Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014

Subject code: 1722906 **Date: 23-06-2014**

Subject Name: Embedded and Real Time Systems

Time: 02:30 pm - 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)**	(1) Write a brief note on PLD.	**03**
		(2) Explain An embedded system with example.	**04**
	(b)	Enlist and explain common characteristic of an embedded system with suitable Example.	**07**
Q.2	**(a)**	(1) Explain RAM allocation and bit allocation of PSW in the 8051 Microcontroller. (2) Show the status of the CY, AC and P Flags after the addition of 38H and 2FH in the following instructions. MOV A, Í 38H ADD A , Í 2FH (3) Explain in brief TCON Function Register.	**07**
	(b)	Two data bytes are stored at memory location C010H and C011H. Write an A.L.P. to exchange lower nibbles of these two bytes and then store at same memory locations.	**07**
		OR	
	(b)	(1) Write an A.L.P. to copy the value 59H into RAM memory location 40H to 45H using Register indirect addressing mode without loop. (2) Input a random number in register R3 and increment it until it equals FFH.	**07**
Q.3	**(a)**	What are the advantages of using standard single purpose processor over general purpose processor? Enlist and explain standard single purpose processor peripherals.	**07**
	(b)	Write a detailed note on semaphores-deadlock-process and stack management.	
		OR	
Q.3	**(a)**	What are the basic steps involved in executing an interrupt? Enlist and explain interrupts for 8051 Microcontroller. Which interrupt(s) has the highest priority?	**07**
	(b)	Explain round robin primitive rate monolithic foreground and background systems.	**07**
Q.4	**(a)**	How USART differs from UART.Explain in detail USART.	**07**
	(b)	Explain Stepper Motor Interfacing with 8051 Microcontroller.	**07**
		OR	
Q.4	**(a)**	Explain in detail architecture of PIC (16F72) Processor.	**07**
	(b)	Write a detailed note on PID control.	**07**
Q.5	**(a)**	What are the steps when micro control executes instructions? Explain the concept of pipelining with neat sketches.	
	(b)	Explain Timers and various timer modes of 8051 microcontroller.	**07**
		OR	
Q.5	**(a)**	Write a short note on Interrupt driven systems.	**07**
	(b)	Write short note on: RISC concepts.	**07**

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