Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 11-10-2025 **Time:** 09.30am to 11.00am

School: SOCSE	**Program:** B.Tech. Computer Science and Engineering (Internet of Things)	
Course Code: CIT3400	**Course Name:** Architecting Smart IoT devices	
Semester: V	**Max Marks**:50	**Weightage**:25%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**26**	**24**			

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	What are actuators in IoT? Give one example.	**2 Marks**	**L1**	**CO1**
2	Mention any two functions of a gateway in an IoT system	**2 Marks**	**L1**	**CO1**
3	Name any two wireless communication protocols commonly used in IoT	**2 Marks**	**L1**	**CO1**
4	Name any two microcontrollers commonly programmed in C for IoT applications.	**2 Marks**	**L1**	**CO2**
5	State one difference between polling and interrupt-driven programming in C.	**2 Marks**	**L1**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	a.	Describe the system architecture of IoT with a neat diagram. Explain each layer in detail.	10 Marks	L1	CO 1
Or					

7.	a.	Discuss the steps in prototyping embedded devices for IoT. Include hardware components, sensors, actuators, and radio modules	10 Marks	L1	CO 1

8.	a.	Explain the role of gateways, internet, and web technologies in IoT communication. How do they connect wireless sensor networks to cloud platforms	10 Marks	L1	CO 1
		Or			
9.	a.	Explain the key design features of NB-IoT that make it suitable for IoT applications	10 Marks	L2	CO 1

10.	a.	Describe the design and working of a smart irrigation system using C programming. Include sensor interfacing, control logic, and output devices	10 Marks	L2	CO 2
		Or			
11.	a.	With a neat diagram, explain how C programs handle I/O operations (sensors and actuators) in IoT-connected devices	10 Marks	L1	CO 2

12.	a.	Explain how C language is used to program microcontrollers in IoT applications. Illustrate with examples.	10 Marks	L1	CO 2
		Or			
13.	a.	Write and explain a C program for an IoT-based temperature controller using a temperature sensor.	10 Marks	L2	CO 2