Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA INTEGRATED - SEMESTER - II EXAMINATION - WINTER 2025

Subject Code: 2527102 **Date: 01-12-2025**

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 **(a)** Discuss the meaning and scope of statistics, bringing out its importance particularly in the field of trade and commerce. **07**

(b) A company is planning to improve plant safety. For this, accident data for the last 50 weeks was compiled. These data are grouped into the frequency distribution as shown below. **07**
Calculate the Arithmetic Mean of the number of accidents per week.

No. of accidents:	0-4	5-9	10-14	15-19	20-24
No. of weeks:	5	22	13	8	2

Q.2 **(a)** Define terms: **07**
    (a) Sample space
    (b) Random event
    (c) Statistical experiment

(b) The following shows the weekly number of road accidents in a city during a two-year period: **07**

Number of accidents	Frequency	Number of accidents	Frequency
0-4	5	25-29	9
5-9	12	30-34	4
10-14	32	35-39	3
15-19	27	40-44	1
20-24	11		

Find the inter quartile range and co-efficient of quartile deviation.

OR

(b) Write a detailed note on level of data measurement. **07**

Q.3 **(a)** The following data relate to age of employees and the number of days they reported sick in a month. **07**

Employees:	1	2	3	4	5	6	7	8	9	10
Age:	30	32	35	40	48	50	52	55	57	61
Sick days:	1	0	2	5	2	4	6	5	7	8

Calculate Karl Pearson's coefficient of correlation and interpret it.

(b) What do you mean by probability? Explain the importance of probability. **07**

Q.3 **(a)** Quotations of index numbers of security prices of a certain joint stock company are given below: **07**

Year	Debenture Price	Share price
1	97.8	73.2
2	99.2	85.8
3	98.8	78.9
4	98.3	75.8
5	98.4	77.2
6	96.7	87.2
7	97.1	83.8

Using the rank correlation method, determine the relationship between debenture prices and share prices.

(b) Explain concept of permutation and combination. **07**

Q.4 **(a)** A study of 100 engineering companies gives the following information **07**

Profit(Rs.In crore)	0-10	10-20	20-30	30-40	40-50	50-60
No.of companies	8	12	20	30	20	10

Calculate the standard deviation of the profit earned.

(b) Distinguish between correlation and regression. Also point out the properties of regression coefficients. **07**

Q.4 **(a)** Five men in a company of 20 are graduates. If 3 men are picked out of the 20 at random, what is the probability that they are all graduates? What is the probability of at least one graduates **07**

(b) Point out the role of diagrammatic presentation of data. Explain briefly the different types of bar diagrams known to you. **07**

Q.5 **(a)** A survey was conducted to determine the age (in years) of 120 automobiles. The result of such a survey is as follows: **07**

Age of auto:	0-4	4-8	8-12	12-16	16-20
Number of autos:	13	29	48	22	8

What is the median age for the autos?

(b) What are regression lines? With the help of an example illustrate how they help in business decision-making. **07**

Q.5 **(a)** Assume that a factory has two machines. Past records show that machine I produce 30% of the items of output and machine II produce 70% of the items. Further, 5% of the items produced by machine I were defective and only 1% produced by machine II were defective. If a defective item is drawn at random, what is the probability that the defective item was produced by machine I? **07**

(b) Write a detailed note on Mode. **07**

****