

Term End External Examination 1st Semester (Session-Feb 2025)

Subject: Statistics

Course No and Title: STS122M/ Descriptive Statistics

Time: 2.15 hours

Max Marks:100

Min. Marks:40

Section A: Objective Type Questions

- Q1. Choose the appropriate Answer: (8x1.5=12)**
- What is the primary difference between primary and secondary data?**
 A Primary data is collected firsthand, while secondary data is collected from existing sources. **B** Secondary data is always more accurate than primary data.
 C Primary data is derived from books and journals **D** Secondary data is collected through experiments.
 - Which of the following diagrams is best suited for showing the percentage distribution of a dataset**
 A Histogram **B** Frequency polygon
 C Pie chart **D** Ogive
 - The arithmetic mean is preferred when:**
 A There are extreme values in the dataset **B** Data is qualitative in nature.
 C A simple and widely used measure is needed. **D** Data is skewed
 - The empirical relationship between mean, median, and mode is**
 A $\text{Mean} = 2 \times \text{Median} - \text{Mode}$ **B** $\text{Mode} = 3 \times \text{Median} - 2 \times \text{Mean}$
 C $\text{Mode} = \text{Mean} + \text{Median}$ **D** $\text{Mean} = \text{Mode} + \text{Median}$
 - The standard deviation is:**
 A A measure of central tendency **B** The square root of variance
 C Always equal to the mean **D** Unaffected by extreme values
 - Karl Pearson's coefficient of skewness is based on**
 A Mean and variance **B** Median and quartiles
 C Mean and standard deviation **D** Mode and standard deviation

deviation

- Correlation between two variables measures:**
 A The causal relationship between them **B** The strength and direction of their relationship
 C Their individual variances **D** The difference in their means
- In regression analysis, the regression coefficient measures:**
 A The correlation between the variables **B** The slope of the regression line
 C The mean difference between variables **D** The standard deviation of variables

Section-B: Descriptive Type Questions (Short Type)

Q2: Answer all the Questions (8 x 4 =32)

- Explain the merits and demerits of primary and secondary data.
- Define classification and describe its different types with examples.
- Calculate the arithmetic mean for the following data:
 X: 10 20 30 40 50
 F: 5 8 12 7 3
- Describe the properties of the arithmetic mean.
- Define absolute and relative measures of dispersion with examples.
- Explain Karl Pearson's coefficient of skewness with its formula.
- Define correlation. Explain the limits of the correlation coefficient.
- Describe the scatter diagram method of correlation.

Section – C: Descriptive Type Questions (Medium Type)

Answer all the questions: (4 x 7=28)

- Q3.** Explain the different methods of collecting primary data along with their merits and demerits.

OR

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Discuss the various types of tables used in tabulation with examples.

Q4. Calculate Mean and Median of the following data:

C.I: 0-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80
Freq: 5 8 15 20 14 10 6 2

OR

Calculate the Geometric Mean for the following data:

X(values): 10 20 30 40 50 60
F: 3 5 8 10 6 4

Q5. Explain the concept of skewness. Discuss Bowley's coefficients of skewness with their formula and interpretations.

OR

Differentiate between skewness and kurtosis with diagrams.

Q6. Derive the formula for Spearman's rank correlation coefficient.

OR

Explain the concept of regression coefficients and their properties.

Section – D: Descriptive Type Questions (Long Type)

Answer any two of the following: (2 x 14=28)

Q7. Discuss in detail the classification and tabulation of data with suitable illustrations.

Q8. Explain in detail the measures of central tendency and their applications.

Q9. Compute the Standard Deviation and Coefficient of Variation (CV) for the following grouped data and interpret the results.

C.I: 0-10 10-20 20-30 30-40 40-50
Frequency: 5 8 12 15 10

Q10. Define correlation and regression. Explain their significance in statistical analysis with examples.