Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Make Up Examinations – December 2025

Date: 26 – 12- 2025 **Time:** 1.00pm to 04.00pm

School: SOE	**Program**:	
Course Code : ECE3111	**Course Name :** Microprocessor and microcontroller	
Semester: MK	**Max Marks**: 100	**Weightage**: 50%

Instructions:

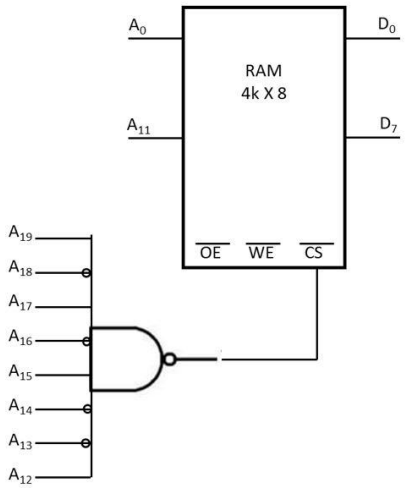
(i) Read all questions carefully and answer accordingly.

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

Answer all the questions

10Qx10M=100Marks

Q.No	Questions	Marks	CO	RBT
1	The different ways in which a source operand is denoted in an instruction are known as addressing modes. Discuss the addressing modes of 8051	10	CO1	L1
	OR			
2	The different ways in which a source operand is denoted in an instruction are known as addressing modes. Discuss the addressing modes of 8086	10	CO1	L1
3	Draw and explain the architecture/block diagram of 8086 Microprocessor	10	CO1	L1
	OR			
4	Draw and explain the architecture/block diagram of 8051 Microcontroller	10	CO1	L1
5	Write an Assembly Language Program (ALP) in 8051 to transfer a block of 10-byte data starting from RAM address 50H onwards to the destination address starting from 60H onwards	10	CO2	L2
	OR			
6	Write an Assembly Language Program (ALP) in 8051 to exchange a block of 10-byte data starting from RAM address 50H onwards to destination address starting from 60H onwards	10	CO2	L2

7	A RAM chip of configuration 4k×8 is interfaced with the 8086 microprocessor for storing and restoring data. For the following decoded circuit, report the address space that will be accessed 	10	CO3	L3
	OR			
8	How are the unused address lines utilized for decoding purpose.? Design the address decoder for memory of 2K*8 using NAND gate	10	CO3	L3
9	1. The microprocessor checks the status of the flag register after the execution of every instruction. Describe how the ZF and CF flag bits are updated in the instruction CMP operand1, operand2 of 8086. 2marks 2. The microcontroller and microprocessors are unique in its own way. There are a few features that are available to a microcontroller that are missing in the microprocessor. Recall at least four features that are specific to the microcontroller. 4marks 3. Every microprocessor has a different method of IO interfacing. There are two methods of IO interfacing in 8086 microprocessors. Mention the two methods. Also, explain the difference between them. 4marks	10	CO1	L1
	OR			
10	The addressing mode is way the operands are specified in the instruction. Using above definition mention the differences between following instructions. 1. MOV A, #50H and MOV A, 50H. 2. MOV A, R0 and MOV A, @R0. 3. MOV BX, CL and MOV BX, [CL]. 4. MOV AX, [5000H] and MOV AX, 5000H	10	CO2	L2
11	Write the output (AX) of the following programs. a) MOV AX, 1234H MOV BX, 5678H AND AX, BX HLT 2.5M	10	CO2	L2

	b) MOV AX, 1234H MOV BX, 5678H XOR AX, BX HLT 2.5M c) MOV AX, 1234H MOV BX, 5678H OR AX, BX HLT 2.5M d) MOV AX, 1234H NOT AX HLT 2.5M			
	OR			

12	Mention whether the following instructions are correct or wrong.
	MOV A, #FFH
	MOV R1, R2
	MOV A, @R2
	ADD A, B
	ANL R1, R2
		10	CO2	L2

13	In assembly language programming, coding is done in a symbolic language called mnemonics. Explain memory read and memory write machine cycle with timing diagram for 8086 microprocessor.	10	CO1	L1
	OR			
14	Each of the memory segments of 8086 microprocessor is addressed by an address stored in corresponding segment registers. Find the address of physical memory for the following instructions if the content of the required registers are as given below. 10MSS = 2344H, DS = 4022H, BX = 0200H, BP = 1402H, SI = 4442H i) MOV CL, 1234H[SI] ii) MOV AL, 5[SI][BP].	10	CO2	L2
15	A multiplexed pin is when two or more features are integrated into one pin. There are a few multifunctional pins in 8086 microprocessors, Explain the functions of the following pins in the microprocessor. AD0-AD15 M/IO INTR ALE MN/MX	10	CO1	L1
	OR			
16	A status register is a 16-bit register which is also called a flag register or a program status word in 8051. In this register, there are seven bits which are undefined and are not used, while the rest nine bits are used to indicate the nature of the operation that occurred in the past. With a neat labelled diagram, describe the functions of each bit with their bit positions	10	CO1	L1

17	1. The microprocessor checks the status of the flag register after the execution of every instruction. Describe how the ZF and CF flag bits are updated in the instruction CMP operand1, operand2 of 8086. 2marks 2. The microcontroller and microprocessors are unique in its own way. There are a few features that are available to a microcontroller that are missing in the microprocessor. Recall at least four features that are specific to the microcontroller. 4marks 3. Every microprocessor has a different method of IO interfacing. There are two methods of IO interfacing in 8086 microprocessors. Mention the two methods. Also, explain the difference between them. 4marks	10	CO2	L2
	OR			
18	The addressing mode is way the operands are specified in the instruction. Using above definition mention the differences between following instructions. 5. MOV A, #50H and MOV A, 50H. 6. MOV A, R0 and MOV A, @R0. 7. MOV BX, CL and MOV BX, [CL]. 8. MOV AX, [5000H] and MOV AX, 5000H	10	CO1	L1
19	4. The microprocessor checks the status of the flag register after the execution of every instruction. Describe how the ZF and CF flag bits are updated in the instruction CMP operand1, operand2 of 8086. 2marks 5. The microcontroller and microprocessors are unique in its own way. There are a few features that are available to a microcontroller that are missing in the microprocessor. Recall at least four features that are specific to the microcontroller. 4marks 6. Every microprocessor has a different method of IO interfacing. There are two methods of IO interfacing in 8086 microprocessors. Mention the two methods. Also, explain the difference between them. 4marks	10	CO2	L2
	OR			
20	The addressing mode is way the operands are specified in the instruction. Using above definition mention the differences between following instructions. 9. MOV A, #50H and MOV A, 50H. 10. MOV A, R0 and MOV A, @R0. 11. MOV BX, CL and MOV BX, [CL]. 12. MOV AX, [5000H] and MOV AX, 5000H	10	CO1	L1