Reg. No.															

Question Paper Code	13360

M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024 (JAN - 2025)

First Semester

M.E. - Computer Science and Engineering

(Common to M.E. - Computer Science and Engineering (with Specialization in Networks**))**

20PCSPW101 / 24PCSPW101 - ADVANCED MACHINE LEARNING WITH LABORATORY

Regulations – 2020 / 2024

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	*K – Level*	*CO*
1.	Mention a few general issues in Machine Learning.	*2*	*K2*	*CO1*
2.	Infer about linear regression.	*2*	*K2*	*CO1*
3.	Define Feed Forward Neural Network.	*2*	*K1*	*CO2*
4.	Give description about Radial Basis Functions.	*2*	*K1*	*CO2*
5.	Outline the need for learning in classification.	*2*	*K2*	*CO3*
6.	Compare Ensemble with Hybrid methods.	*2*	*K2*	*CO3*
7.	Differentiate between PCA and LDA.	*2*	*K2*	*CO4*
8.	Show the advantages and disadvantages of Locally weighted linear Regression.	*2*	*K2*	*CO4*
9.	Summarize Major Genetic Operations.	*2*	*K2*	*CO5*
10.	Outline the advantages of evolutionary algorithms.	*2*	*K2*	*CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	*K – Level*	*CO*
11.	a)	Explain how Concept learning can be viewed as a Search problem with the help of General to specific ordering of Hypotheses.	*13*	*K2*	*CO1*
		OR			
	b) i)	Outline the Limitations of Find-S algorithm.	*7*	*K2*	*CO1*
	ii)	Compare Candidate Elimination algorithm and Find-S algorithm.	*6*	*K2*	*CO1*
12.	a) i)	Discuss the important characteristics of Multi Layer Perceptron.	*6*	*K2*	*CO2*
	ii)	Explain the need of a Multilayer Perceptron.	*7*	*K2*	*CO2*
		OR			
	b)	Discuss the working of stochastic gradient descent version of the Back propagation algorithm in feed forward networks with an example.	*13*	*K2*	*CO2*

13.	a)	Explain in detail about the K-Means algorithm with suitable example.	*13*	*K3*	*CO3*
		OR			
	b)	Illustrate Decision tree algorithm with an example.	*13*	*K2*	*CO3*
14.	a)	Construct Independent Component Analysis for Dimensionality Reduction.	*13*	*K3*	*CO4*
		OR			
	b)	Identify the working of Locally Linear Embedding algorithm.	*13*	*K3*	*CO4*
15.	a)	Explain a procedure of model selection and the estimate of the generalization error, focusing on the case where a lot of data is available**.**	*13*	*K2*	*CO5*
		OR			
	b)	Demonstrate the functions of Reinforcement Learning with an example.	*13*	*K2*	*CO5*

PART - C (1 × 15 = 15 Marks)

16.	a)	Analyze the significance of Hidden Markov models in machine learning.	*15*	*K4*	*CO5*
		OR			
	b)	Examine various Evolutionary Algorithms with suitable examples.	*15*	*K4*	*CO5*