

B.Tech. Degree VI Semester Examination, April 2009**CS/IT 603 OPERATING SYSTEMS**
(2006 Scheme)

Time: 3 Hours

Maximum Marks: 100

PART – A(Answer **ALL** Questions)
(All questions carry **EQUAL** marks)

(8 x 5 = 40)

- I
- What is race condition? What are the four necessary conditions to avoid race conditions.
 - Explain the monolithic structure of operating system.
 - Explain memory management using bit maps.
 - What do you mean by associative memory.
 - Explain DMA
 - Briefly explain
 - Clocks
 - Terminals
 - What is a deadlock? What are the necessary conditions for a deadlock to occur?
 - Explain two phase locking.

PART – B(All questions carry **EQUAL** marks)

(4 x 15 = 60)

- II
- What are semaphores? How can you solve the producer – consumer problems using semaphores. (10)
 - Explain Peterson's solution for achieving mutual exclusion. (5)

OR

- III
- All 5 processes arrive at time 0, in the order given, with the length of the CPU – burst time given in milliseconds.

Process	Burst Time
P ₁	10
P ₂	29
P ₃	3
P ₄	7
P ₅	12

Consider FCFS, SJF and Round Robin scheduling (quantum = 10m) scheduling algorithms for this set of processes. Calculate the waiting time and find out which algorithm would give the minimum average waiting time. (15)

- IV
- Explain virtual memory scheme. Explain the address translation between virtual and physical addresses. (15)

OR

- V
- What is page replacement algorithm? Explain any four-page replacement algorithm with example. (15)

- VI
- What are the main disk arm scheduling algorithms? Explain with example. (15)

OR

- VII
- Explain the various file allocation methods. (10)
 - Briefly explain device controllers. (5)

- VIII
- What do you mean by safe and unsafe state in deadlock avoidance algorithm? Explain banker's algorithm for single and multiple resources. (15)

OR

- IX
- Explain the deadlock detection algorithm for single resource and multiple resources. (15)

