ST. FRANCIS DE SALES COLLEGE
A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

NAAC A GRADE ● AFFILIATED TO BANGALORE UNIVERSITY ● AICTE APPROVED ● 2(F) & 12 (B) RECOGNITION OF UGC ● ISO 9001:2015 CERTIFIED
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END SEMESTER EXAMINATION – APRIL 2025

PSYCHOLOGY – I SEMESTER MSC

24MSC17A – STATISTICS IN PSYCHOLOGY

Time: 3 Hours   **Max. Marks: 70**

Instruction: *Answer should be written completely in English.*

Answer all the questions. All the questions carry equal marks.   **(14X5=70)**

1. a. Explain statement of hypothesis testing and level of significance. Discuss the general procedure for testing a hypothesis.

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

   b. Calculate the Standard deviation and Quartile deviation of the following data:

Class Interval	Frequency
90 - 99	2
80 - 89	12
70 - 79	22
60 - 69	20
50 - 59	14
40 - 49	4
30 - 39	1

2. a. Why is the correct estimation of sampling considered to be the corner stone of inferential statistics? Illustrate your answer with suitable examples.

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

   b. Calculate the mean, median and mode for the following data.

Class interval	Frequency
19-21	3
16-18	8
13-15	15
10-12	20
7-9	10
4-6	4

3. a. Explain the significance of Biserial and Point-Biserial correlation in statistical analysis. How do these correlation methods help in understanding relationships between categorical and continuous variables? Discuss their computational differences, assumptions, and practical applications

OR

b. A researcher randomly assigns five individuals to receive a new experimental procedure and five to a control condition. At the end of the study, all 10 are measured.
Scores for those in the experimental group were 7, 6, 9, 7, and 6.
Scores for those in the control group were 5, 2, 4, 3, and 6.
Carry out a t test for independent means using the 0.05 level of significance (two-tailed).

4. a. Explain the key components of regression model.

OR

b. A company wants to compare customer satisfaction scores across three different store locations (Store A, Store B, and Store C). Customers rated their satisfaction on a scale of 1 to 10. The collected data is:

Store A: 8, 7, 9, 6, 7

Store B: 5, 6, 7, 4, 6

Store C: 9, 8, 7, 9, 8

Use the Kruskal-Wallis test to determine if there is a significant difference in customer satisfaction across the three stores at $\alpha = 0.05$.

5. a. "Correlation does not imply causation". Explain this statement with suitable examples. Describe the concept and types of correlation.

OR

b. A teacher wants to determine whether there is a correlation between the number of hours students spend studying and their exam scores. The data collected from six students is:

Student	Study hours(X)	Exam score (Y)
1	2	50
2	4	60
3	6	65
4	8	70
5	10	80
6	12	90

Use Spearman's rank correlation to determine the relationship between study hours and exam scores.