## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER-VI • EXAMINATION – WINTER 2013

Su Su Tir	bject bject ne: ()	Code: 163101Date: 09-12-2013Name: Operating System DesignTotal Marks: 70	
Inst	tructio 1. 2. 3.	ons: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a) (b)	<ul><li>(i) Define Operating System. What are the services of Operating System?</li><li>(ii) Explain Interrupt and Exception.</li><li>What is Kernel? Explain Block Diagram of System Kernel.</li></ul>	04 03 07
Q.2	(a) (b)	Draw Complete Process State Transition Diagram and Explain. Describe Structure of Disk Inode? What is the use of Inode. Explain Inode in detail.	07 07
		OR	
	(b)	<ul><li>(i) Explain File System Structure.</li><li>(ii) Write Steps for Context Switch.</li></ul>	04 03
Q.3	(a) (b)	Explain Read() System call. List out all Scenarios the kernel may follow in getblk algorithm to allocate a buffer for a disk block. Explain any two scenario in detail.	07 07
Q.3	(a) (b)	Explain Create() System call. Explain Algorithm bmap for Conversion of Byte offset to block number in file system. Give proper example.	07 07
Q.4	(a)	Write syntax and purpose of mount() System call. Which are the entries, mount table Contains? Discuss two cases for crossing mount points in file path names.	07
	<b>(b</b> )	Explain unlink() system call. When does Race Condition exist? Explain with example.	07
		OR	
Q.4	(a)	Write syntax and use of pipe system call. Explain Unnamed Pipe System call with example.	07
	(b)	What is Region? Enlist all operations that manipulate Regions. Explain Attaching Region and Loading Region with example.	07
Q.5	(a) (b)	Give Classification of Signals. How does kernel handle signals in OS? What is Shell? Explain System Boot and Init process. OR	07 07
Q.5	(a) (b)	Explain Process Scheduling in UNIX System. Explain fork() System call.	07 07

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