Reg. No. ☐☐☐☐☐☐☐☐☐☐☐☐

B.E / B.TECH. DEGREE EXAMINATION, MAY 2023

III Semester

CS18303 –MICROPROCESSOR AND ITS APPLICATIONS

(Computer Science and Engineering)

(Regulation 2018A)

TIME: 3 HOURS   **MAX. MARKS: 100**

CO 1   Students will be able to understand the architecture of 8086.

CO 2   Students will be able to perform the designing of I/O interfacing.

CO 3   Students will be able to be familiarized with various parallel and serial communication techniques.

CO 4   Students will be able to understand the architecture of 8051 microcontroller

CO 5   Students will be able to perform cross compilation using microcontroller

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Draw and explain flag register in 8086.	1	1
2.	Explain the physical address formation in 8086.	1	2
3.	How will you enter the single step mode of 8086	2	2
4.	Differentiate I/O mapped and Memory mapped I/O.	2	2
5.	Find the control word for the register arrangement of the ports of Intel 8255 for mode 0 operation. • Port A: Input, Port B: Input, Port CU: Input, Port CL: Input	3	2
6.	List out a few of the techniques used in analog to digital converters.	3	1
7.	Why Special Function Registers are required in 8051 Microcontroller?	4	1
8.	MOV R4, R7 is valid or not.Justify your answer.	4	2
9.	Write about the design steps involved in using a microcontroller for a stepper motor.	5	2
10.	State the significance of using microprocessors in interfacing with traffic limit control.	5	2

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	Describe the hardware architecture of the 8086 microprocessors with a neat diagram.	(14)	1	3

(OR)

(b)	**(i)**	Explain the various kind of addressing modes in 8086 with examples.	(10)	1	3
	(ii)	Explain the subsequent instructions with example.(a) AAA (b) DAS.	(4)	1	3
12. (a)	**(i)**	Explain the functions of	(7)	2	3
		i. HLDA ii. RQ/GT0 iii. DEN iv. ALE			
	(ii)	Draw and explain the minimum mode of 8086.	(7)	2	3

(OR)

(b)	**(i)**	Describe the sequence of signals that occurs on the address bus, the control bus and the data bus when a simple microcomputer fetches an instruction.	(7)	2	3
	(ii)	Describe the conditions which cause the 8086 to perform type 0 and type 1 interrupt.	(7)	2	3
13. (a)		Explain the salient feature of 8259 with a block diagram of 8259-programmableinterrupts controllers.	(14)	3	3

(OR)

(b)		Draw and Explain the block diagram of Traffic Light control.	(14)	3	3
14. (a)		With the help of neat diagram explain the memory organization of 8051 microcontroller.	(14)	4	4

(OR)

(b)	**(i)**	Explain the TMOD function register and its timer modes of operations.	(7)	4	4
	(ii)	Explain in detail about the special function register of 8051 in detail.	(7)	4	4
15. (a)		Draw the diagram to interface a stepper motor with 8051 microcontroller and explain. Write a 8051 assembly language program to run the stepper motor in both forward and reverse direction with delay.	(14)	5	3

(OR)

(b)		Explain 8051 serial port programming with examples.	(14)	5	3

PART- C (1 x 10 = 10 Marks)
(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	What is Interrupt? Explain enabling, disabling, and masking of interrupts with examples. How to transfer data using interrupts.	(10)	1	5