Total number of printed pages: 2

UG/7th /UIE713

2024

Embedded Systems

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Describe the functions of CPU, RAM, ROM and input-output ports in 8051 Microcontroller	10
	b)	Write an assembly language program in 8051 Microcontroller to receive a data in port 1, add 32H with the received data and send the final output to port 2.	5
	c)	Write the address range for ROM, RAM and Special function registers in 8051 Microcontroller?	5
2.	a)	How the register banks are selected in 8051 microcontroller? Write a program to select register R3 of register bank R1.	8
	b)	What is the function of following instructions in 8051? ORG, INC,ACALL , SETB, SJMP, JNC, RET, CPL , DJNZ, DB ,CJNE	12
3.	a)	Describe the different addressing modes of 8051 Microcontroller with some examples	10
	b)	Write an assembly language program in 8051 to toggle LED's connected to port 0 of 8051 Microcontroller with some delay. The delay program should be written separately as subroutine to the main program	6
	c)	Draw the power on reset diagram of 8051 microcontroller	4
4.	a)	Write an 8051 C program to get a bit at P1.0 and send it to P2.1.	6
	b)	Write a 8051C program to convert hexadecimal to decimel and store the results in registers.	6
	c)	Specify the bits of TMOD registers	8
5.	a)	How serial communication is done in 8051 microcontroller? Explain.	7
	b)	Write a program to transfer a data serially from 8051Microcontroller	5
	c)	Write a program to generate a waveform of 2kHz from pin P1.1 of 8051	8

		microcontroller	
6	(a)	Write short notes on any one of the following:	6
		i)STM Microcontroller	
		ii) Interfacing of sensor with 8051 Microcontroller	
	b)	Write a program to display the letter "CIT" in LCD Display using 8051 Microcontroller.	7
	c)	Describe a real time application of 8051 Microcontroller with hardware diagram and the requisite program.	7