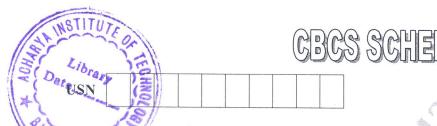
1L ORE



17MT43

Forth Semester B.E. Degree Examination, July/August 2021 Microcontrollers

Time: 3 hrs.

Note: Answer any FIVE full questions.

Max. Marks: 100

		Tiote. Inswer any 111 L jun questions.
1	a.	Differentiate between RISE and CISE architecture. (06 Marks)
	b.	Explain the bit configuration of PSW register. (06 Marks)
	C.	Explain the salient features of 8051 microcontroller. (08 Marks)
		(OS INITIAS)
2	a.	Interface 16K EPROM and 8K RAM to 8051. (10 Marks)
	b.	Explain Internal RAM memory organisation of 8051. (06 Marks)
	C.	Explain the following: i) ALE ii) \overline{EA} . (04 Marks)
3	a.	Define addressing modes. Explain different addressing modes with suitable example.
		(10 Marks)
	b.	Explain the operation performed by the following instructions.
		i) DA A ii) MUL AB iii) CJNE iv) SETB C (10 Marks)
4	a.	Assume the P1 is an input port connected to a temperature sensor. Write a program to read
		the temperature and test it for the value 75. According to the test results place the
		temperature value into the register indicated by the following: If $T = 75$, then $A = 75$
		if $T < 75$ then $R1 = T$, if $T > 75$ than $R2 = T$. (10 Marks)
	b.	Assuming that ROM space starting at 250H contains "India" write a program to transfer the
		bytes in to RAM locations starting at 40H. (10 Marks)
5	a.	Explain different data types in 8051 C with example. (10 Marks)
	b.	Write an 8051 C program to convert a hexadecimal number FDH to decimal and display the
		digits on P0, P1 and P2. (05 Marks)
	C.	Write an 8051 C program to calculate the check sum byte for the 4 bytes of hexadecimal
		data: 25H, 62H, 3FH and 52H. (05 Marks)

- 6 a. Explain the bit configuration of TMOD register and also write procedure for time delay generation using Timers. (10 Mark
 - b. Write a Assembly and 8051 C program to generate a square wave of frequency 10KHz on pin P1.4, use timer 0 in mode 2 with crystal frequency of 22MHz. (10 Marks)
- 7 a. Explain three modes of serial data transmission with a neat sketch. (06 Marks)
 - b. With a neat sketch, explain the bit configuration of 500N register. (06 Marks)
 - c. Write an ALP to send the text string "Hello" using serial data transmission, set the band rate at 9600, 8-bit data and 1 stop bit. Use T1. (08 Marks)
- 8 a. List and explain the different land shake signals of RS-232. Also mention the need for MAX-232 in serial data transmission. (10 Marks)
 - b. Explain the importance of TI and RI flag.

(10 Marks)

- 9 a. With a neat circuit, explain the interfacing of stepper motor with 8051. Also write a program to rotate a motor 64° in clock wise direction. The motor has a step angle of 2° use 4 step sequence and two coil excitation. (10 Marks)
 - b. With a neat circuit diagram and flow chart explain how keypad is interfaced with microcontroller. Also explain the procedure used to detect the pressed key. (10 Marks)
- 10 a. Explain the pin description of LCD. Also write a program to display hello an LCD interfaced with microcontroller use delay method. (12 Marks)
 - b. Write a C program to generate sine wave using DAC interfacing. (08 Marks)

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