



VIT

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

REG.NO.: 22BCT0325

PRP 109-30

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

SLOT: B1

Programme Name & Branch : B.Tech. Computer Science and Engineering (Internet of Things)
Course Code and Course Name : BCSE312L - Programming for IoT Boards
Faculty Name(s) : Prof Krishnamoorthy A & Prof. Ranjith R
Class Number(s) : VL2025260102385 & VL2025260102384
Date of Examination : August 18, 2025
Exam Duration : 90 minutes
Maximum Marks: 50

General instruction(s):

- Answer All Questions
- Note: Step by step solution is expected
- Course Outcomes:
CO1: Investigate various challenges and explore open source hardware prototyping platforms for designing IoT devices
CO2: Understand basic circuits, sensors and interfacing, data conversion process and shield libraries to interface with the real world.

BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyze, 5 – Evaluate, 6 – Create)

Q. No	Question	M	CO	BL
1.	Write Short notes on the Concept of IoT, in detail explain the security and design challenges of IoT.	10	CO1	BL2
2.	Design and implement a digital lock system using an Arduino, a 4x4 keypad, and a servo motor. The system should allow the user to enter a 4-digit numeric password via the keypad. If the entered password matches the pre-defined correct password, the servo motor should rotate to 90° to simulate unlocking the door and display a success message. If the password is incorrect, an error message should be printed on the Serial Monitor, and the user should be prompted to try again.	10	CO2	BL2
3.	Compare analog and digital interfacing techniques for sensors. How does Arduino read sensor values and write to actuators? Illustrate with appropriate code snippets using analogRead(), digitalRead(), and digitalWrite().	10	CO2	BL2
4.	Draw a neat diagram of the Arduino UNO board and explain the functions of its key hardware component in detail.	10	CO1	BL1
5.	Explain the working principle of the UART protocol. Describe the roles of the transmitter and receiver, and explain how data framing, baud rate, start/stop bits, and parity are handled in UART communication. Also, discuss the advantages and limitations of UART compared to other serial communication protocols	10	CO1	BL1
