GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (Old) EXAMINATION – WINTER 2019

Subject Code: 171005   **Date: 23/11/2019**

Subject Name: Embedded Systems

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)**	Which are the basic services offered by RTOS for the embedded system design?	**07**
	(b)	List the difference between RISC and CISC architectures.	**07**
Q.2	**(a)**	Draw and discuss the basic block diagram of architectural model of ARM controller which you have studied.	**07**
	(b)	What is Thumb instruction set and give it's merits and demerits.	**07**
		OR	
	(b)	Write short notes on PCI and ISA buses.	**07**
Q.3	**(a)**	Why do the scheduling and synchronization required in any OS? Explain any one scheduling technique.	**07**
	(b)	What are processes, tasks and threads? Explain with suitable example.	**07**
		OR	
Q.3	**(a)**	Describe the functionality of the following instructions: (1) LDMIA, (2) MVN, (3) ASR	**07**
	(b)	Write an assembly program to multiply two 16-bit numbers and store the result in memory location defined as ROSE onwards.	**07**
Q.4	**(a)**	What is load/ store mechanism in ARM processors? Also explain the stack related operations.	**07**
	(b)	What is watch dog timer? What are it's uses in embedded system?	**07**
		OR	
Q.4	**(a)**	Describe the USB protocols and CAN protocols in detail.	**07**
	(b)	Define Embedded System, Linux Embedded System and Real time Embedded System.	**07**
Q.5	**(a)**	What do you mean by semaphore? What are the semaphore operations?	**07**
	(b)	List different addressing modes of Arm processor you studied also give some suitable example.	**07**
		OR	
Q.5	**(a)**	What is the need of device drives and types of device drivers? What is the role of device manager?	**07**
	(b)	What are the deadlocks and sockets? Explain in detail.	**07**

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