Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012

Subject code: 163101 **Date: 08/01/2013**

Subject Name: Operating System Design

Time: 02.30 pm - 05.00 pm **Total Marks: 70**

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the block diagram UNIX system kernel.	**07**
	(b)	(i) Explain the high-level layered architecture of UNIX systems.	**03**
		(ii) Explain the Unix File system.	**04**
Q.2	**(a)**	(i) Explain buffer header.	**03**
		(ii) What are the fields stored in disk inodes? What fields contains in in-core copy of inode?	**04**
	(b)	Describe the two scenario of getblk algorithm allocate a buffer for a disk block.	**07**
		OR	
	(b)	Explain the algorithm ialloc for assigning new inodes.	**07**
Q.3	**(a)**	Explain the algorithm for Reading a File.	**07**
	(b)	Explain link and unlink system calls. Explain race condition during unlink system call.	**07**
		OR	
Q.3	**(a)**	Explain the algorithm for Creating a File.	**07**
	(b)	Explain Mounting and Unmounting file systems.	**07**
Q.4	**(a)**	Draw and explain the complete Process State Transition Diagram.	**07**
	(b)	Explain Context of a Process in detail.	**07**
		OR	
Q.4	**(a)**	Explain the working of sleep system call.	**07**
Q.4	**(b)**	Describe briefly all the operations performed for manipulating regions.	**07**
Q.5	**(a)**	Explain the algorithm for fork. What information inherited by child from parent process?	**07**
	(b)	Give the classification of signals. Explain the handling of signals by kernel.	**07**
		OR	
Q.5	**(a)**	Write the algorithm for exec. Describe the logical format of an executable file.	**07**
	(b)	Explain Process Scheduling in UNIX system.	**07**

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