

GUJARAT TECHNOLOGICAL UNIVERSITY**MBA-SEMESTER-I-EXAMINATION-WINTER-2025****Subject Code: MB01092041****Date: 20/01/2026****Subject Name: Business Statistics****Time: 10:30 AM TO 01:30 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 14

- (a) Level of Significance
- (b) Bivariate Data
- (c) Null Hypothesis
- (d) Type 2 Error
- (e) Positive Correlation
- (f) Ogives
- (g) Skewness

Q.2 (a) Discuss the application of Poisson Distribution with its properties. 07**(b) Compute the value of Observed F value applying one way ANOVA on the following data: 07**

A	B	C
29	32	25
27	33	24
30	31	24
27	34	25
28	30	26

OR**(b) Apply Chi sq. test for the following caselet: 07**

In a certain sample of 2000 families, 1400 families are consumers of tea. Out of 1800 Middle class families, 1236 families consume tea. Use chi sq. test and state whether is any significant difference between consumption of tea among Middle class and Non- Middle class families

Q.3 (a) Elaborate the Concept of Multidimensional Scaling with examples. 07**(b) In an Entrance Aptitude test for Mgt Programme, the score of exams are normally distributed. The Mean GMAT score was 494 & Standard Deviation was about 100. Analyze the same GMAT examination, what is the probability of randomly drawing a score that is less than 400? 07****OR****Q.3 (a) Discuss the HTAB System to test hypotheses. Elaborate all the eight steps in process 07****(b) R & D dep. is interested in the relationship between age of truck and annual repair expenses. Data of 4 trucks are given below: 07**

Age	Repair Expenses (000')
5	7
3	7
3	6
1	4

If the age of truck is 4 years , then what should be the expected repair expenses? Apply Regression Equation.

- Q.4 (a)** Compare Chebyshev's Theorem and Empirical Rule with your own examples. **07**
- (b)** A consumer test group wants to determine the difference in gasoline mileage of cars using regular unleaded gas and cars using premium unleaded gas. Researchers for the group divided a fleet of 100 cars of the same make in half and tested each car on one tank of gas. Fifty of the cars were filled with regular unleaded gas and 50 were filled with premium unleaded gas. The sample average for the regular gasoline group was 21.45 miles per gallon (mpg), and the sample average for the premium gasoline group was 24.6 mpg. Assume that the population standard deviation of the regular unleaded gas population is 3.46 mpg, and that the population standard deviation of the premium unleaded gas population is 2.99 mpg. Construct a 95% confidence interval to estimate the difference in the mean gas mileage between the cars using regular gasoline and the cars using premium gasoline. **07**

OR

- Q.4 (a)** Evaluate Four levels of Data Measurement with examples **07**
- (b)** With a known population variance of 185, a sample of 64 individuals leads to 217 as an estimate of sample mean. **07**
- Find standard error of mean
 - Establish an interval estimate that should include the population 68% of the time.

Q.5 CASE STUDY:

A study by Peter D. Hart Research Associates for the Nasdaq Stock Market revealed that 43% of all American adults are stockholders. In addition, the study determined that 75% of all American adult stockholders have some college education. Suppose 37% of all American adults have some college education. An American adult is randomly selected.

- (a)** Compute the probability that the adult does not own stock and explain the concept of complimentary events **07**
- (b)** Determine the probability that the adult owns stock or has some college education? and also find out the probability that the adult has neither some college education nor owns stock? **07**

OR

- Q.5 (a)** Compute the probability that the adult owns stock and has some college education and explain the concept of Conditional Probability **07**
- (b)** Determine the probability that the adult does not own stock or has no college education and also compute the probability that the adult has some college education and owns no stock? **07**
