

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MBA Integrated/BBA-SEMESTER-I-EXAMINATION-SUMMER-2025**

**Subject Code: BB01001031****Date: 05-06-2025****Subject Name: Business Statistics and Logic****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**

1. Business Statistics
2. Mesokurtic Kurtosis
3. Deductive Reasoning
4. Positive Correlation
5. Write formula of Mean & Median for Grouped data
6. List out name of Chart & Graph
7. Mid value for Class 20-30

**Q.2 (a)** The frequency distribution of marks in statistics of 100 Students are given **07**  
below:

Marks	0-9	10-19	20-29	30-39	40-49	50-59	60-69
No. of Students	5	10	20	30	18	15	2

Answer the Following Questions :

1. The lower point of the last class.
2. The No. of Students getting marks more than 20 but less than 50
3. Length of each class
4. Middle value of the first class
5. If the standard of Passing marks is 20, what is the percentage result.?
6. Draw suitable chart

**Q.2 (b)** Write difference between Primary Data and Secondary Data **07****OR**

- Q.2 (b)** Two dice, one white and one red, are thrown simultaneously 25 times. The Numbers shown on them are given below. Prepare Bi-variate Frequency Distribution table. **07**

(1, 4),	(2, 2),	(3, 5),	(2, 2),	(5, 1),	(6, 3),	(6, 6),
(2, 1),	(3, 2),	(3, 6),	(4, 3),	(4, 1),	(6, 1),	(6, 2),
(2, 3),	(2, 2),	(5, 3),	(3, 4),	(3, 4),	(4, 3),	(1, 2),
(1, 6),	(6, 5),	(5, 4),	(4, 3).			

- Q.3 (a)** The following data gives a pattern of overtime work per week done by 100 employees of a company. Calculate first and second Quartile **07**

Overtime hours	10-15	15-20	20-25	25-30	30-35	35-40
No. of Employees	11	20	35	20	8	6

- Q.3 (b)** Explain the term “Skewness” with its types in detail. **07**

**OR**

- Q.3 (a)** Write in detail Advantages and Disadvantages of Statistics **07**

- Q.3 (b)** Calculate Mean, Median and Mode of the following data **07**

X	1	2	3	4-10	10-20	20-30	30-50
Y	2	5	8	12	20	18	5

- Q.4 (a)** From the following data, find Laspeyer’s, Paasche’s and Fisher’s Index number. **07**

Commodity	Year 2023		Year 2024	
	Price	Quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	25
E	8	40	10	26

- Q.4 (b)** Three judges have given ranks to ten students for their honesty. Find the Rank Correlation coefficient between Judge 1 & 2, Judge 2 & 3 and Judge 1 & 3. **07**

Judge 1	1	6	5	10	3	2	4	9	7	8
Judge 2	3	5	8	4	7	10	2	1	6	9
Judge 3	6	4	9	8	1	2	3	10	5	7

**OR**

- Q.4 (a)** What is an Index Number ? Explain Fixed base year and Chain base year methods of index number in detail. **07**

**Q.4 (b)** How many new words can be formed by using all letters of the word LOGARITHM ? In how many of these words L will be at the first place ? In how many words L will be at first and M will be at last place ? **07**

**Q.5 (a)** The following information is obtained from the result of the examination.

Particulars	Marks in Mathematics (x)	Marks in English (y)
Average	39.5	47.5
Standard Deviation	10.8	16.8
Correlation coefficient between x and y = 0.42 Obtain two regression lines, and estimate y for x = 50 and x for y = 30.		

**Q.5 (b)** Explain Scatter Diagram Methods of Correlation.

**OR**

**Q.5 (a)** Find the coefficient of correlation from the following data and also interpret it. **07**

	Age of Wife				
		10-20	20-30	30-40	40-50
Age of Husband	10-20	20	26	-	-
	20-30	8	14	37	-
	30-40	-	4	18	3
	40-50	-	-	4	6

**Q.5 (b)** Write Short Note on following **07**

- a) Inductive & Deductive Reasoning
- b) Permutation & Combination

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**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BBA/MBA INTEGRATED-SEMESTER-I-EXAMINATION-WINTER-2024**

**Subject Code: BB01001031****Date: 02/01/2025****Subject Name: Business Statistics and Logic****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. No.	Question Text and Description	Marks
Q.1	Define following terms with example (a) Pie Chart (b) Primary and secondary data (c) Frequency polygons (d) Propositions (e) Permutation (f) Median (g) Index number	14

- Q.2** (a) Write a brief note on the application of statistics in business and industry. **07**
- (b) The following distribution gives the pattern of overtime work done by 100 employees of a company. Calculate the average overtime work done per employee. **07**

Overtime hours	10-15	15-20	20-25	25-30	30-35	35-40
Number of employees	11	20	35	20	8	6

**OR**

- (b) Using the data given below, calculate the price index number for the year 2010 by **07**
- (i) Laspeyre's formula
  - (ii) Paasche's formula
  - (iii) Fisher's formula
- Considering 2000 as the base year.

Commodity	Price (Rs./unit)	Price (Rs./unit)	Quantity (in 1000kg.)	Quantity (in 1000kg.)
	2000	2010	2000	2010
Rice	9.3	4.5	100	90
Wheat	6.4	3.7	11	10
Pulses	5.1	2.7	5	3

- Q.3** (a) Write a detailed note on Bar graph with suitable example. **07**

- (b) The length of time taken by each of 18 workers to complete a specific job was observed to be the following: 07

Time(in min)	5-9	10-14	15-19	20-24	25-29
Number of workers	3	8	4	2	1

Calculate the median time and  $Q_3$

**OR**

- Q.3** (a) What is frequency distribution? Explain advantages and disadvantages of frequency distribution. 07

- (b) An economist wanted to find out if there was any relationship between the unemployment rate in a country and its inflation rate. Data gathered from 7 countries for the year 2004 are given below: 07

Country	Unemployment Rate (%)	Inflation Rate (%)
A	4.0	3.2
B	8.5	8.2
C	5.5	9.4
D	0.8	5.1
E	7.3	10.1
F	5.8	7.8
G	2.1	4.7

Find the degree of linear association with spearman's rank correlation between a country's unemployment rate and its level of inflation

- Q.4** (a) What do you understand by 'coefficient of variation'? Discuss its importance in business problems. 07

- (b) Calculate the index number using 07  
 (a) Aggregate expenditure method  
 (b) Family budget method for the year 2005 with 2010 as the base year from the following data:

Commodity	Quantity (in units) 2005	Price (in Rs./Unit) 2005	Price (in RS./Unit) 2010
A	100	8	12
B	25	6	7.5
C	10	5	5.25
D	20	48	52
E	25	15	16.5
F	30	9	27

**OR**

- Q.4** (a) What do you understand by the terms skewness and kurtosis? Point out their role in analyzing a frequency distribution. 07

- (b) The following table gives the aptitude test scores and productivity indices of 10 workers selected at random: 07

Aptitude scores(x)	Productivity index (y)
60	68
62	60
65	62
70	80
72	85
48	40
53	52
73	62
65	60
82	81

Calculate the two regression equations and estimate the productivity index of a worker whose test score is 92.

- Q.5** (a) Write a note on Scatter Plot Diagram of Correlation with example. 07

- (b) 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.

**OR**

- (a) What is reasoning? Discuss about Deductive and Inductive reasoning. 07

- (b) There are two units of an automobile company in two different cities employing 760 and 800 employees, respectively. The arithmetic mean of monthly salaries paid to employees in these two units is Rs. 18,750 and Rs.16,950 respectively. Find the combined arithmetic mean of salaries of the employees in both the units. 07

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Enrollment No./Seat No.:

# GUJARAT TECHNOLOGICAL UNIVERSITY

MBA INTEGRATED/BBA - SEMESTER - I EXAMINATION - WINTER 2025

Subject Code: BB01001031

Date: 15-12-2025

Subject Name: Business Statistics and Logic

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** Explain the following terms: **14**
- (a) Dispersion
  - (b) Data
  - (c) Skewness
  - (d) Kurtosis
  - (e) Pie chart
  - (f) Inductive and deductive
  - (g) Upper Boundary Point and Lower Boundary Point

- Q.2** (a) What is statistics? Explain advantages and limitation of statistics. **07**
- (b) The Frequency distribution of percentage of capacity utilization of plant in to public sector units is as follow. Draw Histogram and Frequency Polygon Graph for the given data. **07**

Capacity Utilization	40-50	50-60	60-70	70-80	80-90	90-100
No of units	5	14	19	13	10	9

**OR**

- (b) The following are categories with expenditure incurred in the construction of bridge. **07**  
Represent the data by pie diagram.

Category	Labour	Cement	Brick & Sand	Grit	Iron	Supervision
Expenditure (in lakh )	10	8	2	6	8	6

- Q.3** (a) Find Mode from given data : **07**

Daily wages (in Rs.)	19.5-29.5	29.5-39.5	39.5-49.5	49.5-59.5	59.5-69.5
No.of workers	15	27	50	28	10

- (b) Briefly explain various types of correlation with suitable example . **07**

**OR**

**Q.3 (a)** Find out 3<sup>rd</sup> quartile, 5<sup>th</sup> deciles and 16<sup>th</sup> percentile from the following data. **07**  
77,78,83,85,87,90,91,92,93,99

**(b)** Determine standard deviation and co-efficient of standard deviation using **07**  
83, 87, 93, 109, 124, 126, 101, 102, 108, 126

**Q.4 (a)** Write in detail difference between permutation and combination . **07**

**(b)** What is Reasoning ? Explain methods of Reasoning . **07**

**OR**

**Q.4 (a)** How many numbers can be formed by using all digits 2 ,5, 7, 8, 9 ? How many of these **07**  
numbers are even ?

**(b)** Find out fisher's index using following table : **07**

Item	2020		2021	
	Price	Quantity	Price	Quantity
A	5	25	6	30
B	3	8	4	10
C	2	10	3	8
D	10	4	3	5

**Q.5 (a)** Determine relationship between population and increasing rate of population by using **07**  
spearman's Rank correlation method .

<b>Population (in Lakh )</b>	15	25	38	65	22	31
<b>Increasing rate of population</b>	23	26	24	20	28	25

**(b)** If the mean of following frequency distribution is 16 , find the missing frequency : **07**

Class	0-4	4-8	8-12	12-16	16-20	20-24	24-28	28-32	32-36
Frequency	6	8	17	23	16	15	?	4	3

**OR**

**Q.5 (a)** Find out estimated value from the value of X is 25 using Regression line from given **07**  
information :

Particulars	X	Y
Mean	40	25
S.D.	6	24
Correlation	0.8	

**(b)** Write short note on : **07**

1 Frequency distribution

2 cumulative frequency distribution

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