

**III B. Tech II Semester Supplementary Examinations, December -2023**  
**FUNDAMENTALS OF MICROPROCESSORS AND MICROCONTROLLERS**  
 (Com to CSE,IT,CS,CSE(CS),CSE(AI),CSE(DS),CSE(IOT))

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each** unit

All Questions Carry Equal Marks

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**UNIT-I**

1. a) Give the difference between minimum mode and maximum mode of operation in 8086 microprocessor. [7M]  
 b) Briefly explain register organization in 8086 microprocessor. [7M]  
 (OR)
2. a) Define interrupt, Give the difference between maskable and non-maskable interrupt. [7M]  
 b) Draw and explain 8086 timing diagram during write operation. [7M]

**UNIT-II**

3. a) Develop an assembly language program to find the sum of numbers from 1 to 100. [7M]  
 b) Explain the following instructions of 8086: i) AAM ii) DAS iii) LOCK iv) CALL. [7M]  
 (OR)
4. a) List out assembler directives of 8086 and explain them briefly. [7M]  
 b) Write an ALP in 8086 to exchange a block of N bytes of data between source and destination. [7M]

**UNIT-III**

5. a) With a neat block diagram, explain in detail the internal architecture of 8255 and its registers. [7M]  
 b) Draw the block diagram of 8251 and explain about each block. [7M]  
 (OR)
6. a) Write the mode control word for a case of asynchronous transmission, with an 8-bit data format, one stop bit, odd parity and 10000 baud rate. TxC clock is 150 KHz. [7M]  
 b) Differentiate 8251 and 8255 processors. [7M]

**UNIT-IV**

7. a) Draw and explain the internal architecture of 8051 microcontroller. [7M]  
 b) Write an assembly language program using 8051 microcontroller instructions to generate a square wave at port 1, pin 0 (i.e., P 1.0). The frequency of the generated square wave is to be 1 kHz. [7M]  
 (OR)
8. a) Explain the different assembly programming tools used in 8051 microcontroller in detail. [7M]  
 b) Explain the Memory organization of 8051. [7M]

**UNIT-V**

9. a) Explain the application “key board and display interface” of controller [7M]  
 b) Write a simple program to control (Toggle) the LED Array connected at PORTB using byte option. [7M]  
 (OR)
10. a) Explain the application “servo motor Control” of controller [7M]  
 b) Write A simple program to demonstrate Seven Segment Display. [7M]

