



# VIT

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

REG.NO.: 23BCE2093

SLOT: G1 + TG1

## SCHOOL OF COMPUTER SCIENCE AND ENGINEERING CONTINUOUS ASSESSMENT TEST - I WINTER SEMESTER 2025-2026

Programme Name & Branch : B.Tech. & Computer Science and Engineering  
 Course Code and Course Name : BCSE305L & Embedded Systems  
 Date of Examination : 02.02.2026  
 Exam Duration : 90 minutes Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level
- CO1: Identify the challenges in designing an embedded system using various microcontrollers and interfaces.

Q. No	Question	M	CO	BL
1.	Illustrate the 8051 microcontroller architecture and briefly describe the functions of its Special Function Registers (SFRs).	10	1	1
2.	Design an embedded system-based automatic irrigation system that supplies water to crops only when necessary, thereby conserving water and improving crop yield. The system should monitor soil and environmental conditions and control water flow accordingly.	10	1	6
3.	Explain how UART communication works in the 8051 microcontroller with a block diagram. Write an ALP or Embedded C program to transmit the string 'VIT' continuously via the 8051 UART	10	1	3
4.	(i) Discuss the principle of Operation of any one ADC and explain its significance in embedded systems.(5)  (ii) Explain the role of a DC Motor as an actuator in an embedded system and describe how it is interfaced.(5)	10	1	2
5.	Design a microcontroller-based counter system to count the number of objects passing on a conveyor belt and display the count. Draw and explain the block diagram, and describe the working of the system.	10	1	6

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