

**Code No: R18A0415****MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY****(Autonomous Institution – UGC, Govt. of India)****III B.Tech II Semester Supplementary Examinations, April 2023****Microprocessors and Microcontrollers****(EEE & ECE)**

<b>Roll No</b>									
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**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 Explain the internal hardware architecture of 8086 microprocessor with neat diagram [14M]

OR

- 2 a) Explain the concept of segmented memory. What are the advantages? [7M]  
b) Describe the implementation of pipelined process of 8086. [7M]

**SECTION-II**

- 3 a) Write an 8086 ALP to find the sum of numbers in the array of 10 elements. [7M]  
b) Explain any five assembler directives of 8086 with suitable examples. [7M]

OR

- 4 a) Write an assembly language program (ALP) which counts the number of A's and a's in a string of characters [7M]  
b) Explain the function of the following instructions. [5+5] i) AAD ii) MOVSB [7M]  
iii) LAHF iv) JNZ v) LEA vi) DAD

**SECTION-III**

- 5 a) Explain the briefly the different modes operation of 8255 PPI [7M]  
b) Draw and explain the synchronous mode transmitter and receiver data formats of 8251 [7M]

OR

- 6 a) Write a program to interface 4×4 keyboard to 8086 through ports A and B operating at I/O base addresses 0FFF9. Draw the necessary interface details [7M]  
b) Explain the interfacing procedure of an 8 - bit DAC with 8086 microprocessor [7M]

**SECTION-IV**

- 7 a) Explain SCON register programming in 8051. [7M]  
b) Write an ALP to generate the 1 kHz square wave form using mode 1 timer programming. [7M]

OR

- 8 a) Explain the I/O pins ports and circuit details of 8051 with its diagram. [7M]  
b) Write a program to multiply the data in RAM location 3AH by the number 11H. Put the result in R4 and R5 registers. [7M]

**SECTION-V**

- 9 a) Explain: i) TCON ii) TMOD registers in detail. [7M]  
b) Discuss about 8051 serial port programming. [7M]

OR

- 10**    a) How does 8051 process generate the ISR address on an un-marked interrupt?    **[7M]**  
      b) How does timer over flow interrupts differ from real time clocked interrupts?    **[7M]**

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