Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–III • EXAMINATION – WINTER • 2015

Subject Code: 630004 **Date: 31-12-2015**

Subject Name: Operating System

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 memory management requirements. What is memory partitioning?	**07**
	(b)	Explain the following terms : 1) Thrashing 2) Frame 3) Critical Section 4) Dispatcher 5) Page Fault 6) Mutex 7) PSW	**07**
Q.2	**(a)**	List the I/O Communication techniques and explain any one in detail.	**07**
	(b)	What is a resident set? Explain fixed-allocation and variable-allocation replacement policy and replacement scope with reference to virtual memory.	**07**
		OR	
	(b)	Explain Readers Writers problem, its variations and one possible solution.	**07**
Q.3	**(a)**	Explain the seven state process model with state transitions.	**07**
	(b)	What is mutual exclusion? What are the requirements of mutual exclusion? What is a Semaphore? Explain the possible operations with Semaphores.	**07**
		OR	
Q.3	**(a)**	What do you mean by short-term scheduling? Explain any three Short-Term Scheduling Algorithms.	**07**
	(b)	What is ULT and KLT? Discuss the advantages and disadvantages of both.	**07**
Q.4	**(a)**	What is meant by File Allocation Method? Explain any three.	**07**
	(b)	Explain seek time, operational latency and transfer time with reference to Disk. Explain any two Disk Scheduling policies.	**07**
		OR	
Q.4	**(a)**	1) What is Middleware?	**03**
		2) Explain RPC in detail.	**04**
	(b)	Define the term deadlock. Explain the necessary and sufficient conditions for deadlock. How can deadlock be prevented?	**07**
Q.5	**(a)**	What are the characteristics of RAID? Explain RAID Level 0, RAID Level 1 & RAID Level 2.	**07**
	(b)	What is meant by thread scheduling? Briefly discuss the general approaches for thread scheduling.	**07**
		OR	
Q.5	**(a)**	What is Client Server Computing? Explain different classes of client server computing.	**07**
	(b)	Why is File organization important? Explain any three methods of file organization.	**07**

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