Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

USN

Fourth Semester B.E. Degree Examination
Subject Title MICROCONTROLLER

TIME: 03 Hours   **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
02. Assume the missing data
03.

		Module -1	*Bloom's Taxonomy Level	Marks
Q.01	a	Differentiate between Microprocessors and Microcontrollers	L2	7
	b	Show how external memory can be interfaced to 8051.	L2	8
	c	List out the I/O ports and highlight their significance	L2	5
		OR		
Q.02	a	List the internal registers of 8051 microcontroller and their functions	L2	7
	b	Discuss how the memory is organized in 8051.	L2	8
	c	Explain the purpose of the program status word (PSW) register	L2	5
		Module-2		
Q. 03	a	Justify with an example that a set XCH instruction executes faster than a PUSH & POP when saving the contents of the A register.	L3	10
	b	Explain JUMP/CALL instruction operating ranges	L2	10
		OR		
Q.04	a	Write a program to divide the data in RAM locations 3EH by the number 12H put the quotient in R4 and reminder in R5 in the current register bank. Give the explanatory comments.	L3	10
	b	Explain the following instructions SWAP, CJNE, DJNZ, ACALL, AJMP, JNZ, ANL	L2	10
		Module-3		
Q. 05	a	Write a Program to monitor the door sensor, which should stratify the condition : when it opens, a buzzer should make a sound .	L3	10
	b	Distinguish counting & timing requirements. Explain the modes of operation of timers/counters of 8051 with diagram.	L2	10
		OR		
Q. 06	a	Write an 8051 C program to create a frequency of 2500hz on pin P2.7. Use timer1 mode2 to create the delay	L3	10
	b	State the various data types utilized in 8051 'C' programming	L2	10
		Module-4		
Q. 07	a	Write the steps involved in programming 8051 for serial communication using mode 1.(	L2	10
	b	Write a program to transfer the message "yes "serially at 9600 baud, 8 bit data, and 1 stop bit continuously	L3	10
		OR		
Q. 08	a	Mention RS232 handshaking signals on DB9 configuration.	L2	10

	b	Write a program using interrupts to carry-out the following tasks:
		
		  i. Receive data serially & send it to P0.
		
		  ii. Have P1 port read and transmitted serially and copy given to P2.
			L3	10

		Make timer 0 generates a square wave of 5 KHz on P0.1 Assume that XTAL=11.0592MHz. Baud rate is 4800.		
		Module-5		
Q. 09	a	Draw the block schematic of stepper motor interfaced to 8051 at port P0 for the rotation of 45° in anticlockwise direction. Write a C program for the same. Assume motor step angle as 1.8 degrees per step.	L3	10
	b	Explain the pin descriptions for LCD and interfacing of LCD to 8051.	L2	10
		OR		
Q. 10	a	Draw the block schematic of Keypad interfaced to 8051 at port P0 and write a C program to read a key and display it on port 2	L3	10
	b	Describe signal conditioning and its role in data acquisition	L2	10

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.

Bloom's Taxonomy Level	No of Questions	Marks
L1	0	0
L2	8	60
L3	4	40