Code No: **R20A0416** **R20**

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Regular Examinations, May 2023

Microprocessors & Microcontrollers

(ECE)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1 Construct the architecture of 8086 microprocessor (MP) and explain the specific purpose of each sub-block of MP. **[14M]**

OR

2 Construct the timing diagram for a memory WRITE cycle of 8086 microprocessor when operating in MINIMUM mode and explain the sequence of steps performed during WRITE operation. **[14M]**

SECTION-II

3 Elaborate on various addressing modes of 8086 MP. Explain each of them with suitable examples. **[14M]**

OR

4 Illustrate the use of SCAS instruction to find the frequency of occurrence of a byte in a string of N bytes. Develop an ALP for the same indicating input and expected output. Use necessary comments for better understanding. **[14M]**

SECTION-III

5 Develop the architecture of 8251 USART and explain its operation highlighting the differences between asynchronous and synchronous communications. **[14M]**

OR

6 Construct the block diagram of 8257 DMA and explain the operation indicating the sequence of operations. **[14M]**

SECTION-IV

7 Elaborate on the memory organization of 8051Microcontroller (MC) and illustrate about logical separation of program and data memory in mCS-51 devices. **[14M]**

OR

8 A. Discuss the various addressing modes of 8051 MC with necessary examples. **[6M]**

B. Draw and explain the architecture of 8051 microcontroller. **[8M]**

SECTION-V

9 Analyze the uses of various timer modes in which the timer/counters can be programmed on 8051MC. **[14M]**

OR

10 A. Draw and explain the architecture of ARM processors **[10M]**

B. Explain the pipe line concept **[4M]**

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