SCHOOL OF ENGINEERING, CUSAT
B.TECH V SEMESTER EXAMINATIONS
19-202-0507 MACHINE LEARNING
FIRST INTERNAL EXAMINATION, OCTOBER 2023

Faculty: Amrutha S Nair
Time: 2 hrs **Marks: 50**

COURSE OBJECTIVES

1. Explain various learning approaches and concepts of supervised learning.
2. Compare the different dimensionality reduction techniques.
3. Make use of theoretical foundations of decision trees to identify best split and Bayesian classifier.
4. Make use of clustering algorithms.
5. Identification of classifier models for typical machine learning applications.
6. Combine algorithms and analyze different algorithms.

Bloom's taxonomy levels(L1-Remember, L2-Understand L3-Apply, L4-Analyze L5-Evaluate L6-Create)
PO-Program outcome

PART A
(Answer all questions)(5*4=20)

	Question	BL	CO	PO
1.	List out any four applications of machine learning.	L1	CO1	PO1-PO9
2.	Differentiate between supervised and unsupervised training. Explain with suitable examples	L2	CO1	PO1-PO9
3.	Explain feature selection and feature extraction method for dimensionality reduction	L1	CO2	PO1-PO5
4.	Distinguish between overfitting and underfitting. How it can affect model generalization?	L2	CO1	PO1-PO9

PART B
(Answer any three Questions, 10*3=30)

		BL	CO	PO
5.	Explain the concept of Probably Approximately Correct learning.	L1	CO1	PO1-PO9
6.	Illustrate the two approaches used in subset selection.	L2	CO2	PO1-PO5
7.	Given the following data, use PCA to reduce the dimension from 2 to 1.	L3	CO2	PO1-PO5

Features	Example 1	Example 2	Example 3
X	2	3	7
Y	11	14	26

8.	Draw the VC dimension of axis aligned rectangle.	L2	CO1	PO1-PO9