



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

III B.Tech I Sem Supply End Examination, July 2022

Microprocessors and Microcontrollers

(ECE)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part - A, answer all questions which carries 20 marks.

3. In Part - B, answer any one question from each unit.

Each question carries 10 marks and may have a, b as sub questions.

PART- A

(10*2 Marks = 20 Marks)

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|-------|---|----|-----|-----|
| 1. a) | What are the functions of LOCK(WR)' and DEN(S ₀)' pins in 8086? | 2M | C01 | BL1 |
| b) | Describe the following instructions of 8086: CMP, SHR | 2M | C01 | BL2 |
| c) | Set the Timer 1 in auto reload mode through its TMOD register in 8051 microcontroller. | 2M | C02 | BL3 |
| d) | How is the internal RAM organized in 8051? | 2M | C02 | BL1 |
| e) | Which ports are used in interfacing 8K bytes of RAM to 8051 and how? | 2M | C03 | BL1 |
| f) | Derive the Baud rate in communication using UART with operating frequency of 12KHz approximately. | 2M | C03 | BL2 |
| g) | What is meant by Banked registers in ARM processor? | 2M | C04 | BL1 |
| h) | How are the Link registers used in ARM processor? | 2M | C04 | BL1 |
| i) | What is the difference between ARM state and Thumb state? | 2M | C05 | BL1 |
| j) | Describe the instruction pipeline feature in ARM CORTEX M3. | 2M | C05 | BL2 |

PART- B

(10*5 Marks = 50 Marks)

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|-----------|----|---|-----|-----|-----|
| 2 | a) | Give the list of addressing modes in 8086 microprocessor with an example each. | 5M | C01 | BL1 |
| | b) | Write an assembly language program to 8086 to sort the given array in ascending order. | 5M | C01 | BL3 |
| OR | | | | | |
| 3 | | Write an assembly language program to 8086 to insert exactly at the middle of another string. | 10M | C01 | BL3 |
| 4 | a) | Describe the way 8051 handles Interrupts. | 5M | C02 | BL2 |
| | b) | Write an assembly language program to 8051 to rotate the contents of R1 of bank 0 and store the result in R1 of bank 1. | 5M | C02 | BL3 |

OR

5	Generate a 1KHz square wave using timers in 8051.	10M	C02	BL5
6	a) Interface a 8K byte memory RAM to 8051 as external memory with a memory map 3000H onwards.	5M	C03	BL3
	b) How does UART transmit data through asynchronous communication?	5M	C03	BL1
OR				
7	Interface an 8 bit DAC to 8051 and generate square wave form.	10M	C03	BL3
8	a) What are the different modes of operation of ARM processor? Explain them briefly.	5M	C04	BL1
	b) How does ARM processor conditionally execute instructions? Explain the same.	5M	C04	BL1
OR				
9	Draw a neat block diagram of ARM architecture and describe the same.	10M	C04	BL1
10	a) Explain the instruction set of ARM CORTEX M3 processor.	5M	C05	BL4
	b) What are the registers in OMAP processor?	5M	C05	BL1
OR				
11	With the help of neat diagram describe the ARM CORTEX M3 processor.	10M	C05	BL2

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