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24EC46C

Fourth Semester B.E. Degree Examination, May 2026
MICROCONTROLLERS

TIME:3 hrs. Max.Marks:100

Note: 1. Answer **any FIVE** full questions, choosing **ONE** question from **each MODULE.**
2. M: Marks, L: Bloom's level,C: Course outcomes.
3. Assume missing data suitably.

		Module-1	M	L	C
Q.1	**a**	Explain the architecture of Intel 8051 with neat diagram.	**10**	**L2**	**CO1**
	b	Differentiate between i) microprocessor and microcontroller ii) Harvard vs Princeton architecture	**10**	**L2**	**CO1**
		OR			
Q.2	**a**	Explain internal memory organization of 8051.	**6**	**L2**	**CO1**
	b	With neat diagram explain the Interfacing of 16 K Byte of RAM and 32 K Byte of EPROM to 8051	**8**	**L3**	**CO1**
	c	Explain the pin diagram of 8051 with neat diagram	**6**	**L2**	**CO1**
		Module–2			
Q.3	**a**	Explain the addressing modes of 8051 with example	**10**	**L2**	**CO2**
	b	Write a program to find the GCD of the numbers and store the result in 2000h with an example	**10**	**L3**	**CO2**
		OR			
Q.4	**a**	List the arithmetic instructions available in the 8051 microcontroller with example.	**8**	**L2**	**CO2**
	b	Write an ALP to swapTwo 8 bit numbers stored in location 1000h and 1001h of external data memory.	**6**	**L3**	**CO2**
	c	Explain the operation of stack with example	**6**	**L2**	**CO2**
		Module–3			
Q.5	**a**	Explain TMOD and TCON registers in detail	**6**	**L2**	**CO3**
	b	Explain different data types of 8051	**6**	**L2**	**CO3**
	c	Assume XTAL=22MHz.WALP to generate a square wave of frequency 1Khz on pin P1.2. Assume Timer 0, Mode 1.	**8**	**L3**	**CO3**
		OR			
Q.6	**a**	Explain the different types of communication links and types of serial communication	**6**	**L2**	**CO3**
	b	Write an 8051 C program to transfer the message "VTUEXAM" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously.	**8**	**L3**	**CO3**
	c	Explain serial communication in 8051	**6**	**L2**	**CO3**
		Module–4			
Q.7	**a**	What is an interrupt, explain need for interrupt and interrupt vector table.	**8**	**L2**	**CO4**

	b	Explain programming serial interrupt with an example	6	L2	CO4
	c	List the steps involved in execution of interrupt	6	L2	CO4
		OR			
Q.8	a	Explain programming timer interrupt with an example	6	L2	CO4
	b	Explain interrupt Enable register and list the values to be loaded in to it to enable different interrupts	8	L2	CO4
	c	Explain how interrupt priority can be changed. Also explain default priorities assigned to interrupts in 8051.	6	L2	CO4
		Module–5			
Q.9	a	With a neat diagram write an assembly language program to interface DAC to 8051.	10	L3	CO5
	b	Write a program to display "VTU ECE' by interfacing LCD display to 8051.	10	L3	CO5
		OR			
Q.10	a	With a neat diagram write an assembly language program to interface ADC0804 to 8051.	10	L3	CO5
	b	With a neat diagram explain the interfacing of stepper motor using 8051.	10	L3	CO5

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