Model Question Paper-2 with effect from 2019-20 (CBCS 2018 Scheme)

USN

Fourth Semester B.E. Degree Examination
Embedded Controllers

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

Note: Answer any **FIVE FULL QUESTIONS**, choosing at least **ONE QUESTION** from each **MODULE**.

		Module -1	
Q.01	a	Explain any five differences between the following: 1. RISC and CISC architecture. 2. Harvard and Von-Neumann architecture.	10
	b	Describe the architecture of 8051 microcontroller with a neat labelled diagram.	10
		OR	
Q.02	a	Explain the role of each pin in 8051 microcontroller with its pin configuration diagram.	10
	b	Describe the Internal and External memory architecture of 8051 microcontroller.	10
		Module-2	
Q. 03	a	Explain the 8051 addressing modes with 2 examples for each.	10
	b	List the 8051 data types and directives and also explain them with 1 example each.	10
		OR	
Q.04	a	Write the following programs: 1. Create a square wave of 50% duty cycle on bit 0 of port 1 2. Create a square wave of 66% duty cycle on bit 3 of port 1	10
	b	A switch is connected to pin P1. 7. Write a program to check the status of SW and perform the following: 1. If SW=0, send letter 'N' to P2 2. If SW=1, send letter 'Y' to P2	10
		Module-3	
Q. 05	a	List out any 4 advantages of writing the programs in C instead of Assembly and also explain the 3 factors that can affect the accuracy of the delay while creating a time delay using a 'for loop'.	10
	b	Write an 8051 C program to toggle all the bits of P0 and P2 continuously with 250 ms of delay.	10
		OR	
Q. 06	a	Describe 8051 interfacing to Keyboard with diagram and flowchart.	10
	b	Write an 8051 C program to convert 11111101 (FD hex) to decimal and display the digits on P0, P1 and P2.	10
		Module-4	
Q. 07	a	Write an assembly language program to generate a square wave with an ON time of 3ms and an OFF time 10ms on all pins of port 0. Assume an XTAL of 11.0592 MHz.	10
	b	A switch is connected to pin P1. 2 . Write an 8051C program to monitor SW and create the following frequencies on pin P1. 7.(use timer 0 in mode1 for both of them) If SW =0, 500Hz and if SW =1, 750Hz	10

		OR	
Q. 08	a	Explain the steps to program 8051 to receive the data serially and also explain the importance of the RI flag bit.	10
	b	Give the bitwise explanation of the following registers: 1. TMOD 2. TCON 3. SCON 4. IE	10
		Module-5	
Q. 09	a	Explain the architecture of MSP430 microcontroller with a neat labelled diagram.	10
	b	List out the addressing modes of MSP430 and explain them with one example for each.	10
		OR	
Q. 10	a	Write a shirt note on the following: 1. Introduction to MSP430 starter kit 2. Aspects of C for embedded system	10
	b	With a neat labelled diagram explain the Clock Generator system of MSP430 microcontroller.	10