PRN:		Course Code:	ECE208R1

Second Year **B. Tech** End Semester Examination Summer 2023

Microcontrollers

Day and Date: Tuesday, 20/06/2023 Max Marks: **100**

Time : 2.00 to 5.00 PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CLO
Q.1		**Attempt the following**			
	a)	Explain the following 8051 instructions with example 1. RL A 2. MOVC A, @A+PC 3. MOV @R0, A 4. DAA	08	L3	CLO2
	b)	Elaborate the PSW SFR of 8051.	08	L4	CLO1
		OR			
	b)	Comment on the RAM memory organization in 8051	08	L4	CLO1
Q.2		**Attempt the following**			
	a)	Explain the working of timer 0 in 8051 with the help of block diagram.	08	L3	CLO3
	b)	Comment on every bit of IE SFR in 8051	08	L2	CLO1
		OR			
	b)	Demonstrate the use of every bit in SCON SFR of 8051.	08	L2	CLO1
Q.3		**Attempt any two from the following**			
	a)	Interface 8 LEDs to port 1 of 8051 and write an assembly or C program to implement running LED program on it.	08	L4	CLO2
	b)	Elaborate the interfacing of LCD with 8051 and explain the use of every pin of LCD and LCD commands.	08	L4	CLO2
	c)	Interface 2KB ROM with 8051 with starting address as 0000H also find the final address.	08	L4	CLO3
Q.4		**Attempt any two from the following**			
	a)	Comment on the memory organization in PIC16F877.	08	L5	CLO3
	b)	Explain the following instructions of PIC16F877 with example 1. INCFSZ 2. MOVWF 3. BTFSS 4. RETFIE	08	L5	CLO3
	c)	Develop an assembly program for PIC16F877 to add two numbers stored on memory location 70H and 71H. Store the result on 72H.	08	L5	CLO3
Q.5		**Attempt any Two of the following**			
	a)	Explain the use of every block of timer 1 in PIC16F877	09	L2	CLO3
	b)	Elaborate the ADC module in PIC 16F877 with the help of block diagram	09	L2	CLO2
	c)	With the help of block diagram, analyze the compare mode of PIC 16F877	09	L2	CLO2
Q.6		**Attempt any Two of the following**			
	a)	Write an embedded C program for PIC 16F877 to generate a square wave of 2KHz on any pin of PORTC. Assume crystal frequency of 12 MHz	09	L3	CLO4
	b)	Write an embedded C program for PIC 16F877 to rotate the stepper motor by 270° and then stop. Assume the step angle of motor as 6°.	09	L3	CLO4

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c) Write an embedded C program for PIC 16F877 to turn ON the relay connected to pin RE0 for 2 seconds when the key connected to pin RB0 is pressed. 09 L3 CLO4

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