GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER– V EXAMINATION – WINTER 2019

Subject Code: 4659302   **Date: 25/11/2019**

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.**

Q.1	**(a)**	Define Terms : (any seven)	**07**
		1 Machine Learning	
		2 DBSCAN	
		3 Epochs	
		4 Spam filtering	
		5 Posterior	
		6 Wrapper approach	
		7 LOOCV	
		8 PCA	
	(b)	Say TRUE or FALSE with justification.	**07**
		1 Exploration of numerical data can be best done using Scatter plot.	
		2 For supervised learning we have predictive model.	
		3 Text Classification uses naïve bayes classifier and collaborative filtering.	
		4 A particular hypothesis holds for a data set it's called likelihood.	
		5 Training dataset is related to the clearing or transforming.	
		6 Residual is the distance between the predicted point and actual point.	
		7 Predicting stochastic events precisely is not possible.	
Q.2	**(a)**	What are the main activities involved when you are preparing to start with modeling in machine learning ?	**07**
	(b)	Explain how bivariate relationships can be explored using scatter plot. Can outliers be detected using scatter plot ?	**07**
		OR	
	(b)	Compare Supervised, unsupervised and reinforcement learning.	**07**
Q.3	**(a)**	Explain the bootstrap sampling. Compare Cross-validation vs. bootstrapping.	**07**
	(b)	What are the different situations which necessitate feature extraction ?	**07**
		OR	
Q.3	**(a)**	How Bayes' Theorem support the concept learning principal ?	**07**
	(b)	Describe the process of predictive modeling for numerical data or a regression model on a categorical data ? Explain your answer.	**07**
Q.4	**(a)**	Discuss the decision tree algorithm in detail.	**07**
	(b)	Define slope in a linear regression. Explain curve linear negative slope and curve linear positive slope.	**07**
		OR	
Q.4	**(a)**	List out different types of clustering techniques? Explain any one in detail.	**07**
	(b)	Discuss the SVM model in detail with different scenarios.	**07**
Q.5	**(a)**	Explain how to the Market Basket Analysis uses the concepts of association analysis.	**07**
	(b)	What are the different types of activation functions popularly used / Explain each of them	**07**
		OR	
Q.5	**(a)**	Short note of Artificial neural network(ANN)	**07**
	(b)	Explain polynomial regression with an example.	**07**