DIPLOMA IN STATISTICAL ANALYSIS AND RESEARCH METHODOLOGY

SEMESTER II

SARM-2: DESCRIPTIVE STATISTICS

Max. Marks: 100

External: 70

Internal: 30

Pass: 40%

Credits: 6

Course Outcomes (COs)

After completing this course, students will be able to:

CO1. Explain the concept and importance of dispersion and compute various measures such as range, quartile deviation, mean deviation, and standard deviation.

CO2. Analyze the degree of variation and asymmetry in data using coefficients of variation, Lorenz curve, skewness, kurtosis, and moments.

CO3. Understand and measure the relationship between variables through different methods of correlation.

CO4. Interpret regression analysis and construct regression equations to predict relationships between variables.

CO5. Construct and evaluate different types of index numbers, assess their consistency, and apply them to real-world economic data.

Course Specific Outcomes (CSOs)

CSO1. Apply measures of dispersion and variation to compare data distributions effectively.

CSO2. Use graphical and mathematical tools such as Lorenz curve and coefficients to study data inequality and shape.

CSO3. Compute and interpret Karl Pearson's and Spearman's correlation coefficients for understanding linear and rank relationships.

CSO4. Develop and interpret regression equations (X on Y and Y on X) for forecasting and data

analysis.

CSO5. Calculate index numbers using Laspeyres, Paasche, and Fisher's methods, and apply tests of consistency, base shifting, and deflation techniques for accurate statistical interpretation.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER:

1. The syllabus prescribed should be strictly adhered to.
2. The Question Paper will have 70 Multiple Choice questions (MCQs) and four choices of answers will be there, covering the entire syllabus. Each question will carry 1 mark. All questions will be compulsory; hence candidates will attempt all the questions.
3. Paper-setters/Examiners are requested to distribute the questions from Section A and Section B of the syllabus equally i.e., 35 questions from Section A and 35 questions from Section B.
4. The examiner shall give clear instructions to the candidates to attempt questions.
5. The duration of each paper will be two hours.

INSTRUCTIONS FOR THE CANDIDATES:

Candidates are required to attempt any two questions each from sections Aand B of the question paper and any ten short questions from Section C. They have to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not beevaluated. Simple calculator can be use in the examination.

SECTION A

Unit 1: Dispersion - Objectives and significance of Good Measures, Measures of Dispersion - Range, Quartile Deviation, Mean Deviation and Standard Deviation (ungrouped data).

Unit 2: Co-efficient of variation (CV), Lorenz Curve, Meaning and Measures of skewness kurtosis, Moments

Unit 3: Correlation: Meaning, Properties and Types.

Unit 4: Methods of Correlation: Scatter Diagram, Karl Pearson's Correlation Co-efficient & Spearman's Rank, Correlation Co-efficient.

SECTION B

Unit 5: Regression- Meaning, Properties, Types, Meaning of Line of Correlation, Difference between correlation and regression.

Unit 6: Measurement of Regression Equations X on Y and Yon X

Unit 7: Index Numbers: Meaning and Uses and Types of Index Numbers, problems in the construction, Methods of Index Numbers: Laspayer's, Paasche and Fisher.

Unit 8: Tests of consistency of Index Number Formulae, Chain index or Chain Base Index Numbers, Base Shifting, Splicing and Deflation. Limitations of Index Numbers.

Suggested Readings

- A.M Goon, M.K Gupta and B. Dasgupta, fundamental of statistics Vol-I, World press Calcutta
- Gupta SC: Fundamental of statistics, S. Chand & Company. New Delhi
- Gupta, SP: Statistical Methods, S. Chand & Company. New Delhi
- Monga, GS: Mathematics and Statistics for Economics, Vikas Publishing House, New Delhi