Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Vocation - SEMESTER - II EXAMINATION - SUMMER 2025

Subject Code: BV02000021 **Date: 23-05-2025**

Subject Name: Business Statistics

Time:10:30 AM TO 12:30 PM **Total Marks: 50**

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.

			Marks
Q.1	**(a)**	What is statistics? Explain scope of statistics in detail.	**05**
	(b)	Write a note on types of graphs.	**05**
Q.2	**(a)**	The following table shows the number of books borrowed by library members in a week. Construct a frequency polygon. Books borrowed 1-2 3-4 5-6 7-8 9-10 Frequency 12 18 15 7 3	**05**
	(b)	The marks in the test of a group of students are as follows. Find mean marks of these students. Marks 0-10 10-20 20-30 30-40 40-50 50-60 60-70 No. of Students 3 5 12 16 11 5 4	**05**
		OR	
	(b)	The following table shows the number of units of electricity consumption of different families. Find the median consumption. [5m] No. of units Below 200 200-300 300-400 400-500 500-Above No. of families 7 13 24 16 10	**05**
Q.3	**(a)**	A worker believes that the mode of his daily production is 70. The distribution from the data obtained after making some changes in design of produced units is as follows: [5m] No. of units 60-64 65-69 70-74 75-79 80-84 85-89 90-94 No. of days 5 7 10 8 5 3 2 Is there any change in the mode of number of items produced?	**05**
	(b)	The number of bags of wheat sold in a grocer's shop each day is shown in the following table: [5m] No. of bags 25-29 30-34 35-39 40-44 45- 49 50 - 54 55&above No. of days 9 17 32 24 10 5 3 Find Q1 and P20 for number of bags sold	**05**
		OR	
	(a)	Explain Dispersion and describe any two Absolute measures of Dispersion and two Relative measure of Dispersion.	**05**
	(b)	Using the following table of marks of students of a school, find range and relative range of marks. [5m] Marks 20- 30 30- 40 40- 50 50- 60 60- 70 70- 80 No. of students 8 20 25 60 45 10	**05**
Q.4	**(a)**	The marks obtained by two students A and B in 10 sets of examinations are given below. Calculate co-efficient of variation to find which student is more consistent. [5m] Set 1 2 3 4 5 6 7 8 9 10 Marks of A 44 80 76 48 52 72 68 56 60 64 Marks of B 48 78 54 60 63 69 72 51 57 56	**05**

(b) The information of runs scored by a batsman in his 100 matches is given below. Find the standard deviation of runs scored by him from it. [5m] Runs 0-10 10-20 20-30 30-40 40-50 50-60 60-70 No. of matches 10 15 25 25 10 10 5 **05**

OR

(a) Seven employees are selected from a company. They are judged by two managers from the company in terms of their administrative skills. The ranks given by them are as follows: [5m] Employee A B C D E F G Rank by Manager 1 6 7 5 4 3 2 1 Rank by Manager 2 7 6 5 2 4 1 3 Calculate rank correlation coefficient between judgments given by two managers using Spearman's rank correlation method. Seven employees are selected from a company. They are judged by two managers from the company in terms of their administrative skills. The ranks given by them are as follows: [5m] Employee A B C D E F G Rank by Manager 1 6 7 5 4 3 2 1 Rank by Manager 2 7 6 5 2 4 1 3 Calculate rank correlation coefficient between judgments given by two managers using Spearman's rank correlation method. **05**

(b) For six different cities of Gujarat state, the approximate figures regarding their density of population (per sq. km) and death rate (per 1000) are given below. Find correlation coefficient between density of population and death rate from this information: [5m] City A B C D E F Density 200 500 400 700 600 300 Death Rate 10 12 10 15 9 12 **05**

Q.5 **(a)** Explain the concept and uses of Index number **05**

(b) Find Laspeyre's Passche's and Fisher's index numbers for the year 2016 with base year 2015 from the data about price and consumption of food items given below:- [5m] Item Unit Year 2016 Year 2015 Price() Quanity Price() Quanity Rice Kilogram 40 1.5 kg 39 1 kg Milk Litre 44 10 litre 40 12 litre Bread Kilogram 50 1.5 kg 45 2kg Banana Dozen 36 1.5 dozen 30 2 dozen **05**

OR

(a) Calculate the cost of living index number by total expenditure method and family budget method for the year 2015 with base year 2014 using following data: [5m] Item Wheat Rice Turdal Oil Col Kerosene Unit Quintal kg kg litre metre litre Quantity of year 2014 3.5kg 2.5kg 2.0kg 10litre 20m 15litre Price of Year 2014 1600 40 60 80 30 28 Price of Year 2015 1800 45 120 90 45 35 **05**

(b) The following observations are obtained for life of cars and their average annual maintenance cost of a specific model of car of a particular company: [5m] Life of car (years) 2 4 6 8 Average annual maintenance cost (thousand ₹) 10 20 25 30 Obtain regression line of maintenance cost on the life of cars. Also, estimate the maintenance cost if the life of car is 10 years. **05**

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