Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–III • EXAMINATION – SUMMER • 2014

Subject Code: 735202 Date: 03-06-2014

Subject Name: RTOS, Kernels and Device Drivers

Time: 02:30 pm - 05:00 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)**	Write a short note on fundamentals of Embedded System Architecture.	**07**
	(b)	Explain the steps in building a new kernel from source code.	**07**
Q.2	**(a)**	What are system calls? Explain how system calls acts as interface between kernel space and user space.	**07**
	(b)	Explain the significance of Virtual File System (VFS) manager in file handling.	**07**
		OR	
	(b)	Write a short note on Interrupt Management in a typical OS.	**07**
Q.3	**(a)**	Explain the steps in building a pseudo character driver with focus on suitable API.	**07**
	(b)	Describe various data transfer mechanisms available in kernel space.	**07**
		OR	
Q.3	**(a)**	Write a short note on buddy allocation and slab allocation methods used for memory management in kernel space.	**07**
	(b)	Explain the significance of power management in design of device drivers.	**07**
Q.4	**(a)**	Differentiate between Real Time Operating System and General Purpose Operating System.	**07**
	(b)	Explain various latency requirements of a RTOS.	**07**
		OR	
Q.4	**(a)**	What is scheduling jitter? Explain the calculation of scheduling jitter with an example from a typical RTOS.	**07**
	(b)	Explain the architecture of real time patched Linux.	**07**
Q.5	**(a)**	Explain various Inter Task Communication methods in a RTOS.	**07**
	(b)	Write a short note on periodic, aperioidc tasks in a RTOS.	**07**
		OR	
Q.5	**(a)**	Differentiate between periodic mode and one shot mode timers and explain their role in periodic tasks.	**07**
	(b)	Write a short note on task management in RTOS with suitable API from any RTOS.	**07**

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