Total number of printed pages: **2** **(D)/ 4th Semester/DECE 401**

2023

Microcontroller & Applications

Full Marks : 100

Time : Three hours

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

Answer ***any five from the following.***

1.	a)	What will be content of TMOD , if T0 is to be used in mode 1 and T1 in mode 2.	2
	b)	If A =20H and CY=0, the contents of A after execution of instruction RL A twice the result will be:____	2
	c)	Write the numbers of bit-address for SJMP and LJMP	2
	d)	If the content of A is 55H, what would be the contents after execution of instruction: XRL A and CPL A?	2
	e)	Write instructions to subtract 10H from 30H using immediate addressing.	2
	f)	Which registers are used to configure the LCD controller ?	2
	g)	Mention two distinct feature of Von-Neuman Architecture	2
	h)	Write an instruction to configure pin P1.0 as an input	2
	i)	What is the function of IE sfr?	2
	j)	What do you mean by timer over flow? Which instruction can check for this overflow?	2
2.	a)	Write a comparison in between RISC and CISC processors	10
	b)	Write a program to send character 'Y' serially in mode 1 at 4800 baud.	4
	c)	Find the content of A after the execution of the following: CLR C MOV A, #55H ORL A, #0F0 RLC A	6
3.	a)	Write a short note on the following: Program Counter: PC , DPTR	5

	b)	i)	Describe the Indirect addressing modes in detail with 2 examples of each.	[5+5]
		ii)	Describe the mode 2 operation of the timer	5
4.	a)		Write a program to transmit the content of the Accumulator into bit port 1.4 serially with MSB going first.	4
	b)		Write a assembly code to add two numbers stored at RAM locations 21H, 23H. Check for carry, if carry generated show the carry count at P1 otherwise show the result at P2.	6
	c)		Give a detailed comparison between different types of Programming Languages used for microcontrollers	10
5.	a)		Mention the different mode of serial communication and give detail description of mode1.	2+8 =10
	b)		Write an assembly program to read an input port P2 and display it to P2 after non-zero delay.	5
	c)		Write an assembly program for: A counter is initialized with 00 and it counts up until it's value reaches 10, send the final count to P1.	5
6	a)		Write a program to find the store 2 data available at addresses 50H, 51H respectively to the stack. Stack is initialized at 3FH onwards. Access these datas from stack to the 60h, 61H respectively.	10
	b)		What do you mean by interrupts? Mention the number of interrupts available in 8051 along with their vector addresses.	5
	c)		What is a relay and draw the circuit diagram that is supposed to read the switch connected at P1.2 and control the bulb connected through the relay at P2.1.	5

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