Please write your

END TERM EXAMINATION

SIXTH SEMESTER [B.TECH./M.TECH.] MAY-JUNE-2013

Paper Code: IT310 **Subject: Operating System**

Time : 3 Hours **Maximum Marks :60**

Note: Attempt any five questions including Q.no.1 which is compulsory.

Q1. Explain in brief (3*4=12)

a. Explain the Multiprogramming and Multitasking operating system
b. Define the Term "Overlay", with an example.
c. How the deadlock can be prevented, using circular wait condition?
d. List the differences between Deadlock and Starvation with suitable example.

Q2.

a. Explain the Optimal page replacement technique and LRU techniques in detail. (6)
b. What is paged memory management technique? Discuss its various facts in detail. (6)

Q 3.

a. Explain Critical Section problem and its solution using Dekker's Algorithm. (6)
b. Discuss Dining philosopher problem and give solution using semaphore. (6)

Q4.

a. Discuss the advantages and disadvantages of Indexed file allocation and linked file allocation method. (6)
b. Explain the system call execution process flow chart in detail. (6)

Q5. Consider the following snapshot of a system:

Process	*Allocation*	*Max*	*Available*
	A B C D	*A B C D*	*A B C D*
P0	0 0 1 2	0 0 1 2	1 5 2 0
P1	1 0 0 0	1 7 5 0	
P2	1 3 5 4	2 3 5 6	
P3	0 6 3 2	0 6 5 2	
P4	0 0 1 4	0 6 5 6	

Answer the following questions using the banker's algorithm:

a. What is the content of the matrix *Need*? Is the system in a safe state? (3)

b. If a request from process P1 arrives for (0, 4, 2, 0), can the request be granted immediately? (9)

P.T.O.

Q6. Suppose that a disk drive has 5000 cylinders, numbered 0 to 999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order, is

86, 470, 913, 774, 948, 509, 22, 750, 130

Starting from the current head position, what is the total distance ((in cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk scheduling (6+6=12)

b. SSTF

c. SCAN

Q7. Consider the following set of processes, with the length of the CPU-burst time given in milliseconds: (6+6=12)

	Process	Burst Time	Priority
1.	*P1*	10	3
2.	*P2*	1	1
3.	*P3*	2	3
4.	*P4*	1	4
5.	*P5*	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time 0.

a. Draw four Gantt charts illustrating the execution of these processes using FCFS,SJF,A non preemptive priority (a smaller priority number implies a higher priority),
b. What is the waiting time of each process for each of the scheduling algorithms in Part a?

Q8. Write short Notes any any two. (2*6=12)

a. Thrashing
b. Multiplexing and Buffering
c. PCB structure

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