Seat No.:	
No	

Enrolment

GUJARAT TECHNOLOGICAL UNIVERSITY BE – SEMESTER – VI EXAMINATION – WINTER 2015

S	bubject	Code:163101 Date:11/12/ 2015	
S T I	Subject Time:2:	Name: Operating System Design 30pm to 5:00pm Total Marks: 70	
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Write down different services provided by UNIX Kernel and UNIX File System characteristics.	07
	(b)	Define kernel and explain the block diagram of system kernel.	07
Q.2	(a) (b)	 Explain boot block and super block. Enlist different fields stored in process table and u-area. Which are the extra fields stored in an in-core inode other than disk inode? Why 	02 05 07
	(0)	in-core inode have a filed called inode number? OR	07
	(b)	Write and explain <i>ialloc()</i> algorithm.	07
Q.3	(a) (b)	Explain <i>namei()</i> algorithm for conversion of path name to an inode. List out all Scenarios the kernel may follow in <i>getblk()</i> algorithm to allocate a buffer for a disk block. Explain any two scenarios in detail.	07 07
Q.3	(a) (b)	 OR Explain how disk blocks are allocated in UNIX with appropriate example. 1. Explain buffer header. 2. What are the fields stored in disk inodes? What fields contains in in-core copy of inode? 	07 03 04
Q.4	(a) (b)	Explain process States and Transitions with diagram. What is Shell? Explain System Boot and Init process. OR	07 07
Q.4	(a) (b)	Explain with an example how an inode is assigned to new file. Explain how UNIX kernel handles interrupts. Also explain <i>inthand()</i> algorithm for the same.	07 07
Q.5	(a) (b)	What is Signals? Explain the handling of Signals by kernel. What is Context? Explain Process executing in kernel mode. OR	07 07
Q.5	(a)	Give Classification of Signals. How does kernel handle signals in UNIX Operating	07
	(b)	Explain the process scheduling algorithm.	07
