Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-I Examination January 2010

Subject code: 710302

Subject Name: Advance Microcontroller

Date:22 / 01 / 2010 **Time: 12.00 – 2.30 pm**

Total Marks: 60

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain features of RISC architecture	**06**
	(b)	Explain the term little endian and big endian in context of memory access. Give one example of microcontroller family implementing each one of the mechanism	**06**
Q.2	**(a)**	What is an I/O port? What is I/O polling? What is I/O handshaking? Are PIC18 devices support I/O handshaking directly?	**06**
	(b)	Explain memory organization in PIC18 family microcontroller	**06**
		OR	
	(b)	Explain features of Harvard architecture. List their merits and demerits.	**06**
Q.3		Draw schematic diagram interfacing 4 common cathode seven segment display to PIC18XXX using port B and D. Write a assembly language program to display #1234 on it.	**12**
		OR	
Q.3	**(a)**	Give reason, read followed by write must be avoided in PIC18 programming.	**06**
	(b)	Write an assembly language program to clear 16 RAM locations starting at RAM address 0x60H. Use the following: (i) INCF FSRnL (ii) Auto-icrement	**06**
Q.4	**(a)**	Assuming that clock pulses are fed into pin T0CKI and a buzzer is connected to pin PORTB.1, write an assembly language program for counter 0 in 8-bit mode to sound the buzzer every 100 pulses.	**06**
	(b)	Explain with example the use of DAW instruction.	**06**
		OR	
Q.4	**(a)**	Assume that a 1-Hz frequency pulse is connected to input for Timer1(pin PORTC.0), write an assembly language program to display the counter values of TMR1H and TMR1L on ports B and D. Set the initial values to 0.	**06**
	(b)	Write an assembly language program to find 2's complement of the number stored in file-register 0x20H. Store the result in file-register 0x21H.	**03**
	(C)	Write an assembly language program to find the greater of the two values stored in file register 0x30H and 0x31H.	**03**
Q.5		Draw schematic diagram interfacing LM35 with PIC18XXX. Explain necessary scaling (calibration) process if required. Write an assembly language program which reads temperature and displays at port D.	**12**
		OR	
Q.5		Draw a schematic diagram for PIC18XXX microcontroller interface with DAC0808. Write an assembly language program to generate ramp signal.	**12**

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