

Total number of printed pages: 2

(D)/ 4th Semester/DECE 401

2023

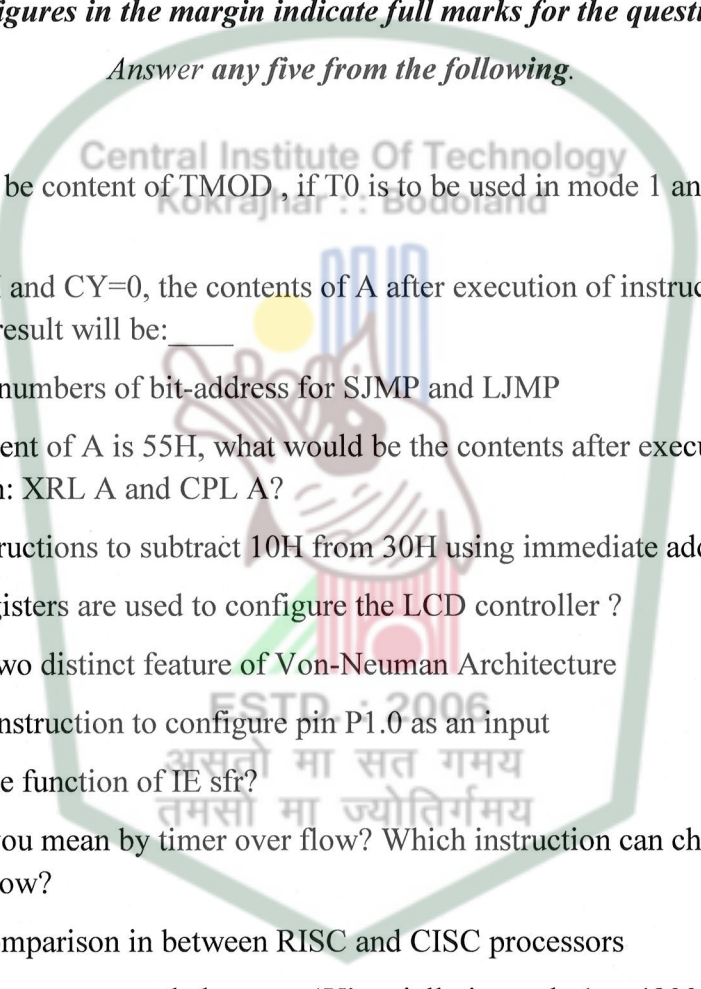
### Microcontroller & Applications

Full Marks : 100

Time : Three hours

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

*Answer any five from the following.*

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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: 6
- CLR C
- MOV A, #55H
- ORL A, #0F0
- RLC A
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