REG.NO.:

VIT

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

SLOT: B1+TB1

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

Programme Name & Branch	**: B.Tech CSE**
Course Code and Course Name	**: BECE204L- Microprocessors and Microcontrollers**
Faculty Name(s)	**: Gerardine Immaculate Mary (Course Co-ordinator)**
Class Number(s)	**: VL2024250504038/4040/4042/4045/4047/4049/4051/5054/ 4057/4059/4061/4063/4065/4068/4071/ 4073/4075/4077/4078/4080/4082/4084/4086/4088/4191/4199**
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. N	Question	M	CO	BL

1.	Analyze the following 8051 assembly program and show the stack and stack pointer during the execution of the program. Assume the default stack area.
	MOV R6, #25H
	MOV R1, #12
	MOV R4, #0F3H
	PUSH 6
	PUSH 1
	PUSH 4
	POP 7
	POP 5
	POP 3
	END
		10	3	4

2.	Assume that 8051 internal RAM locations 30H – 34H have the following values, write an assembly program to find the sum of the values. At the end of the program, register A should contain the low byte and R7 the high byte of the sum. 30H = (7DH) 31H = (EBH) 32H = (C5H) 33H = (5BH) 34H = (30H)	10	3	3
3.	a) Indicate the addressing modes for the following 8051 instructions (i) MOV R0, #56H (ii) MOVC A, @A+DPTR (iii) MOV 38H, R0 (iv) MOV R0, 38H (v) ADD A, @R1	5	3	3

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	b) Identify if the following 8051 instruction have any error, if so give the correct instructions (i) MOV @R2, A (ii) DEC DPTR (iii) CPL R3 (iv) AND A, B (v) MUL A,B	5		
4.	a) For the given 8051 assembly program, find out the time required to execute it, if XTAL frequency is 10 MHz.		3	3

MOV R4, #78H	1 machine cycle
L1: ADD A, R4	1 machine cycle
MOV 67H, 79H	1 machine cycle
SUBB A, 67H	1 machine cycle
INC A	1 machine cycle
DJNZ R4, L1	2 machine cycle

5

	(b) Determine the value of A and B and status of the flag register after the execution of the following instructions:
	ORG 0000H
	MOV A, #25H
	MOV B, #1FH
	MUL AB
	SUBB A, #0FCH
	RRC A
	END
		5		

5.	(a) Examine the content of flags after performing **logical OR** operation of the following $(F1)_{16}$ **OR** $(1F)_{16}$	5	1	2
	(b) Explain why microcontrollers are preferred over microprocessors for small to medium appliance applications.	5		

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