U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E. **Semester: III**
Branch: Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 19CS3ESMMC **Max Marks: 100**
Course: Microprocessors and Microcontrollers

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	*CO*	*PO*	Marks
1	a)	With a neat diagram, Explain the Architecture of 8086 microprocessor.	*CO1*	*PO1*	**10**
	b)	Write an 8086 program to compute LCM of two 16-bit unsigned integers and store the result in word location LCM	*CO1*	*PO1*	**05**
	c)	Explain the purpose of each flag bit in the flag register in 8086	*CO1*	*PO1*	**05**
		UNIT - II			
2	a)	Discuss the instructions available for handling procedure calls in 8086 with an example.	*CO2*	*PO2*	**07**
	b)	Demonstrate with a neat diagram the structure of Interrupt Vector Table.	*CO2*	*PO2*	**07**
	c)	What is RESULT & effect on FLAGS after the execution of (i) SAR AX, CX if AX=0846h CX=0003h (ii) ROL AX, CX if AX=0842h CX=0002h	*CO2*	*PO2*	**06**
		UNIT - III			
3	a)	With a neat diagram, explain in detail the architecture of 8255	*CO1*	*PO1*	**10**
	b)	Design a timing diagram for Read Cycle in Minimum mode & explain the same.	*CO2*	*PO2*	**10**
		OR			
4	a)	Describe the functionality of the pins used in maximum mode of operation of 8086	*CO2*	*PO2*	**10**
	b)	With a neat diagram, Analyze & explain the general bus operation cycle in maximum mode of 8086	*CO2*	*PO2*	**10**
		UNIT - IV			
5	a)	Explain the architecture of 8051 Microcontroller with a neat diagram.	*CO1*	*PO1*	**10**

		b)	Based on features supported, compare Microprocessor and Microcontroller	*CO1*	*PO1*	**05**
		c)	Explain with example the various addressing modes in 8051	*CO1*	*PO1*	**05**
			UNIT - V			
	6	a)	Write a program for 8051 Microcontroller to Drive a Stepper Motor interface to rotate the motor in specified direction (cclockwise or counter-clockwise) by N steps. Introduce suitable delay between successive steps.	*CO3*	*PO3*	**10**
		b)	Design a program for 8051 Microcontroller to interface seven segment and display number "1234" with flashing effect.	*CO3*	*PO3*	**10**
			OR			
	7	a)	Develop a 8051 Microcontroller program to Swap every even numbered bit of register R3 in Bank 0 with Odd numbers bit to its left. Swap bit 0 with bit l, bit 2 with bit 3 until bit 6 is swapped with bit 7.	*CO3*	*PO3*	**06**
		b)	Explain the following byte level logical operations in 8051 microcontrollers: **i.** ORL A, @RI **ii.** ANL RO, A **iii.** XRL A, #12h	*CO1*	*PO1*	**06**
		c)	Explain the different types of rotate instructions of 8051 with example each.	*CO1*	*PO1*	**08**

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