Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3171114 Date:10-01-2023

Subject Name:Introduction of 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. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Define three broad categories in which machine learning can be classified.	**03**
	(b)	Differentiate between dimensionality reduction Vs feature selection.	**04**
	(c)	What is machine learning? Explain any two applications of machine learning. What are the possible ethical issues of machine learning applications?	**07**
Q.2	**(a)**	What is classification and regression in a supervised learning?	**03**
	(b)	Explain in brief: SVM Model	**04**
	(c)	What are the advantage and disadvantage of kNN (K nearest neighbor) algorithm?	**07**
		OR	
	(c)	Distinguish between supervised learning, semi-supervised learning, and unsupervised learning.	**07**
Q.3	**(a)**	Explain the difference between activation function and threshold function.	**03**
	(b)	Write any two features of Bayesian learning methods.	**04**
	(c)	What is decision tree? What are the different types of nodes? Explain in detail	**07**
		OR	
Q.3	**(a)**	Explain feature extraction in machine learning.	**03**
	(b)	What is Naive Bayes classifier? Explain various application of neive bayes classifier.	**04**
	(c)	Write a short note on: Logistic regression.	**07**
Q.4	**(a)**	What is the function of a summation junction of a neuron? What is threshold activation function?	**03**
	(b)	Write a short note on Single layer feed forward ANN	**04**
	(c)	Explain, in details, the backpropagation algorithm. What are the limitations of this algorithm?	**07**
		OR	
Q.4	**(a)**	What is the constraint of a simple perceptron? Why it may fail with a real-world data set?	**03**
	(b)	Write a short note on ReLU function.	**04**
	(c)	Write a short note on Deep Neural network.	**07**
Q.5	**(a)**	What do you understand by high dimensional dataset? Give few practical examples.	**03**
	(b)	Explain the concept of bagging and boosting in Machine learning.	**04**
	(c)	Write a short note on Agglomerative Hierarchical Clustering	**07**

OR

Q.5	**(a)**	What is ensemble?	**03**
	(b)	Write a Short note on K – means clustering.	**04**
	(c)	What is the major issue in clustering? Explain various criteria for the clustering.	**07**

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