CBCS SCHEME

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BEC405A

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Microcontrollers

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Bring out the difference between Microprocessor and Microcontroller.	6	L2	CO1
	b.	With a neat Architecture diagram, explain the Architecture of 8051 Microcontroller.	10	L2	CO1
	c.	Explain : (i) RST (ii) INT Pins of 8051	4	L1	CO1
		OR			
Q.2	a.	Differentiate between CISC and RISC.	6	L2	CO1
	b.	With a neat diagram, explain the Internal Memory Structure and Programming Model of 8051 Microcontroller.	10	L2	CO1
	c.	List out special features of 8051 Microcontroller.	4	L2	CO1
		Module – 2			
Q.3	a.	Define Addressing Mode. Explain different addressing modes with example.	10	L2	CO2
	b.	Write an ALP to add two 16-bit numbers loaded in R_1R_0 and R_3R_2. Store the result in R_6R_5 and R_4 from MSB to LSB.	10	L3	CO2
		OR			
Q.4	a.	Define Stack. Explain the operation of Stack using Stack Pointer, PUSH and POP Instructions.	10	L2	CO2
	b.	Write an ALP to find largest of N numbers.	10	L3	CO2
		Module – 3			
Q.5	a.	Explain : (i) TMOD (ii) TCON register of 8051.	10	L2	CO3
	b.	Assume XTAL = 22 MHz. Write an ALP to generate a square of frequency 1 kHz on Pin P1.2.	10	L2	CO3
		OR			
Q.6	a.	Explain : (i) SCON register (ii) Importance of TI Flag	10	L2	CO3
	b.	Write a C program to transfer "YES" serially at 9600 baud rate, 8 bit data, 1 stop bit, do this continuously.	10	L3	CO3
		Module – 4			
Q.7	a.	Define Interrupt. List the steps involved in Executing an Interrupt.	10	L2	CO4
	b.	Explain Interrupt Vector table of 8051 Microcontroller.	5	L2	CO4
	c.	Explain Interrupt enable register.	5	L2	CO4
		OR			
Q.8	a.	Explain Interrupt Control used in 8051.	10	L2	CO4
	b.	Explain the steps involved in programming serial communication Interrupt.	5	L2	CO4

	c.	Explain how multiple Interrupts are handled in 8051.	5	L2	CO4
Module – 5					
Q.9	**a.**	Explain DAC Interface with a neat diagram and also write a program to generate staircase waveform.	**10**	**L3**	**CO5**
	b.	With a neat diagram, write a program to Interface Stepper Motor to 8051 Microcontroller.	**10**	**L3**	**CO5**
OR					
Q.10	**a.**	Explain the Interfacing of DC motor using C programming.	**10**	**L3**	**CO5**
	b.	With a neat diagram, write a ALP to Interface LCD to 8051 Microcontroller.	**10**	**L3**	**CO5**

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