Register No.: ……………………………..   Name.: ………………………………………………………………………

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER MBA DEGREE EXAMINATION (S), FEBRUARY 2023
(2021 Scheme)

Course Code :   **21MBA103**

Course Name: **Quantitative Techniques for Managers**

Max. Marks :   **60**   **Duration: 3 Hours**

Use of calculators and statistical tables permitted.

PART A
(Answer all questions. Each question carries 2 marks)

1. List the measures of central tendency.
2. What is Bayes' Theorem?
3. Define Type 1 and Type 2 error.
4. Explain the components of Time series Analysis.
5. Compare Correlation and Regression.

PART B
(Answer any 3 questions. Each question carries 10 marks)

6.   a. Salary paid by a company to its employees is as follows. Find the simple and weighted arithmetic mean of salary paid. Comment on the result

Designation	Monthly salary (Rs)	No: of Persons
Senior Manager	35000	1
Manager	30000	20
Executives	25000	70
Jr.Executives	20000	10
Supervisor	15000	150

Marks (5)

b. You are given the frequency distribution of 292 workers of a factory according to their average weekly income. Make use of the distribution and calculate the quartile deviation and its coefficient. Interpret the result.

Marks (5)

Weekly Income (Rs)	Number of Workers
Below 1350	8
1350-1370	16
1370-1390	39
1390-1410	58
1410-1430	60
1430-1450	40
1450-1470	22
1470-1490	15

1490-1510	15
1510-1530	9
1530 and above	10

7. The following table shows the number of customers returning the products in a marketing territory. The data is for 100 stores. Find out the expected frequencies using Binomial Distribution.

Number of Returns	Customers
0	4
1	14
2	23
3	23
4	18
5	9
6	9

8. A random sample of 100 mill workers in Kanpur showed their mean wage to be Rs.3500 with a standard deviation of Rs.280. Another random sample of 150 mill workers in Mumbai showed the mean wage to be Rs.3900 with a standard deviation of Rs.400. Choose appropriate test to check whether the mean wages of workers in Kanpur and Mumbai differ significantly. Use level of significance 5%.

9. The divisional manager of a chain of retail stores believes the average number of customers entering each of the five stores in his division weekly is the same. In a given week, a manager reports the following number of customers in his stores:3000,2960,3100,2780 and 3160.Test the divisional managers belief using chi-square test at 5 % level of significance.

10. The following data relate to the scores obtained by 9 salesmen of a company in an intelligent test and their weekly sales (Rs. In 1000's)

Salesmen	A	B	C	D	E	F	G	H	I
Test scores	50	60	50	60	80	50	80	40	70
Weekly sales	30	60	40	50	60	30	70	50	60

    a) Construct the regression equation of sales on intelligence test scores of the salesmen. **Marks (7)**

    b) If the intelligence test score of a salesman is 65 what would be his expected weekly sales and comment how the managers use this value.

Marks (3)

PART C
(Compulsory question, the question carries 20 marks)

11.

a) To test the significance of variation in the retail prices of a commodity in three Metro cities Mumbai, Kolkata and Delhi, four shops were chosen at random in each city and the prices observed in Rs. were as follows. Apply the appropriate test to check whether the prices in the three cities are significantly different.(use level of significance 5%)

Marks (10)

Mumbai	Kolkata	Delhi
16	14	4
8	10	10
12	10	8
14	6	8

b) The following table relates to the tourist arrivals (in millions) during 2015 to 2021 in India.

Year	2015	2016	2017	2018	2019	2020	2021
Tourist Arrivals	18	20	23	25	24	28	30

Fit a straight-line trend by the method of least squares and estimate the number of tourists that would arrive in the year 2023.

Marks (10)

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