Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – MAY 2025

Date: 28-05-2025 **Time:** 01:00 pm – 04:00 pm

School: SOE	**Program:** B. Tech-ECE	
Course Code: ECE3003	**Course Name:** Microprocessor Programming and Interfacing	
Semester: IV	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	24	24	26	26	

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **10Q x 2M=20M**

1.	State the use of NMI and RESET pins with their priorities.	**2 Marks**	**L1**	**CO1**
2.	Define AC and P flags for arithmetic and logical instructions.	**2 Marks**	**L2**	**CO1**
3.	Compare direct and Immediate addressing mode with examples.	**2 Marks**	**L1**	**CO2**
4.	Give an example of an assembly language program scenario where delay is required.	**2 Marks**	**L2**	**CO2**
5.	Why are arithmetic instructions so powerful in 8086? Provide a real-world use case.	**2 Marks**	**L1**	**CO3**
6.	List difference between DAA and AAA.	**2 Marks**	**L2**	**CO3**
7.	Which port of 8255 is bidirectional and how can we configure it?	**2 Marks**	**L1**	**CO3**
8.	What is the direct addressable memory of a microprocessor with 32 address lines.	**2 Marks**	**L1**	**CO4**
9.	What is the importance of RAM ?	**2 Marks**	**L2**	**CO4**
10.	How is serial communication different from parallel communication?	**2 Marks**	**L1**	**CO4**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Explain the pin-out diagram of 8086 with a labelled pins for multiplexed pins.	**10 Marks**	**L2**	**CO 1**
	b.	Differentiate between Minimum and Maximum mode of operation with suitable examples.	**10 Marks**	**L2**	**CO 1**
Or					
12.	**a.**	Describe the addressing modes of 8086 with 2 examples of each mode.	**10 Marks**	**L2**	**CO 1**
	b.	Describe the concept of segmentation in 8086 with all of the segment registers and their offset registers.	**10 Marks**	**L2**	**CO 1**

13.	**a.**	Write and explain assembly code for finding the addition of two BCD numbers.	**10 Marks**	**L3**	**CO 2**
	b.	Explain the significance of BIU in pipelining. How many stage pipelining is possible in 8086	**10 Marks**	**L3**	**CO 2**
Or					
14.	**a.**	Write an assembly language program to add two ASCII numbers.	**10 Marks**	**L3**	**CO 2**
	b.	Give two example each of conditional and non-conditional branching instructions.	**10 Marks**	**L3**	**CO 2**

15.	**a.**	Describe various types of bus systems (ISA, PCI, USB) and their role in processor interfacing.	**10 Marks**	**L2**	**CO 3**
	b.	Compare and contrast between arithmetic and logical instructions with practical code usage.	**10 Marks**	**L2**	**CO 3**
Or					
16.	**a.**	Explain the different modes of operation of 8255 with neat diagrams.	**10 Marks**	**L2**	**CO 3**
	b.	Interpret the relationship between instruction cycle, machine cycle, and T-states using an example.	**10 Marks**	**L2**	**CO 3**

17.	**a.**	Analyze the importance of Timing Diagrams in synchronizing processor with memory and I/O.	**10 Marks**	**L2**	**CO4**
	b.	Interface 8255 with 8086 to enhance its port addressing capabilities. Illustrate the control word register of 8255	**10 Marks**	**L2**	**CO4**
Or					
18.	**a.**	Explain the flag register of 80386 and compare it with the flag register of 8086.	**10 Marks**	**L2**	**CO4**
	b.	Draw the pipelined instruction cycle diagram vs non pipelined instruction cycle diagram for a program with 2 instructions each having 2 EXECUTE states.	**10 Marks**	**L3**	**CO4**