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III/IV B.Tech (Regular / Supplementary) DEGREE EXAMINATION

January, 2022 — **Information Technology**

Fifth Semester — **Machine Learning**

Time: Three Hours — **Maximum:** 50 Marks

Answer Question No.1 compulsorily. (1X10 = 10 Marks)

Answer ONE question from each unit. (4X10=40 Marks)

1.	a)	What are the types of Machine Learning systems?	CO1	
	b)	What kind of problems can be solved using Machine Learning?	CO1	
	c)	What do you mean by Gradient Descent?	CO1	
	d)	What types of problems are best suited for decision tree learning?	CO2	
	e)	Write the formula for calculating accuracy of a classifier.	CO2	
	f)	List the issues in Decision Tree Learning.	CO2	
	g)	Differentiate between Training data and Testing Data.	CO2	
	h)	What is Artificial Neural Network?	CO3	
	i)	What are the types of problems in which Artificial Neural Network can be applied?	CO3	
	j)	Discuss the perceptron training rule.	CO3	

Unit -I

2.	a)	Write about Linear Regression model with example.	CO1	5M
	b)	Write about performance measures to evaluate a classifier.	CO1	5M
		(OR)		
3.	a)	Explain polynomial regression model with example.	CO1	5M
	b)	Explain about multi label classification with example.	CO1	5M

Unit -II

4.	a)	Write about Support Vector Machine	CO2	5M
	b)	Differentiate hard margin and soft margin Support Vector Machine.	CO2	5M
		(OR)		
5.	a)	Write about training and visualizing a decision tree with example.	CO2	5M
	b)	Write about the following attribute selection measures i. Gini impurity ii. Information Gain.	CO2	5M

Unit -III

6.	a)	Write about Bagging in ensemble learning.	CO3	5M
	b)	Differentiate Bagging and Boosting.	CO3	5M
		(OR)		
7.	a)	Explain Boosting in ensemble learning.	CO3	5M
	b)	Explain the k-Means Algorithm with an example.	CO3	5M

Unit -IV

8.	a)	Explain multilayer perceptron with example.	CO4	5M
	b)	Describe the architecture of an Artificial Neural Network	CO4	5M
		(OR)		
9.		Describe the Back propagation algorithm.	CO4	10M