GUJARAT TECHNOLOGICAL UNIVERSITY
MBA INTEGRATED-SEMESTER-II-EXAMINATION-WINTER-2024

Subject Code: 2527102　　　　　　　　　　　　　**Date: 12/12/2024**
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)** What is Statistics? Explain use of Statistics in Business Applications along with limitations of Statistics. **07**

(b) Determine Karl Pearson's coefficient of Correlation r : **07**

X	29	26	25	30	35	18	27	36	32
Y	17	60	53	28	37	40	19	33	55

Q.2 **(a)** Explain the following graphs used for graphical representation of data in statistics with necessary example of your choice: **07**
　　1. Frequency Polygon
　　2. Histogram
　　3. Ogives

(b) Explain 4 levels of Data measurement with Suitable examples. **07**

OR

(b) Find Range, 70th Percentile and Q_1 of the following data: **07**
　　18　20　22　27　21　29　27　29　28　29　16　25

Q.3 **(a)** Write a short note on Skewness and Kurtosis. **07**

(b) From a computer tally based on employer records, the personnel manager of a large manufacturing firm finds that 15 per cent of the firm's employees are supervisors and 25 per cent of the firm's employees are college graduates. He also discovers that 5 per cent are both supervisors and college graduates. Suppose an employee is selected at random from the firm's personnel records, what is the probability of:
(a) Selecting a person who is a college graduate or a supervisor?
(b) Selecting a person who is neither a supervisor nor a college graduate? **07**

OR

Q.3 **(a)** Explain Measures of Central Tendency with suitable example. **07**

(b) Machines A, B and C all produce the same two parts, X and Y. Of all the parts produced, machine A produces 60%, machine B produces 30%, and machine C produces 10%. In addition, **07**
　　　　40% of the parts made by machine A are part X.
　　　　50% of the parts made by machine B are part X.
　　　　70% of the parts made by machine C are part X.
A part produced by this company is randomly sampled and is determined to be an X part. With the knowledge that it is an X part, revise the probabilities that the part came from machine A, B, or C.

Q.4 **(a)** Determine Spearman's Rank coefficient of Correlation r_s : **07**

X	77.91	82.00	89.20	74.37	66.42	80.10	69.78	72.09	92.14	96.31
Y	65.46	64.18	65.66	59.23	65.68	69.55	67.81	67.39	82.06	84.40

(b) What is Simple Regression Model? Explain with a suitable example of your choice. **07**

<div align="center">OR</div>

Q.4 (a) Explain Coefficient of Correlation and Coefficient of Determination. **07**

(b) The following data relates to the scores obtained by a salesmen of a company in an **07** intelligence test and their weekly sales (in Rs. 1000's):

Salesman	A	B	C	D	E	F	G	H	I
Test Score	50	60	50	60	80	50	80	40	70
Weekly Sales	30	60	40	50	60	30	70	50	60

(a) Obtain the regression equation of sales on intelligence test scores of the salesmen.
(b) If the intelligence test score of a salesman is 65, what would be his expected weekly sales?

Q.5 (a) What do you mean by Probability? Explain various methods of assigning the **07** Probabilities.

(b) Compute the mean and the median for the following data. **07**

<div align="center">

Class Interval	frequency
0–under 2	39
2–under 4	27
4–under 6	16
6–under 8	15
8–under 10	10
10–under 12	8
12–under 14	6

</div>

<div align="center">OR</div>

Q.5 (a) Explain the Structure of Probability with suitable examples. **07**

(b) Write about Box and Whisker Plot. Also explain use of Inner fences and Outer **07** fences for finding Outliners from the data.

<div align="center">*************</div>