Enrolment No. /Seat No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER III- EXAMINATION –WINTER-2025

Subject Code: 639402 **Date: 15/11/2025**

Subject Name: Machine Learning

Time:10:30 AM TO 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make Suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Use of simple calculators and non-programmable scientific calculators are permitted.**

Q.1	**(a)**	**Answer following:** 1. List the characteristics of good dataset. 2. A value to be predicted in machine learning is called as _____. 3. Machine learning is a branch of _____. 4. Predicting the monthly sales of store is _____ task. (Regression/Classification) 5. State the applications of R. 6. What is the hamming distance between 10101011 & 01010101? 7. Define slope.	**07**
	(b)	Explain precision and recall in terms of evaluating performance of model.	**04**
	(c)	Discuss eager learner and lazy learner.	**03**
Q.2	**(a)**	Define machine learning. Discuss reinforcement learning in brief.	**07**
	(b)	Write short note on: 1. Descriptive Models 2. Histogram	**07**
		OR	
	(b)	Explain hold-out method for training a model.	**07**
Q.3	**(a)**	Discuss the concept of ensembling of models.	**07**
	(b)	Explain the process of encoding categorical variables.	**07**
		OR	
Q.3	**(a)**	Explain the measures of feature redundancy.	**07**
	(b)	Explain types of feature selection approaches.	**07**
Q.4	**(a)**	Explain multiple linear regression in detail.	**07**
	(b)	Discuss following: 1. Entropy of decision tree 2. Information gain of decision tree	**07**
		OR	
Q.4	**(a)**	Write and discuss KNN algorithm with its strength, weakness and applications.	**07**
	(b)	What is regression? Explain logistic regression.	**07**
Q.5	**(a)**	Define hyperplane. Explain SVM in detail.	**07**
	(b)	Explain hierarchical clustering algorithm with its applications.	**07**
		OR	
Q.5	**(a)**	Explain following with reference to association rules. 1. Support 2. Confidence	**04**
	(b)	Explain density based clustering algorithm.	**03**
	(c)	Explain k-means clustering algorithm in detail.	**07**

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