - Round robin (quantum = 1ms)

Process	Arrival Time	Burst Time
P1	0	7
P2	1	3
P3	2	8
P4	3	5

(10)

UNIT II

- V. a) What do you mean by Segmentation? If there are 64 segments and maximum segment size in 512 words then what is the length of logical address?  
b) Elucidate FIFO, Optimal and LRU page replacement techniques for the following:  
2, 3, 2, 1, 5, 2, 4, 5, 3, 2, 5, 2

(5,5)

P.T.O.

(2)

VI. a) What are the types of file access methods? List the methods used to manage the free spaces.

b) Compare Windows and Linux Operating Systems.

(5,5)

VII. Consider a disk queue with requests for I/O to blocks on cylinders:

95, 180, 34, 119, 11, 123, 62, 64

with the Read-write head initially at the track 50 and the tail track being at 199. Determine the number of head movements to move from one request to the next for each of the following disk scheduling algorithms.

i. FCFS

ii. SCAN

iii. C-SCAN

(10)

x-x-x