Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 710105N **Date:16/05/2015**

Subject Name: Real Time Computing

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)**	Define following terms with respect to real time system: (i) Blocking Time (ii) Slack Time (iii) Release Time (iv)Relative Deadline (v) Absolute Deadline (vi) Phase (vii) Period	**07**
	(b)	Draw and explain each part of Non-Von-Neumann architecture in details?	**07**
Q.2	**(a)**	What do you mean by performance enhancing? Which parameter to be consider for enhancing performance. Explain each parameter in details?	**07**
	(b)	What do you mean by real time system? Explain its characteristics.	**07**
		OR	
	(b)	Discuss any real time application of your choice in detail with block diagram.	**07**
Q.3	**(a)**	What is the key deign activity to be performed during software system design? Compare procedural-oriented design with object-oriented design?	**07**
	(b)	What are the basic properties of any language which is called object-oriented language explain with example?	**07**
		OR	
Q.3	**(a)**	Compare Assembly language, Procedural language and object-Oriented language with example?	**07**
	(b)	What is the Rate Monotonic Algorithm? Explain necessary and sufficient condition for given set of tasks with example, check whether it is schedulable or not under RMA.	**07**
Q.4	**(a)**	Compare Amdahlôs law with Gustafsonôs law in detail.	**07**
	(b)	What is queuing theory? Explain the application of queuing theory in real time computing.	**07**
		OR	
Q.4	**(a)**	What is fault-tolerance? Explain its type and what is the possible structure for performing fault-tolerance?	**07**
	(b)	What is requirement engineering process? Explain its types in details.	**07**
Q.5	**(a)**	What do you mean by requirement specification of real time system? Explain limitation of formal method in software specification.	**07**
	(b)	Explain the features of Real Time Operating System how it is differ from traditional OS?	**07**
		OR	
Q.5	**(a)**	How basic priority ceiling protocol is adapted for system having multiple unit resources? Write scheduling rule, priority inheritance rule and allocation rule of priority for the same.	**07**
	(b)	Size of the project is 30,000 LOC. Calculate the effort, development time, and productivity of the project by assuming that project schedule is not tight and software developer team has average experience by using basic COCOMO model (a=3, b=1.12, c=2.5 and d=0.35).	**07**

****