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	List 3 essential items needed to make up a development system for programming microcontroller.	L1	5
	b	Distinguish Harvard & Princeton architectures with diagrams	L2	10
	c	What are the advantages of RISC & CISC processor architectures?	L1	5
		OR		
Q.02	a	List the advantages of microcontrollers for some applications	L1	5
	b	Provide the architectural overview of Microcontroller 8051	L2	10
	c	Explain the purpose of the program status word (PSW) register	L2	5
		Module-2		
Q. 03	a	Write a program to swap the bytes in timer 0: put TL0 in TH0 & TH0 in TL0.	L3	10
	b	Explain the different addressing modes available in 8051.	L2	10
		OR		
Q.04	a	Write an assembly program to find the average of 10 numbers stored at external data memory starting at location 1000h	L3	10
	b	Explain the following instructions with examples: MOVC,SJMP, JBC, DA A, MOVX	L2	10
		Module-3		
Q. 05	a	A stepper motor uses the following sequence of binary numbers to move the motor. How do you generate them in 8051C.? Sequence: 1100,0110,0011,1001.	L3	10
	b	Explain different 8051 C data types.	L2	10
		OR		
Q. 06	a	Assume that XTAL = 11.0592MHz. What value is required to load in to Timer's registers if a time delay of 5 msec to be satisfied? Develop Microcontroller 8051 program for timer 0 to create a pulse width of 5 msec on P2.3	L3	10

	b	For a machine cycle of 1.08usec find the time delay in the following subroutine
		       MOV R2,#200
		  AGAIN: MOV R3,#250
		    HERE: NOP
		        NOP
		  DJNZ R3,HERE
		  DJNZ R2,AGAIN
		  RET
			L2	10

		Module-4		
Q. 07	a	Explain RS232 standards and its hand shaking signals.	L2	10
	b	Write an assembly level program for 8051 to transmit ten bytes of data stored in internal memory serially by selecting proper baud rate, data length & stop bit.	L3	10
		OR		
Q. 08	a	Explain six interrupts of 8051.Mention their priorities.	L2	10

	b	Write a program using interrupts to demonstrate the following tasks: **Timer0**: Will blink the LEDs with 1sec delay. **INT0**: Will increment a counter. **INT1**: Will Decrement the same counter. **Serial**: Pressing 'c' Will clear the same counter.	L3	10
		Module-5		
Q. 09	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	With a neat block diagram interface an ADC to 8051	L2	10
		OR		
Q. 10	a	With help of block diagram discuss how to interface Interface 2x16 line LCD to 8051. Write a C code to display " WELCOME" on LCD.	L3	10
	b	With neat diagram explain the interfacing of stepper motor and define the following w.r.t Stepper motor . i) Step angle ii) Motor speed iii) Holding Torque	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	3	15
L2	8	45
L3	4	40