Vellore Institute of Technology

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT: B2+TB2

Programme Name & Branch : B.Tech CSE
Course Code and Course Name : BECE204L- Microprocessors and Microcontrollers
Faculty Name(s) : Sumit Kumar Jindal (Course Co-ordinator)
Class Number(s) : VL2024250504037/4039/4041/4043/4046/4048/4050/4053/4055/4058/4060/4062/4064/4067/4069/4072/4074/4076/4081/4083/4085/4087/4089/4194
Date of Examination : 28-01-2025
Exam Duration : 90 minutes **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
  CO1 Comprehend the various microprocessors including Intel Pentium Processors
  CO3 Comprehend the architectures and programming of 8051 microcontroller

Q. No	Question	M	CO	BL
1.	For the following 8051 Assembly Language Program (ALP), list the sequences of actions taking place while executing the entire program. Demonstrate your answer using proper sketch of Program Counter.	10	3	4

Label	ROM Address	Instruction
		ORG 0000H
	0000H	MOV A,#12H
	0002H	MOV R0,A
	0003H	LCALL SUB1
	0004H	RR A
SUB1:	00F0H	MOV R0,23H
	00F1H	MOV R2,A
	00F2H	RET

2.	Assume any data is present in Accumulator. Check its MSB (Most Significant Bit), and if it is "1", then develop an ALP to transfer the data present in ROM starting from 200H to 20FH to internal RAM starting from 50H to 5FH.	10	3	3
3.	(i) Identify and rectify the error in the following instructions a) MOV R1,R3 b) XOR A,#FFH c) MOV A,@A+DPTR d) MUL R1,B e) MOV A,@R2	5	3	3
	(ii) Examine the addressing modes of the following instructions (a) DJNZ R1, label (b) DIV AB (c) MOV DPTR, #0400 (d) MOV 40H, 60H (e) MOVC A, @A+PC	5		

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4	(i) For the given 8051 assembly program, determine the time required to execute it, if XTAL frequency is 16 MHz MOV R4, #0FH — 1 machine cycle L1: ADD A, R4 — 1 machine cycle MOV B, #89H — 1 machine cycle MUL AB — 2 machine cycle INC A — 1 machine cycle DJNZ R4, L1 — 2 machine cycle	5	3	3

	(ii) Analyze the following program and show the content of Accumulator after executing the following code.
	
	XX: MOV R0,#50H
	MOV 50H,#25
	MOV A,@R0
	JZ XX
	INC R0
	MOV A,@R0
	END
		5		

5.	(i) Add 99h and 99h in BCD and evaluate the status of flags.	5	1	2
	(ii) Compare Microprocessor with Microcontroller and prioritize the use of microcontroller for embedded systems.	5		

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