REG.NO.:

VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

SLOT: B1 + TB1

Programme Name & Branch :B.Tech. - IT
Course Code and Course Name :BITE202L -Digital Logic and Microprocessors
Faculty Name(s) : Dr.NITHYA.S Dr.SANTHI K Dr.JENILA VINCENT Dr.KRISHNAMOORTHY N
Class Number(s) : VL2024250502963/2973/2971/2958
Date of Examination : 17/03/2025
Exam Duration: 90 Min. **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes
  CO 2 - Demonstrate the design and analysis of various combinational circuits and sequential circuits using flip flops and logic gates.
  CO 3 - Deploy the sequential logic design techniques for developing various counters and Registers.
  CO 4 - Demonstrate the knowledge of 8086 Microprocessor architecture to develop assembly language programs by applying various addressing modes, instructions sets, and assembler directives of the 8086 microprocessors.

Q.No.	Question	Max Marks	CO	BL
1.	Design a sequential circuit with one T Flip-flop, T_A and three inputs, X, Y and Z. If X=1, the circuit remains in the same state regardless of the value of Y and Z. When X=0, Y and Z are different, the circuit goes through the state transitions from 0 to 1 back to 0 and repeats. When X=0, Y and Z are same, the circuit goes through the state transitions from 1 to 0 and repeats.	10	CO2	BL3
2.	Analyze the sequential circuit shown below and analyze with its inputs variables, output variables, input equation, output equations, state table and state diagram.	10	CO2	BL4

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	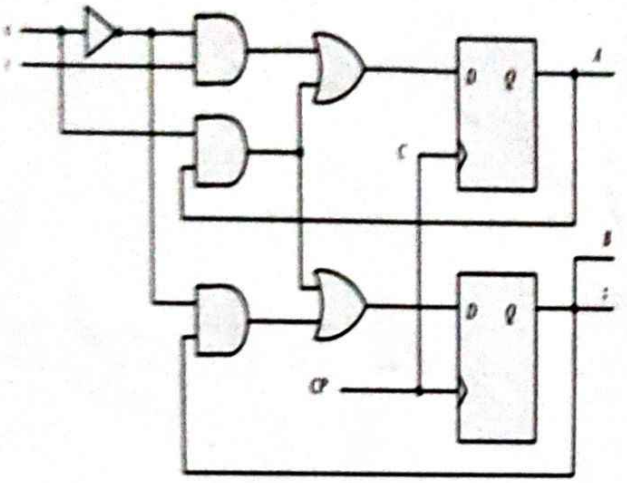			
3.	Design a synchronous up counter using JK flip flops for the following sequence. 0-2-3-4-6-7-0.	10	CO3	BL3
4.	Draw the 4 bit SISO shift register which XNOR ed the third and fourth flip flop and taken it as Serial In. List the contents of the shift registers with initial value 1110 and draw the wave form for five clock pulses.	10	CO3	BL4

5.	i) Calculate the Physical Address for the following data? 1200:1000 H.
	ii) Write the status of flag register after executing the following program:
	MOV AX, 80F0H
	MOV BX, 9010H
	ADD AX, BX
	iii) Write the name of the addressing mode for the following:
	1. MOV AX, 1234H
	2. MOV CL, DL
	3. MOV BX, [1354H]
	4. MOV AX, [SI + 08H]
	5. MOV AX, [BX + SI + 0AH]
		2
		3
		5
			CO4	BL3