

University under section 3 of UGC Act, 1956
CHENNAI

Continuous Assessment Test(CAT) – I - AUG 2025

Programme	: B.Tech (ECE/ECM/VLSI)	Semester	: FS 2025-26
Course Code & Course Title	: BECE204L Microprocessors and Microcontrollers	Class Number	: CH2025260100488 CH2025260100490 CH2025260100493 CH2025260100494
Faculty	: Dr Muthulakshmi S Dr Gugapriya G Dr Abraham Sudharson Ponraj Dr Chanthini Baskar	Slot	: D2+TD2
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	CO	BT Level
1		Differentiate between CISC and RISC architecture with an example.	[5]	1	K2
2		Assess the data memory of 8051 Microcontroller and perform the following (i) Show how it is organised from 00H to 7FH memory locations and State their purpose. (5) (ii) With an example instruction, show how each part of the data memory is accessed individually.(5)	[10]	3	K1
3		Write an 8051 Assembly Language Program to sort the given ten data bytes in ascending order. The data is stored in RAM location starting from 40H and store the sorted data starting from RAM location 50H.	[10]	3	K3
4		Write an 8051 Assembly Language Program to continuously monitor P0. If the data is other than FFH write a subroutine to multiply with 0AH and send it to port 1 and port 2. Note: Store lower bytes in P0 and higher bytes in P1	[10]	4	K3
5		Consider a scenario where an LED needs to be toggled every 25 microseconds to create the illusion of continuous illumination due to the precision of human eye perception. The goal is to achieve this LED toggling on port P1.2 of 8051 microcontroller. The applied clock frequency is 12 MHz. a) In the first implementation, the LED toggling is achieved by continuously monitoring the timer overflow bit. Use Timer 0 in mode 1 operation.(7 marks) b) In the second approach, an automated system with interrupts acting as triggers is created, with a preference for Timer 1 in mode 1. An interrupt service routine (ISR)	[15]	4	k4

is set up to effectively manage the LED toggling.(8 Marks)

Write an 8051 Assembly Language Program for both implementations (2 different program)

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