



REG.NO.:

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

SLOT: A1+TA1

Programme Name & Branch  
Course Code and Course Name  
Faculty Name(s)  
Class Number(s)  
Date of Examination  
Exam Duration

: B.Tech (CSE & Specializations)  
: BCSE305L and Embedded Systems  
: Common for all  
: Common for all  
: 27.01.2025  
: 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)
- CO1: Identify the challenges in designing an embedded system using various microcontrollers and interfaces.
- CO2: To summaries the functionality of any special purpose computing system, and to propose smart solutions to engineering challenges at the prototype level.

No	Question	M	CO	BL
	Design an 8-bit generic microcontroller with illustration. How will you modify your design to meet the following criteria? i) Time & space complexity ii) Upgradability	10	CO1	BL3
	Analyze the challenges and issues with respect to embedded system design for the given scenarios. i) Logistics ii) Home Automation	10	CO1	BL4
	Analyze the importance of timers and counters in an embedded system with an example for each with justification. Design and implement a program using embedded C/ALP to create a square wave with duration of 1second per cycle. Show all relevant calculations.	10	CO2	BL4
	Analyze the need for signal conversion in handling mixed signal data. Illustrate and discuss the optimal design of ADC with necessary parameters.	10	CO2	BL4
	Discuss the working principle of proximity sensor. How it can be used for developing autonomous vehicle navigation. Show the illustration of navigation and interfacing with 8051.	10	CO2	BL2

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