Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:3151608   **Date:02/06/2022**
Subject Name:Data Science
Time:02:30 PM TO 05:00 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)	Discuss predictive analytics & prescriptive analytics.	03
	(b)	Describe Skewness and Kurtosis in descriptive analytics.	04
	(c)	Explain Bayes' Theorem with example.	07
Q.2	(a)	Differentiate binomial distribution and geometric distribution.	03
	(b)	Explain central limit theorem with an example	04
	(c)	Discuss challenges for data-driven decision making in business analytics.	07
		OR	
	(c)	Describe big data analytics and web and social media analytics.	07
Q.3	(a)	Analyze simple linear regression with an example.	03
	(b)	Explain Chi-Square automatic interaction detection.	04
	(c)	Explain data types and scales in descriptive analytics.	07
		OR	
Q.3	(a)	What is binary logistic regression? Describe in brief.	03
	(b)	Describe classification and regression tree with an example.	04
	(c)	Give importance of association rule in probability.	07
Q.4	(a)	What is an optimal cut-off probability? Describe in detail.	03
	(b)	Explain probabilistic sampling with example.	04
	(c)	Discuss estimation of parameters using MLE.	07
		OR	
Q.4	(a)	Define random forest with example.	03
	(b)	Explain non-probability sampling with example.	04
	(c)	Discuss estimation of parameters using method of moments.	07
Q.5	(a)	Explain estimation of parameters Using ordinary least squares.	03
	(b)	Explain logistic regression model diagnostics with sensitivity and specificity.	04
	(c)	Find the $S^2 = SSE/(n-2)$ in regression for the following data.	07

x=Female Height	1.52	1.60	1.68	1.75	1.83
y=Male Height	1.69	1.74	1.80	1.93	2.00

OR

Q.5	(a)	Describe outlier analysis with an example.	03
	(b)	State difference between Gain Chart and Lift Chart.	04
	(c)	Do as directed:	07
		(i) Find quartiles Q1,Q2 of the given data 20,25,30,23,22,32,36	
		(ii)Find percentiles P8, P50 of the given data 15,10,22,20,30,27.	

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