

Course Code: 23AD6T01

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE  
(AUTONOMOUS)

III - B.Tech II-Semester Regular Examinations (BR23), May - 2026

MACHINE LEARNING (CSE-AI&DS)

Time: 3 hours

Max. Marks: 70

Question Paper consists of Part-A and Part-B  
Answer ALL the question in Part-A and Part-B

PART-A (10X2 = 20M)

		Marks	CO	BL
1. a)	List the different data sets used in machine learning.	(2M)	CO1	BL1
b)	Explain different types of data.	(2M)	CO1	BL2
c)	Apply the Minkowski distance formula for different values of $r$ (1,2, $\infty$ ) to compute the proximity measure between points $A = (3, 5)$ and $B = (6, 9)$ .	(2M)	CO2	BL3
d)	Explain the Non-Metric Similarity Functions with suitable example.	(2M)	CO2	BL2
e)	Explain the Impurity Measuring techniques in decision trees.	(2M)	CO3	BL2
f)	What is bayes theorem?	(2M)	CO3	BL1
g)	What is linear SVM?	(2M)	CO4	BL1
h)	What is meant by Perceptron?	(2M)	CO4	BL1
i)	Define Clustering in Machine Learning.	(2M)	CO5	BL1
j)	List the limitations of K Means Method.	(2M)	CO5	BL1

PART-B (5X10 = 50M)

2a.	Describe the stages in a typical Machine Learning workflow.	6(M)	CO1	BL2
b.	Explain the different data sets used in machine learning.	4(M)	CO1	BL2
(OR)				
3a.	Compare different paradigms of Machine Learning: supervised, unsupervised, and reinforcement learning with examples.	6(M)	CO1	BL2
b.	What is meant by matching? Explain the purpose of matching in machine learning.	4(M)	CO1	BL2

4.	Apply the K-Nearest Neighbour (KNN) algorithm for the given data set and find the class label for a new customer with an annual income of 20k\$ and a spending score of 55 using KNN with $k=3$ .	10(M)	CO2	BL3
----	---	-------	-----	-----

Customer ID	Annual Income (k\$)	Spending Score (1-100)	Category
1	15	39	Low
2	16	81	Medium
3	17	6	Low
4	18	77	Medium
5	19	40	Low
6	20	76	Medium
7	21	6	Low
8	22	94	High
9	23	3	Low
10	24	72	Medium

(OR)

5a.	Explain the KNN regression method with a suitable example of KNN.	6(M)	CO2	BL2
b.	Describe different distance measures, such as Euclidean, Manhattan, and Cosine distance, with appropriate formulas.	4(M)	CO2	BL2

6	Explain the concept of Random Forests and how it improves over a single decision tree.	10(M)	CO3	BL2
---	--	-------	-----	-----

(OR)

7	Explain the Naïve Bayes classifier with suitable example.	10(M)	CO3	BL2
---	---	-------	-----	-----

8a.	Explain the non linear SVM with suitable diagrams.	5(M)	CO4	BL2
-----	--	------	-----	-----

b.	Explain the Logistic Regression Model.	5(M)	CO4	BL2
----	--	------	-----	-----

(OR)

9	Explain the Multi Layer Perceptron Model with back propagation	10(M)	CO4	BL2
---	--	-------	-----	-----

10	Explain the Divisive Clustering, Agglomerative Clustering Methods	10(M)	CO5	BL2
----	---	-------	-----	-----

(OR)

11.	Explain the K-Means clustering algorithm with a suitable example	10(M)	CO5	BL2
-----	--	-------	-----	-----

\*\*\*\*\*

FACULTY

HOD