Roll No: | | | | | | | | | | | |

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

Presidency University Act, 2013 of the Karnataka Act No. 41 of 2013 | Established under Section 2(f) of UGC Act, 1956
Approved by AICTE, New Delhi | Approved By BCI
Bengaluru

Mid Term Examinations - October 2026

Date: 05/10/2026 **Time:** 11:45 AM - 01:15 PM

Course Code: IST3405 **Course Name:** Applied ML Techniques

Semester: Seventh Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2
Marks	46	44

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	List any four common types of features used in machine-learning datasets.	2	CO1	BT1
2	State the purpose of a loss function in regression learning.	2	CO1	BT1
3	Explain the role of cross-entropy cost in softmax regression.	2	CO1	BT2
4	Define random subspaces and state one advantage of using them in an ensemble.	2	CO2	BT1
5	What is stacking in ensemble learning? Name its main components.	2	CO2	BT2

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	For actual values [10,14,18] and predictions [12,13,20], calculate MAE and interpret it.	10	CO1	BT3
7	A numerical feature is skewed and contains missing values. Recommend an imputation method and justify it.	10	CO1	BT3

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Explain how sigmoid converts a linear score to a probability. Calculate its output for z=0.	10	CO1	BT3
9	For three customer classes, explain how softmax regression produces class probabilities and selects the predicted class.	10	CO1	BT2

PART D: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
10	Explain bootstrap sampling and aggregation in bagging. Analyse why bagging helps high-variance learners.	10	CO2	BT3
11	Explain random subspaces and analyse how selecting different feature subsets increases ensemble diversity.	10	CO2	BT3

PART E: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT

12	Explain how AdaBoost increases the importance of misclassified observations. Why can it be sensitive to noise?	10	CO2	BT3
13	Explain stacking using three base learners and a meta-learner. Analyse how it can improve prediction.	10	CO2	BT3