Code No: R1931243 **R19** **SET - 1**

III B. Tech I Semester Regular Examinations, February-2022

MICROPROCESSORS AND MICROCONTROLLERS

(Automobile 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 architecture of 8086 microprocessor with a neat sketch. [8M]
   b) List the different addressing modes in 8086 microprocessor and explain each with suitable example. [7M]

(OR)

2. a) How is a 20-bit physical memory address calculated in the 8086 microprocessors? Explain. [8M]
   b) Illustrate write cycle timing diagram of 8086 in minimum mode configuration with a neat sketch. [7M]

UNIT-II

3. a) Explain the organization of interrupt vector table in 8086 microprocessors. [8M]
   b) What is the need of stack? How to access stack using PUSH and POP instructions? Explain with an example. [7M]

(OR)

4. a) Write an ALP to reverse a string using 8086 instructions with comment lines. [8M]
   b) Explain the advantages and disadvantages of writing programs in assembly language. [7M]

UNIT-III

5. a) What is the purpose of 8255? Explain the operating modes in 8255. [8M]
   b) With a neat sketch, explain the architecture of programmable communication interface 8251. [7M]

(OR)

6. a) Draw the circuit to interface D/A converter with the 8086 microprocessor and explain its functionality. [8M]
   b) Draw the block diagram of programmable interrupt controller (8259A), and explain each block in detail. [7M]

UNIT-IV

7. a) Elaborate on the architecture of 8051 microcontroller with a neat sketch. [8M]
   b) Write short notes on (i) MOVC (ii) MOVX (iii) SBUF [7M]

(OR)

8. a) What is the need of addressing mode? Explain the addressing modes of 8051 with examples. [8M]
   b) List the features of 8051 microcontroller, and explain the special function registers in 8051. [7M]

UNIT-V

9. a) Discuss the interrupt structure in PIC microcontrollers. List out the various interrupt sources in PIC 16c7x. [8M]
   b) Explain about ARM / Thumb instruction set in detail. [7M]

(OR)

10. a) What are the PARALLEL I/O Ports of PIC microcontroller? Explain. [8M]
    b) Explain about various ARM Registers and operating modes of ARM. [7M]

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