Q.P.Code: 23CS0902 | R23 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B.Tech. II Year II Semester Supplementary Examinations December-2025

MACHINE LEARNING

(Common to CSM, CAD & CAI)

Time: 3 Hours **Max. Marks: 70**

PART-A

(Answer all the Questions **10 x 2 = 20** Marks)

1	a	What is meant by regression problem.	CO1	L2	2M
	b	Define Machine Learning.	CO1	L1	2M
	c	List out the performance measures of Regression.	CO2	L1	2M
	d	How does KNN regression differ from KNN classification?	CO2	L1	2M
	e	What is the main criterion used to split nodes in a decision tree during classification?	CO3	L1	2M
	f	Interpret the prior probability in the context of Baye's Rule.	CO3	L2	2M
	g	Outline the role of the activation function in a Multi-Layer Perceptron.	CO4	L2	2M
	h	Compare Linear Regression and Logistic Regression.	CO4	L2	2M
	i	What is a centroid in K-Means clustering?	CO5	L1	2M
	j	How does Fuzzy C-Means differ from K-Means?	CO5	L1	2M

PART-B

(Answer all Five Units **5 x 10 = 50** Marks)

UNIT-I

2	a	Infer the different stages in Machine Learning.	CO1	L2	5M
	b	Explain concepts of learning by Rote & Induction with an example.	CO1	L2	5M
		OR			
3		Illustrate different Data collection Methods with example.	CO1	L2	10M

UNIT-II

4	a	Outline the steps involved in Nearest Neighbour Models.	CO2	L2	5M
	b	Explain hamming distance for any two binary and DNA patterns.			5M
		OR			
5		Summarize Euclidian distance measure with one example.	CO2	L2	10M

UNIT-III

6		Identify the steps involved in building a Bayes Classifier for binary classification using Bayes" Rule.	CO3	L3	10M
		OR			
7		Utilize Gini Index and Entropy to measure impurity in decision trees.	CO3	L3	10M

UNIT-IV

8	a	What is Linear Discriminant Analysis (LDA) Explain LDA steps for classification.	CO5	L2	6M
	b	Compare and contrast Logistic Regression and Linear Regression.	CO5	L2	4M
		OR			
9		Describe Multi-Layer Perceptron (MLP) architecture and how it extends the single-layer perceptron.	CO5	L2	10M

UNIT-V

10		Compare and Contrast of Rough Clustering and Rough K-Means algorithm with traditional K-Means algorithm.	CO6	L4	10M
		OR			
11		Analyze the differences between Agglomerative and Divisive hierarchical clustering methods.	CO6	L4	10M

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