

Code No: **R15A0414****MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2023**Microprocessors and Microcontrollers****(ECE)**

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Time: 3 hours**Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

PART-A (25 Marks)

- 1). a What is the role of IP register in 8086 Microprocessor? [2M]
- b Illustrate the Flag Register format of 8086 Microprocessor. [3M]
- c What is Addressing mode? [2M]
- d Give the functionality of DW Assembler directive. Also, give one example. [3M]
- e What is the need of 8259 in a microprocessor-based systems? [2M]
- f Illustrate the Command word format of 8251. [3M]
- g How much internal and external memory the 8051 μ C supports? [2M]
- h What is DPTR? What is the role of it in 8051 μ C? [3M]
- i Give the default priority order of 8051 μ C interrupts. [2M]
- j Name the various SFRs you need while handling the Timers/Counters. [3M]

PART-B (50 MARKS)**SECTION-I**

- 2 Illustrate and explain the 8086 μ P timing diagram of Memory Read and Memory Write operation in Minimum mode. [10M]

OR

- 3 Describe all 40 pin functions of 8086 Microprocessor in Maximum mode. [10M]

SECTION-II

- 4 With one example for each, explain all the addressing modes of 8086 Microprocessor. [10M]

OR

- 5 a) Develop an 8086 ALP to find the number of Even and Odd numbers in a given array of 100 bytes and store the even and odd numbers count in the *EVEN* and *ODD* memory locations respectively. [5M]
- b) List and explain string manipulation instructions of 8086 microprocessor. [5M]

SECTION-III

- 6 Design an interfacing diagram of interfacing ADC to 8086 μ P through 8255 and then develop its interfacing program. [10M]

OR

- 7 a) Write an 8086 ALP to rotate a stepper motor in the clockwise direction by 90° , and then rotate it 180° in the anticlockwise direction. Assume step size [5M]

is 1.8^0 .

- b) Design an interfacing diagram of interfacing 8259 Interrupt controller with 8086 μ P. [5M]

SECTION-IV

- 8 Draw the Architecture of 8051 Microcontroller and then explain briefly the operation of each block of it. [10M]

OR

- 9 List any TEN 8051 μ C instructions of different addressing modes and then explain them with one example. [10M]

SECTION-V

- 10 a) Write a program to generate a square waveform of 20 ms at pin P1.4, for an 8051 with a clock frequency of 12 MHz. Use Timer 0 in Mode 1. [6M]
b) What is the purpose of IP SFR of 8051 μ C? Also give it register format. [4M]

OR

- 11 a) Develop an 8051 μ C program to generate a 50 μ s delay using timer 1 in mode 1 and then explain the logic involved in it. [5M]
b) Briefly out the features of ARM processor. [5M]
