GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2024

Subject Code:3170724   **Date:19-11-2024**
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. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	What is learning? What are the types of learning?	**03**
	(b)	How do machine learn?	**04**
	(c)	Explain in details, the different strategies of addressing missing data values?	**07**
Q.2	**(a)**	What is IQR? How is it measured?	**03**
	(b)	Explain Holdout method.	**04**
	(c)	What are predictive models? What are descriptive models? Give examples of both types of models. Explain the difference between these types of models.	**07**

OR

	(c)	How would you evaluate the success of an unsupervised learning model? What are the most popular measures of performance for an unsupervised learning model?	**07**
Q.3	**(a)**	What is feature engineering?	**03**
	(b)	When can a feature be termed as irrelevant? How can it be measured?	**04**
	(c)	Explain common discrete distributions.	**07**

OR

Q.3	**(a)**	What is principal component analysis?	**03**
	(b)	Explain the feature selection approaches.	**04**
	(c)	What are Bayesian belief networks? Where are they used? Can they solve all types of problems?	**07**
Q.4	**(a)**	Explain the classification learning steps.	**03**
	(b)	Explain logistic regression.	**04**
	(c)	Discuss KNN model in detail.	**07**

OR

Q.4	**(a)**	What is the cost of misclassification in SVM?	**03**
	(b)	Explain ridge regression.	**04**
	(c)	Discuss decision tree algorithm in detail.	**07**
Q.5	**(a)**	What are the applications of unsupervised learning?	**03**
	(b)	Explain the different activation function used in neural network?	**04**
	(c)	Explain hierarchical clustering.	**07**

OR

Q.5	**(a)**	What is a dendrogram? Explain its use.	**03**
	(b)	Explain the ADALINE network model.	**04**
	(c)	Explain density-based methods – DBSCAN.	**07**

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