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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – WINTER 2018

Subject Code:2160307   **Date:20/11/2018**

Subject Name:Embedded System Design

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.**

			MARKS
Q.1	(a)	Enlist the key features of PIC16f877a	03
	(b)	What are the classifications of Embedded system?	04
	(c)	Give the details of PORT available in PIC16f877a. Explain the function of PORTC in detail.	07
Q.2	(a)	Define: 1) Watchdog timer 2) Power-up timer	03
	(b)	Explain the various configuration of clock oscillator types.	04
	(c)	Explain the architecture of PIC16f877a with the help of diagram.	07
		OR	
	(c)	Explain the memory organization of PIC16f877a in detail.	07
Q.3	(a)	Draw and explain master clear pin of PIC16f877a.	03
	(b)	Why software has been most crucial parts in Embedded system? List out the benefits of Embedded C.	04
	(c)	Explain the sequence control loop with the help of example.	07
		OR	
Q.3	(a)	List out the data types used in C programming.	03
	(b)	Enlist the types of ADC register in Pic16f877a. Explain ADCON0 in detail.	04
	(c)	Write a c program to interface relay with pic16f877a.	07
Q.4	(a)	Enlist the features of Arduino board.	03
	(b)	Explain the TICON register with the help of pin description.	04
	(c)	Write a C program to generate square wave with frequency 10 Hz and duty cycle 25% using Timer 0.	07
		OR	
Q.4	(a)	Define: 1) Prescaler 2) Postscaler 3) Baud rate	03
	(b)	Explain the INTCON register with the help of pin description.	04
	(c)	Draw and explain the operation of timer 0 in detail.	07
Q.5	(a)	Explain the option register with the help of pin description.	03
	(b)	Explain the operation of ultrasonic sensor in detail.	04
	(c)	Write a C program to generate square wave with frequency 1 Hz using Timer 1 and pre-scaler value is 8.	07
		OR	
Q.5	(a)	List out the SFR for the serial and parallel communication.	03
	(b)	Write a program to perform LED Blinking Operation on Arduino UNO	04
	(c)	Write a c program to read analog signal using channel No. A1 of PIC16F887 microcontroller and display it on LCD.	07

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