Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– I (New course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 2715402 **Date:12/05/2015**

Subject Name: Real Time Operating System Fundamentals

Time: 10:30 am to 1:00 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)**	Why operating system is needed in real time system?	**07**
	(b)	How concurrency is achieved in real time system?	**07**
Q.2	**(a)**	What are the services offered by real time kernel?	**07**
	(b)	Which features must be provided by real time operating system/	**07**
		OR	
	(b)	Explain kernel space and user space in detail.	**07**
Q.3	**(a)**	Justify the statement: ñNumber of processes are executed in parallel on uniprocessor systemò	**07**
	(b)	Explain cooperative multitasking in detail	**07**
		OR	
Q.3	**(a)**	Explain role of process control box in detail.	**07**
	(b)	Justify the statement: ñFor a real time system non-preemptive scheduling is better than pre-emptive scheduling.	**07**
Q.4	**(a)**	Explain Waiting time, Turnaround time, response time and latency for real time tasks	**07**
	(b)	Explain difference between shortest job first and earliest deadline first.	**07**
		OR	
Q.4	**(a)**	Compare Earliest deadline first and rate monotonic scheduling algorithm.	**07**
	(b)	Explain priority inversion problem and explain priority ceiling protocol.	**07**
Q.5	**(a)**	How shared data creates problem in concurrent execution model. How mutex can be used to solve share data problem?	**07**
	(b)	Explain counting semaphore with suitable example.	**07**
		OR	
Q.5	**(a)**	How mailbox communication works in RTOS?	**07**
	(b)	Which parameters one should take care of while selecting real time operating system?	**07**

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