Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA (INTEGRATED) - SEMESTER–IV • EXAMINATION – SUMMER 2016

Subject Code: 4440603 **Date: 07/05/2016**

Subject Name: Operating Systems (OS)

Time:10.30 am - 01.00 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)**	Explain the following terms: (Any Seven) 1. Starvation 2. Micro Kernel 3. Dispatcher 4. Access time 5. Fragmentation 6. RR scheduling 7. Race Condition 8. Multiprocessing	**07**
	(b)	Explain different classes of Client Server architecture. What do you mean by three tier Client Server architecture?	**07**
Q.2	**(a)**	Discuss Dining Philosophers Problem and its solution using semaphore.	**07**
	(b)	What is memory partitioning? Discuss its types, with problems and solutions.	**07**
		OR	
	(b)	What is Deadlock? Explain Deadlock Prevention in details.	**07**
Q.3	**(a)**	Define Operating Systems. What are the objectives and functions of OS?	**07**
	(b)	Briefly explain PCB with neat diagram.	**07**
		OR	
Q.3	**(a)**	What is semaphore? Give and explain the algorithm of producer/consumer problem with bounded using general semaphore.	**07**
	(b)	What is TLB? Explain the purpose of TLB in detail.	**07**
Q.4	**(a)**	What is virtual paging? Explain the need of Inverted Page Table for virtual paging mechanism.	**07**
	(b)	Draw seven state Process State Transition diagram. Explain in detail.	**07**
		OR	
Q.4	**(a)**	Give brief description on Types of Scheduling Algorithms.	**07**
	(b)	What is Monitor? Explain the solution to the Bounded-Buffer Producer/Consumer problem using a Monitor.	**07**
Q.5	**(a)**	What is Secondary Storage? Explain the File Allocation Methods in detail.	**07**
	(b)	Explain the file and directory management of UNIX.	**07**
		OR	
Q.5	**(a)**	Briefly explain the different RAID levels. Support your illustrations with diagram.	**07**
	(b)	What is segmentation? How it differs with paging? Explain address translation in segmentation.	**07**

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