LAST MOMENT TUITIONS

Operating System

May 18

Computer Engineering (Semester 4)

Total marks: 80
Total time: 3 Hours

INSTRUCTIONS
(1) Question 1 is compulsory.
*(2) Attempt any **three** from the remaining questions.*
(3) Draw neat diagrams wherever necessary.

Attempt any **FOUR**

1.a. Explain the difference between monolithic kernel and micro kernel. (5 marks)

1.b. What is mutual exclusion? Explain its significance. (5 marks)

1.c. Discuss various scheduling criteria. (5 marks)

1.d. Explain various file allocation techniques. (5 marks)

1.e. Explain the disk cache. (5 marks)

2.a. What is operating system? Explain various functions and objectives. (10 marks)

b) What is deadlock? Explain the necessary and sufficient condition for deadlock. What is the difference between deadlock avoidance and prevention? (10 marks)

3.a. Explain the following in brief:

(i) Process synchronization (ii) Inter-Process Communication (10 marks)

3.b. Consider the following set of processes, assuming all are arriving at time 0.

Process	Burst Time	Priority
P1	2	2
P2	1	1
P3	8	4
P4	4	5
P5	5	3

Calculate average waiting time and turn-around time for FCFS, SJF (Non-Pre-emptive), Priority and RR (Quantum=2). (10 marks)

4.a. What is paging? Explain LRU, FIFO and Optimal page replacement policy for the following string. Page frame size is 4.

1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2 (10 marks)

4.b. Explain banker's algorithms in detail. (10 marks)

5.a. What is system call? Explain any five system call in details. (10 marks)

5.b. Explain paging hardware with TLB along with protection bits in page table. (10 marks)

Write short notes on (any two)

6.a. Linux Virtual file system (10 marks)

6.b. Process control block (10 marks)

6.c. Readers and writer problem using Semaphore (10 marks)

6.d. Explain disk scheduling algorithms (10 marks)