

**GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN**

(Autonomous)

(Affiliated to Andhra University, Visakhapatnam)

II B.Tech. - II Semester Regular Examinations, April – 2026**MICROPROCESSORS AND MICROCONTROLLERS**

[Electronics and Communication Engineering]

1. All questions carry equal marks
2. Must answer all parts of the question at one place

Time: 3Hrs.**Max Marks: 70****UNIT-I**

1. a. Draw the Register organization of 8086 Microprocessor and explain each register. [7M]
b. Explain structure of 8086 interrupt vector table with neat diagram. [7M]

OR

2. a. Briefly explain about the signal description of 8086 processor? [7M]
b. Explain the concept of segmented memory. What are the advantages? [7M]

UNIT-II

3. a. Define addressing mode and explain all addressing modes of 8086 with examples. [7M]
b. Explain Data transfer and arithmetic instructions of 8086 Processor. [7M]

OR

4. a. Define assembler directive and explain any 7 assembler directives? [7M]
b. Develop an assembly language program for 8086 microprocessors using MASM assembler to find the Sum of “N” natural numbers. [7M]

UNIT-III

5. a. With a neat block diagram, explain the operation of PIC 8259A. [7M]
b. Design and explain the control word register formats of 8255. [7M]

OR

6. a. Define interfacing and interface two 16Kx8 EPROMS with 8086. [7M]
b. With a neat block diagram, explain the operation of DMA Controller 8257. [7M]

UNIT-IV

7. a. Draw and Explain the Architecture of 8051 Micro controller. [7M]
b. Discuss the internal memory organization of 8051 microcontroller [7M]

OR

8. a. Explain various modes of operation of timer /counters in 8051. [7M]
b. Describe the operation of I/O ports in 8051 with neat sketch. [7M]

UNIT-V

9. a. Sketch the architecture of Arduino UNO board and explain each block? [7M]
b. List out the features of ATmega328 and ARM processor. [7M]

OR

10. a. Draw the architecture of ARM and explain each block in detail. [7M]
b. Explain the GPIO pin layout of Raspberry Pi. [7M]