Seat No._____   Enrollment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA-SEMESTER-I-EXAMINATION-SUMMER-2025

Subject Code: MB01092041   **Date: 05/06/2025**
Subject Name: Business Statistics
Time: 02:30 PM TO 05:30 PM   **Total Marks: 70**

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

Q.1	Definitions of terms with explanations	**14**
	a) Type I and Type II Error	
	b) Skewness & Kurtosis	
	c) Mutually Exclusive Events	
	d) Data Measurement	
	e) List out Names of Parametric & Non-Parametric Test	
	f) Multivariate	
	g) Measures of Central Tendency	
Q.2 (a)	The Air Transportation Association publishes figures on the busiest airports in its country. The following frequency distribution has been constructed from recent year.	**07**

No. of Passengers Arriving & Departing (in Millions)	No. of Airports
20 under 30	8
30 under 40	7
40 under 50	1
50 under 60	0
60 under 70	3
70 under 80	1

a) Calculate Mean of these data
b) Calculate Mode
c) Calculate the Variance & Standard Deviation

Q.2 (b)	Define Business Statistics and explain Applications of Statistics in Business with examples.	**07**

OR

Q.2 (b)	A problem of business statistics is given to five students, P Q R S and T. Their chances of solving it are ½, ⅓ , ¼ , ⅕, and ⅙ respectively. What is the probability that the problem will be solved? and What is the probability that the problem will not be solved.?	**07**
Q.3 (a)	The lifetime of certain kinds of electronic devices have a mean of 300 hours and standard deviation of 25 hours. Assuming that the distribution of these lifetimes, which are measured to the nearest hour, can be	**07**

approximated closely with a normal curve.
- a) Find the probability that any one of these electronic devices will have a lifetime of more than 350 hours.
- b) What percentage will have lifetimes of 300 hours or less.?
- c) What percentage will have lifetimes from 220 or 260 hours.?

Q.3 (b) Define Hypothesis and explain in detail steps of hypothesis **07**

OR

Q.3 (a) To test the significance of variation in the retail prices of a commodity in three principal cities, Mumbai, Kolkata and Delhi, four shops were chosen at random in each city and the prices who lack confidence in their mathematical ability observed in rupees were as follows: **07**

Mumbai :	16	8	12	14
Kolkata :	14	10	10	6
Delhi :	4	10	8	8

"Apply F test for the given data"

Q.3 (b) Define Probability and explain Law of Addition and Multiplication using Venn Diagram **07**

Q.4 (a) Two hundred randomly selected adults were asked whether TV shows as a whole are primarily entertaining, educational, or a waste of time. The respondents were categorized by gender. Their responses are given in the following table: **07**

Opinion				
Gender	Entertaining	Educational	Waste of Time	Total
Female	52	28	30	110
Male	28	12	50	90
Total	80	40	80	200

Apply Chi Square test for suitable data

Q.4 (b) Properties of Binomial Distribution and Normal Distribution **07**

OR

Q.4 (a) In a random Sample of 1000 persons from UP 510 were found to be consumers of cigarettes. In another sample of 800 persons from Rajasthan, 480 were found to be consumers of cigarettes. Does the data reveal a significant difference between UP and Rajasthan so far as the proportion of consumers of cigarettes is concerned ? **07**

Q.4 (b) Differentiate Parametric and Non Parametric Tests **07**
Q. 5 The following data relate to advertising expenditure (in Lakh) and their corresponding sales (in Crore).

Advertising Expenditure	10	12	15	23	20
Sales	14	17	23	25	21

- a) Calculate Simple Regression Line to fitting the data **07**
- b) Calculate the Standard Error of estimate of sales on advertising expenditure **07**

OR

Q.5 (a) What is Correlation.? Explain its Various types using the Scatter Diagram Method. **07**

Q.5 (b) What are Regression Lines.? Explain with the help of examples its usefulness in business decision making. **07**

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