Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – III • EXAMINATION – WINTER • 2013

Subject code: 730203 **Date: 28-11-2013**

Subject Name: Real Time Systems

Time: 10.30 am – 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)**	What are characteristics of any real time systems?	**07**
	(b)	Define following terms (i) Release time (ii)Phase (iii) Response time (iv) Relative deadline (v) Period (vi) Execution time (vii) Sporadic task	**07**
Q.2	**(a)**	Explain how clock driven and priority driven scheduling approaches are differing from each other ?	**07**
	(b)	Differentiate hard and soft real time system. Give one example of real life in each and justify why they are hard or soft RTS	**07**
		OR	
	(b)	Discuss any seven selection criteria for real time kernels.	**07**
Q.3	**(a)**	Discuss about non-optimality of EDF algorithm with suitable example.	**07**
	(b)	Discuss any real time application of your choice in detail.	**07**
		OR	
Q.3	**(a)**	Explain PCP with example.	**07**
	(b)	Justify the statement with suitable example. No nonpreemptive priority driven algorithm is optimal when job have arbitrary.	**07**
Q.4	**(a)**	A system consist of two periodic task. T1=(2,5) T2=(4,7) (i) What is the total utilization of the system (ii) Construct RM schedule and Label any missed deadlines.	**07**
	(b)	A system consist of two periodic task. T1=(2,5) T2=(4,7) (i) What is the total utilization of the system (ii) Construct EDF schedule and Label any missed deadlines.	**07**
		OR	
Q.4	**(a)**	Explain RMA and test whether the following periodic real time task are schedulable under RMA on uni-processor T1=(e1=20, p1=200), T2=(e2=30, p2=150) , T3=(e3=90, p3=200)	**07**
	(b)	Explain concurrency control in real time database	**07**
Q.5	**(a)**	Explain RT Linux.	**07**
	(b)	Explain Multiprocessor task allocation algorithms	**07**
		OR	
Q.5	**(a)**	What do you mean by jitter associated with periodic task. ? How are these jitters caused ?	**07**
	(b)	Explain priority inversion with example	**07**

****