TE - ECS / Sem - VI / R-19 / SH - 2024 / 16-12-202

Paper / Subject Code: 89325 / : Machine Learning (DLOC)

QP. Code : 65511

Duration: 3hrs

[Max Marks:80]

N.B.: **(1) Question No 1 is Compulsory.**
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1		Attempt any FOUR	[20]
	a	Define Confusion matrix.	
	b	Briefly explain any two applications of machine learning	
	c	Define Manhattan norm and Euclidean norm	
	d	Describe expectation maximization algorithm	
	e	How XOR problem can be solved with multilayer perceptron	
2	a	Explain the following activation functions Identity function Step function Binary sigmoid function Bipolar sigmoid function Hyperbolic tangent function	10
	b	Illustrate Support vector machine (SVM) for a two class data set .	10
3	a	Explain perceptron learning rule.	5
	b	Write a short note on principal component analysis.	7
	c	Describe the features of Delta/LMS(Widrow-Hoff) rule.	8
4	a	Explain SVD (Singular Value Decomposition) with applications	10
	b	Briefly explain McCulloch-Pitts neuron model. Describe the salient features of M-P neuron model. How will you implement the logical AND gate with M-P model?	10
5	a	Explain the curse of dimensionality	5
	b	What are the different types regression	7
	c	Explain the steps of back propagation algorithm	8
6	a	Explain cross-validation, overfitting, and underfitting with examples	10
	b	Explain K-means clustering.	10

30