Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER-V EXAMINATION –SUMMER-2020

Subject Code:4659302 Date:05-11-2020

Subject Name:Machine Learning (ML)

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)**	I.	Define Machine Learning.	**02**
		II.	List different major clustering methods and write its characteristics.	**05**
	(b)	I.	State the key difference between Neural Network and Deep Neural Network.	**03**
		II.	Write down the steps of OLS algorithm.	**04**
Q.2	**(a)**		Write a detail note that depicts comparison of Supervised, Unsupervised and Reinforcement Learning.	**07**
	(b)		Explain the different strategies of addressing missing data values in detail.	**07**
			OR	
	(b)		Describe predictive models and descriptive model with suitable examples. Also describe difference between these types of models.	**07**
Q.3	**(a)**		Explain the process of feature engineering in context of a text categorization problem.	**07**
	(b)		Discuss the important of Bayesian methods. Describe strength and weakness of Bayes Classifiers.	**07**
			OR	
Q.3	**(a)**	I.	Explain the overall process of feature selection.	**03**
		II.	List the most popular algorithms for feature extraction and explain the main underlying concept of feature extraction.	**04**
	(b)		What is Regression Analysis? Write all the eight assumptions in Regression Analysis.	**07**
Q.4	**(a)**		Explain the concept of clustering with a neat diagram.	**07**
	(b)		Describe the Market Basket Analysis uses the concepts of association analysis.	**07**
			OR	
Q.4	**(a)**		How to distance between clusters is measured in hierarchical clustering? Explain the use of this measure in making decision on when to stop the iteration.	**07**
	(b)		Explain Apriori algorithm for association rule learning with an example.	**07**
Q.5	**(a)**		Explain the basic structure of a multi-layer perceptron. Explain how it can solve the XOR problem.	**07**
	(b)		Write a detail note on learning process in ANN.	**07**
			OR	
Q.5	**(a)**		Describe each different types of activation function that popularly used in detail.	**07**
	(b)		Explain the backpropagation algorithm in details with it limitations.	**07**

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