| Roll No. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

# PRESIDENCY UNIVERSITY

**BENGALURU**

## Mid - Term Examinations – October 2025

**Date:** 29-10-2025 **Time:** 02.30pm to 04.00pm

| | | |
|---|---|---|
| **School:** SOCSE/SOE | **Program:** B-Tech | |
| **Course Code :**CIT3405 | **Course Name**: Edge and Fog Computing for IOT | |
| **Semester**: VII | **Max Marks**:50 | **Weightage**:25% |

| CO - Levels | CO1 | CO2 | CO3 | CO4 | CO5 |
|---|---|---|---|---|---|
| Marks | 31 | 19 | - | - | - |

**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** | List the four core Components of IoT as described in the module. | **2 Marks** | **L1** | **CO1** |
| **2** | Define the term "Federation" in the context of federating edge resources. | **2 Marks** | **L1** | **CO1** |
| **3** | Identify the main purpose of the Privacy Protection Layer in the IoV Security Model. | **2 Marks** | **L1** | **CO2** |
| **4** | State the four fundamental characteristics of the Internet of Things (IoT). | **2 Marks** | **L1** | **CO1** |
| **5** | Name the three layers of the IoV Architecture (excluding sub-layers). | **2 Marks** | **L1** | **CO2** |

## Part B

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

| | | | | | |
|---|---|---|---|---|---|
| **6.** | **a.** | Describe the Working Principle of Edge Computing | **5 Marks** | **L1** | **CO1** |
| | **b.** | Explain the concept of Network Slicing. | **5 Marks** | **L1** | **CO2** |
| **Or** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **7.** | **a.** | Discuss the New Computing Paradigms related to IoT (Cloud, Fog, Edge, and Cognitive Computing) and compare their respective features. | **5 Marks** | **L1** | **CO1** |
| | **b.** | Explain the two categories of Integrated C2F2T Literature based on Use-Case Scenarios and Metrics Threads Standards. | **5 Marks** | **L1** | **CO1** |

| | | | | | |
|---|---|---|---|---|---|
| **8.** | **a.** | Describe the seven-layer security model architecture for Internet of Vehicles (IoV). Explain the objective of the Physical Layer Security and the Trust Management Layer in detail | **10 Marks** | **L1** | **CO2** |
| | **b.** | Compare and contrast the Centralized and Distributed IoV Network Models, highlighting their trade-offs in terms of latency and reliability. | **5 Marks** | **L1** | **CO2** |
| | | **Or** | | | |
| **9.** | **a.** | Differentiate between the three types of techniques used in the Integrated C2F2T Literature by Modeling Technique (Analytical Models, Discrete-event Simulation, and Emulation). | **10 Marks** | **L1** | **CO1** |
| | **b.** | Explain the three main layers of the IoV Architecture (Perception Layer, Network Layer, and Application Layer) with respect to their functions. | **5 Marks** | **L1** | **CO2** |

| | | | | | |
|---|---|---|---|---|---|
| **10.** | **a.** | Explain in detail the Hierarchy of Fog and Edge Computing with a neat block diagram. Describe the functionality of each layer. | **10 Marks** | **L1** | **CO1** |
| | **b.** | Discuss the major Challenges and Future Aspects of the Internet of Vehicles (IoV). | **5 Marks** | **L1** | **CO2** |
| | | **Or** | | | |
| **11.** | **a.** | Describe the core Working Principle of Edge Computing and elaborate on the various Business Models that Edge Computing enables. | **10 Marks** | **L1** | **CO1** |
| | **b.** | Describe the roles of Software-Defined Networking (SDN) and Network Function Virtualization (NFV) in the working mechanism of Network Slicing. | **5 Marks** | **L1** | **CO2** |