Roll No.											

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 09- 12-2025 **Time:** 01:00pm – 04:00pm

School: SOCSE	**Program:** CIT	
Course Code: CIT3407	**Course Name:** IoT Data Analytics and Machine Learning	
Semester : VII	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**28**	**24**	**24**	**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. **10Q x 2M=20M**

1.	Outline the World forum architecture for IoT.	**2 Marks**	**L1**	**CO1**
2.	Differentiate between structured and unstructured data with an example.	**2 Marks**	**L1**	**CO1**
3.	What is the difference between trend and seasonality?	**2 Marks**	**L1**	**CO2**
4.	Define data exploration in the context of IoT data	**2 Marks**	**L1**	**CO2**
5.	Define bias and variance in machine learning.	**2 Marks**	**L1**	**CO3**
6.	Define Machine Learning in the context of IoT	**2 Marks**	**L1**	**CO3**
7.	Define data retention.	**2 Marks**	**L1**	**CO4**
8.	What is data archiving?	**2 Marks**	**L1**	**CO4**
9.	What are IoT connectivity protocols? Give two examples.	**2 Marks**	**L1**	**CO1**
10.	Define MQTT and state one use case.	**2 Marks**	**L1**	**CO1**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Explain the types of Data Analytics with suitable examples.	**10 Marks**	**L2**	**CO1**
	b.	Explain the challenges of IoT with examples.	**10 Marks**	**L2**	**CO1**
		Or			
12.	**a.**	Outline the structure of one-M2M model of IoT.	**10 Marks**	**L2**	**CO1**
	b.	Describe features of any four Network -layer features in IoT.	**10 Marks**	**L2**	**CO1**

13.	**a.**	Explain the steps involved in exploring IoT data.	**10 Marks**	**L3**	**CO2**
	b.	Illustrate the process involved in time series analysis.	**10 Marks**	**L3**	**CO2**
		Or			
14.	**a.**	Illustrate the techniques to understand and improve data quality in IoT cloud processing.	**10 Marks**	**L3**	**CO2**
	b.	Use suitable examples to Interpret the common techniques for exploring and visualizing IoT data.	**10 Marks**	**L3**	**CO2**

15.	**a.**	Explain how feature engineering improves the performance of IoT-based machine learning models with steps involved.	**10 Marks**	**L3**	**CO3**
	b.	Describe how analytical methods are validated and outline the key validation parameters used to ensure that IoT system analytics remain accurate and dependable.	**10 Marks**	**L3**	**CO3**
		Or			
16.	**a.**	Demonstrate how bias and variance affect the accuracy of IoT data models and suggest ways to minimize them.	**10 Marks**	**L3**	**CO3**
	b.	Explain the advantages of machine learning inference on IoT data.	**10 Marks**	**L3**	**CO3**

17.	**a.**	Explain in detail the risk, security, cost, and governance considerations associated with data retention.	**10 Marks**	**L2**	**CO4**
	b.	Compare Linked Analytical Datasets with traditional data warehouse datasets.	**10 Marks**	**L2**	**CO4**
		Or			
18.	**a.**	Discuss the challenges in managing data lakes and how organizations overcome them.	**10 Marks**	**L2**	**CO4**
	b.	Describe the steps in designing and implementing a *Data Retention & Archiving Strategy* for a large organization.	**10 Marks**	**L2**	**CO4**