Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 171005 **Date: 29/04/2017**

Subject Name: Embedded Systems (Department Elective - I)

Time: 02:30 PM to 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)**	Describe the advantages and disadvantages of CISC and RISC architectures.	**07**
	(b)	Answer the following questions. 1) Explain the classification of Embedded Systems with examples. 2) Mention the differences between Hard and Soft Real Time systems.	**07**
Q.2	**(a)**	Explain following instructions. (1) SWI (2) UMAL r4,r3,r2,r1 (3) BIC r0,r1,r2 (4) ADDEQ r0,r1,r2	**07**
	(b)	Answer the following questions. 1) What do you mean by Interrupt Latency? How FIQ results in to faster interrupt request? 2) Explain the benefits of conditional execution of ARM instructions.	**07**
		OR	
	(b)	1) With the help of CPSR register, describe the operating modes of ARM7 CPU. 2) Discuss the ARM Development tools required for system design.	**07**
Q.3	**(a)**	Explain any two serial bus communication protocols widely used in Embedded System design.	**07**
	(b)	Describe technical features associated with ZigBee and Bluetooth wireless communication protocols.	**07**
		OR	
Q.3	**(a)**	Describe the features available with Watch Dog Timer along with its requirements in Embedded system design.	**07**
	(b)	How can you use parallel ports to interface Keyboard and LCD with a microcontroller?	**07**
Q.4	**(a)**	What is a Scheduler? Explain two scheduling policies.	**07**
	(b)	Explain task switching mechanism with the help of Task Control block (TCB) contents.	**07**
		OR	
Q.4	**(a)**	What do you mean by a ‘state’ of a task in multitasking environment? Describe various states in which a task can remain in multi tasking environment.	**07**
Q.4	**(b)**	Describe the use and requirement of a Semaphore to provide mutual	**07**

exclusion for sharing the access of a device.

Q.5	**(a)**	Describe the Timer and Event management functions provided by RTOS.	**07**
	(b)	What do you understand by Inter Process Communication (IPC)? Describe the Mail box and Message queue functions for IPC.	**07**

OR

Q.5	**(a)**	Explain the functions associated with Sockets and Remote Procedure Call.	**07**
	(b)	What is the significance of a device driver? Describe the information essentially required during writing a device driver?	**07**

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