Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
M.C.A -IIIrd SEMESTER–EXAMINATION – MAY- 2012

Subject code: 630004   **Date: 26/05/2012**
Subject Name: Operating Systems (OS)
Time: 02:30 pm – 05:00 pm   **Total Marks: 70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Describe the following terms with suitable examples (1) Starvation (2) Data Coherence (3) Mutex (4) Fragmentation (5) Relocation (6) Monitor (7) Instruction Cycle	**07**
	(b)	What is deadlock? State necessary conditions for deadlock to occur. Explain banker's algorithm for deadlock avoidance.	**07**
Q.2	**(a)**	What is process? Explain the process state transition diagram with suspend state.	**07**
	(b)	Describe inter process communication using message passing? Give a solution to the Producer / Consumer problem using message passing.	**07**
		OR	
	(b)	What is dynamic partitioning? Explain first-fit, best-fit, next-fit placement policies and buddy system using suitable examples.	**07**
Q.3	**(a)**	State producer / consumer problem. Give a solution to the bounded-buffer using counting semaphore.	**04**
	(b)	What is paging? Explain the logical to physical address translation mechanism with example.	**05**
	(c)	Define virtual memory. Compare LRU, FIFO and Clock page replacement policies with suitable example.	**05**
		OR	
Q.3	**(a)**	What is semaphore? Write down semWait and semSignal procedures for Binary semaphore.	**04**
	(b)	What is segmentation? How it differs with paging? Explain address translation in segmentation with paging.	**05**
	(c)	Explain the resident set management policies for virtual memory. Explain how it affects the degree of multiprogramming.	**05**
Q.4	**(a)**	What is scheduling? Explain various short term scheduling criteria.	**04**
	(b)	What is preemption? Explain various preemptive scheduling policies.	**05**
	(c)	What is disk scheduling? Explain any two disk scheduling policies.	**05**
		OR	
Q.4	**(a)**	Explain the round-robin scheduling policy with example.	**04**
	(b)	When and how the short-term, medium-term and long-term scheduling	**05**

		policies are applied? Draw the queuing diagram for scheduling.	
	(c)	Write a note on dead-line scheduling.	**05**
Q.5	**(a)**	Explain UNIX SVR4 i/o.	**04**
	(b)	Explain various file allocation methods on secondary storage.	**05**
	(c)	What is Security? Explain various threat consequences and associated thread attacks.	**05**
		OR	
Q.5	**(a)**	Write a note on RAID.	**04**
	(b)	What is cluster? Discuss benefits and limitations of various clustering methods.	**05**
	(c)	Write a detailed note on remote procedure call (RPC)	**05**

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