Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 163101 **Date: 25/10/2016**

Subject Name: Operating System Design

Time: 10:30 AM to 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)**	List and explain the five scenarios in getblk() algorithm.	**07**
	(b)	i) Why buffer cache is provided between block devices and file sub system?	**03**
		ii) Write advantages and disadvantages of buffer cache.	**04**
Q.2	**(a)**	Give the reasons for popularity of UNIX systems.	**07**
	(b)	Define inode. Explain the fields contained in disk inodes.	**07**
		OR	
	(b)	Write a C Program to create a file with hole of size 1000 bytes.	**07**
Q.3	**(a)**	List four cases of reading and writing a pipe. Explain any two in detail.	**07**
	(b)	Write a C program that prints the owner, file type, file size and access time of files supplied as argument.	**07**
		OR	
Q.3	**(a)**	Explain fork() system call along with the steps kernel does to execute it.	**07**
	(b)	Explain how checking and handling of signals in unix process is done with the help of state transition diagram.	**07**
Q.4	**(a)**	Draw and explain the block diagram of UNIX system kernel.	**07**
	(b)	Draw and explain the complete process state transition diagram.	**07**
		OR	
Q.4	**(a)**	Explain bread() and breada() algorithms.	**07**
	(b)	Write and explain bmap() algorithm.	**07**
Q.5	**(a)**	Explain sleep() algorithm.	**07**
	(b)	List signals classification in UNIX .	**07**
		OR	
Q.5	**(a)**	What is Shell? Explain System Boot and Init process.	**07**
	(b)	Give the use of following directories of UNIX. 1) /etc 2) /bin 3) /dev 4) /usr	**07**

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