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

Reg. Number:	

Continuous Assessment Test (CAT) – II - Oct 2024

Programme	:	**B.Tech (ECE/ECM/VLSI/CSE)**	Semester	:	**FS 2024-25**
Course Code & Course Title	:	**BECE204L, Microprocessors and Microcontrollers**	Class Number	:	**CH2024250100263, CH2024250100311, CH2024250100310**
Faculty	:	**Dr.Abraham Sudharson Ponraj, Dr. Chanthini Baskar, Dr.G.Gugapriya**	Slot	:	**D1+TD1**
Duration	:	90 Minutes	Max. Mark		**50**

General Instructions: < Use this space to provide additional information such as graph sheet, data book etc.>

- Write only your registration number on the question paper in the box provided and do not write other information.
- Use statistical tables supplied from the exam cell as necessary
- Use graph sheets supplied from the exam cell as necessary
- Only non-programmable calculator without storage is permitted

Answer all questions

Q. No	Sub Sec.	Description	Marks	Blooms Taxonomy Level
1.	a)	Find the time delay of the given 8051 assembly language program. Assume the crystal frequency as 12 MHz. Instruction / Number of Machine Cycle DELAY: MOV R2, #100 — 1 HERE: MOV R3,#255 — 1 AGAIN: DJNZ R3, AGAIN — 2 DJNZ R2, HERE — 2 RET — 2	7	L3
	b)	Given block of 100H to 200H. Find out how many bytes from this block are greater than the number in R2 and less than number in R3. Store the count in R4. Assume R2 = 05H, R3 = 50H .	8	L3
2.		Consider two arrays [2, 56, 76, 77, 31] and (22, 27, 12, 14, 17] stored at memory locations starting from 3000H and 4000H respectively. Write an 8086 ALP to perform element wise addition in the given array of numbers and store at memory location starting from 1000H. Check the count of even numbers in the resultant array stored at 1000H and store the count in memory location 2000H.	10	L3
3.		Assume that in a bank sector, the token number which is issued to the customers is fed at port 0. If the token values are less than or equal to 10, a message "ALLOWED" is to be sent serially	10	L3

		and blink a led connected at port p2.0 for a time delay of 2ms. Else "WAIT" is to be sent. Assume XTAL = 11.0592 MHz. Set the baud rate at 2400. Write an 8051 assembly language program for the above condition.		
4.		The doctor activates his entry/ exit on the LCD screen that is placed in the door of consultation room. Assume that the room door has two digital infrared (IR) sensors for monitoring the doctor entry and exit. Both IR sensor modules are connected to the INT0 and INT1 pins of 8051 respectively. Whenever the doctor enters in to the room, an interruption will be observed by the IR sensors, then the LCD should display "DOCTOR: IN" and while he exits the room, the display should show "DOCTOR: OUT". Write an 8051 Assembly Language Program for the above system.	15	L4

**********All the best **********