Reg. No.												

Question Paper Code	12212

M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Third Semester

M.E. - Embedded System Technologies

20PESEL306 - MACHINE LEARNING

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	List the purpose of using decision trees in predictive modeling.	*2,K1,CO1*
2.	State the primary goal of regression analysis, and how is it different from classification.	*2,K2,CO1*
3.	Define K-means Clustering.	*2,K1,CO3*
4.	Define bagging and boosting.	*2,K1,CO3*
5.	List the challenges of Reinforcement Learning.	*2,K1,CO4*
6.	What are the key characteristics of Markov Decision process?	*2,K1,CO4*
7.	Describe the role of machine learning in IoT applications.	*2,K1,CO5*
8.	How machine learning increases the efficiency of IoT?	*2,K2,CO5*
9.	Why is cloud computing important in machine learning?	*2,K2,CO6*
10.	Discuss the concept of predictive maintenance in manufacturing and how machine learning is applied in this context?	*2,K2,CO6*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain briefly the distance based method of supervised learning.	*13,K3,CO1*
		OR	
	b)	Explain the difference between Linear Regression and Logistic Regression. Provide a brief example of each highlighting their distinct use cases in machine learning.	*13,K3,CO1*
12.	a)	Explain the concept of Ensemble Methods in machine learning.	*13,K4,CO3*
		OR	
	b)	Describe Principal Component Analysis (PCA) in machine learning with its application.	*13,K4,CO3*
13.	a)	Explain the concepts of Bayesian Learning and Inference in machine learning.	*13,K2,CO4*

OR

b) Explain the fundamental principles of Monte Carlo prediction in the context of machine learning and justify how it can be applied to predict financial outcomes. *13,K2,CO4*

14. a) Explain how machine learning algorithms can be applied for real-time anomaly detection in IoT devices and sensor data. *13,K4,CO5*

OR

b) Explain different machine learning models used for IoT Applications. *13,K4,CO5*

15. a) Discuss about the application of machine learning in hospitality sector. *13,K4,CO6*

OR

b) Describe a case where machine learning predictive analytics can be successfully applied to address a specific challenge in healthcare. *13,K4,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Based on the following data determine the gender of a person having height 6 ft., weight 130 lbs. and foot size 8 in. (use naive Bayes algorithm). *15,K4,CO2*

person	height (feet)	weight (lbs)	foot size (inches)
male	6.00	180	10
male	6.00	180	10
male	5.50	170	8
male	6.00	170	10
female	5.00	130	8
female	5.50	150	6
female	5.00	130	6
female	6.00	150	8

OR

b) Using SVM algorithm, find the SVM classifier for the following date. *15,K4,CO2*

Example no.	x_1	x_2	Class
1	2	1	+1
2	4	3	−1