PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 28-10-2025   **Time:** 11.00am to 12.30pm

School: SOIS	**Program:** B.Tech
Course Code : CIT2504	**Course Name:** AI and Deep Learning for IoT
Semester: VII	**Max Marks**: 50 — **Weightage**: 25%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	24	26			

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 **five main layers** in the architecture of an **AIoT system**.	2 Marks	L1	CO1
2	In the context of IoT Gateways, what is the process of **Protocol Conversion**?	2 Marks	L1	CO2
3	An IoT Gateway performs **Edge Computing**. Explain the significance of this functionality.	2 Marks	L2	CO2
4	State the **Definition of AI** and list any two of its **Key Abilities**.	2 Marks	L1	CO1
5	Differentiate between **Bluetooth Low Energy (BLE) Provisioning** and **Direct Wi-Fi Pairing** in terms of establishing a connection between a mobile device and an IoT device.	2 Marks	L2	CO2

Part B

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

6.	a.	**Explain the** AIoT Workflow **in detail, clearly describing the activities that occur in the** Data Acquisition **and** Action Execution **steps.**	**10 Marks**	**L2**	**CO 1**
		Or			
7.	a.	Explain the term **Edge AI** in the context of AIoT. Discuss how Edge AI addresses the key challenges of **Latency** and **Bandwidth Use** compared to Cloud AI.	**10 Marks**	**L2**	**CO 1**

8.	a.	**Illustrate the use of AI in four different** real-world applications **across various industries, such as Healthcare, Finance, or Automotive, giving a specific example for each.**	**10 Marks**	**L3**	**CO 1**
		Or			
9.	a.	Discuss four major **Challenges and Risks** associated with implementing **AIoT** technology in real-world scenarios. How does an **IoT Gateway** help mitigate the risk of **Security Threats**?	**10 Marks**	**L2**	**CO 1**

10.	a.	**Describe the functions of the two most common messaging protocols in IoT,** MQTT **and** HTTP/REST**. Provide a** Smart Home Automation **scenario where a developer would choose MQTT over HTTP/REST and justify your choice.**	**10 Marks**	**L3**	**CO 2**
		Or			
11.	a.	**Define an IoT Gateway and explain its role in an IoT system using the "Translator" or "Bridge" analogy**. Then, describe any three key functionalities it performs for communication and data management.	**10 Marks**	**L2**	**CO 2**

12.	a.	**Gateways are essential to the IoT ecosystem. Using a** Real-Time Health Monitoring **example, explain three reasons** Why Gateways are Needed**, focusing on how they solve the challenges related to** Protocol, Security, **and** Data Volume**.**	**10 Marks**	**L3**	**CO 2**
		Or			
13.	a.	Explain any **five Key Functionalities** of an IoT Gateway in detail, ensuring you cover aspects of **data processing** and **network connectivity**.	**10 Marks**	**L2**	**CO 2**