

**III B. Tech I Semester Regular Examinations, February-2022**  
**MICROPROCESSORS AND MICROCONTROLLERS**

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 75

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

All Questions Carry Equal Marks

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**UNIT-I**

1. a) Explain the functionality of pins used in the following modes of 8086 microprocessor: i) Minimum mode ii) Maximum mode. [8M]
- b) What is a microprocessor? Explain the brief history of evolution of microprocessor. [7M]

**(OR)**

2. a) Discuss the interrupts and interrupt response of 8086. [8M]
- b) Write a program to add a data byte located at offset 0500H in 2000H segment to another data byte available at 0600H in the same segment and store the result at 0700H in the same segment. [7M]

**UNIT-II**

3. a) Mention any four different types of addressing modes of 8086 instruction set? And explain them. [8M]
- b) Write an assembly language program for a 16-bit increment and that will not affect the contents of the accumulator. [7M]

**(OR)**

4. a) Discuss the assembler directives of 8086 with examples. [8M]
- b) Write an 8086 ALP to convert ASCII to BCD number. [7M]

**UNIT-III**

5. a) Describe the operational modes of 8255 programmable peripheral interface. [8M]
- b) Justify how D/A and A/D interfacing done with 8086 with an application. [7M]

**(OR)**

6. a) Explain the 8251 USART with neat block diagram and its mode word, command word and status word. [8M]
- b) List the applications of software and hardware interrupt and explain about 8259. [7M]

**UNIT-IV**

7. a) Explain interfacing of Keyboard/Display with 8051 [8M]  
microcontroller.  
b) Compare Microprocessor and Microcontroller. [7M]
- (OR)**
8. a) Name the special function registers available in 8051 and list the features of 8051 microcontroller. [8M]  
b) Write an ALP using 8051 instructions to receive bytes of data serially and put them in PI. Set the baud rate at 4800, 8-bit data and 1 stop bit. [7M]

**UNIT-V**

9. a) Explain Cortex M3 processor system block diagram. [8M]  
b) Explain modes of operation and execution in programmer's model. [7M]
- (OR)**
10. a) Explain the functional description of the nested vectored interrupt controller. [8M]  
b) With neat block diagram explain the functions of ARM processor. [7M]  
Compare it with PIC and list out the major differences.

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