SRI KRISHNADEVARAYA UNIVERSITY: ANANTAPURAMU

B.A/B.Sc., STATISTICS (WM) CBCS REVISED SYLLABUS 2020-21

Semester – I (CBCS With Maths Combination Common to BA/BSc)

Paper - I: Descriptive Statistics

UNIT-I

Introduction to Statistics: Importance of Statistics. Scope of Statistics in different fields. Concepts of primary and secondary data. Diagrammatic and graphical representation of data: Histogram, frequency polygon, Ogives, Pie. Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean. Median and Mode through graph.

UNIT-II

Measures of Dispersion: Range, Quartile Deviation, Mean Deviation and Standard Deviation, Variance. Central and Non-Central moments and their interrelationship. Sheppard's correction for moments. Skewness and kurtosis.

UNIT-III

Curve fitting: Bi- variate data, Principle of least squares, fitting of degree polynomial. Fitting of straight line, Fitting of Second degree polynomial or parabola, Fitting of power curve and exponential curves.

Correlation: Meaning, Types of Correlation, Measures of Correlation: Scatter diagram, Karl Pearson's Coefficient of Correlation, Rank Correlation Coefficient (with and without ties), Bi-variate frequency distribution, correlation coefficient for bi-variate data and simple problems. Concept of multiple and partial correlation coefficients (three variables only) and properties

UNIT-IV

Regression : Concept of Regression, Linear Regression: Regression lines, Regression coefficients and it's properties, Regressions lines for bi-variate data and simple problems. Correlation vs regression.

UNIT-V

Attributes : Notations, Class, Order of class frequencies, Ultimate class frequencies, Consistency of data, Conditions for consistency of data for 2 and 3 attributes only , Independence of attributes , Association of attributes and its measures, Relationship between association and colligation of attributes, Contingencytable: Square contingency**,** Mean square contingency, Coefficient of mean square contingency, Tschuprow's coefficient of contingency.

Text Books:

1. V.K.Kapoor and S.C.Gupta: Fundamentals of MathematicalStatistics,Sultan Chand & Sons, NewDelhi.
2. BA/BSc I year statistics - descriptive statistics, probability distribution - Telugu Academy - Dr M.JaganmohanRao,DrN.Srinivasa Rao, Dr P.Tirupathi Rao, Smt.D.Vijayalakshmi.
3. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI

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Reference books:

1. Willam Feller: Introduction to Probability theory and its applications. Volume –I,Wiley
2. Goon AM, Gupta MK, Das Gupta B : Fundamentals of Statistics , Vol-I, the World Press Pvt.Ltd.,Kolakota.
3. Hoel P.G: Introduction to mathematical statistics, Asia Publishinghouse.
4. M. JaganMohan Rao and Papa Rao: A Text book of StatisticsPaper-I.
5. Sanjay Arora and Bansi Lal: New Mathematical Statistics: Satya Prakashan , NewDelhi

Credits 2

Practicals - Paper – I

1. Graphical presentation of data (Histogram, frequency polygon,Ogives).
2. Diagrammatic presentation of data (Bar andPie).
3. Computation of measures of central tendency(Mean, Median andMode)
4. Computation of measures of dispersion(Q.D, M.D andS.D)
5. Computation of non-central, central moments, $\beta 1$ and $\beta 2$ for ungroupeddata.
6. Computation of non-central, central moments, $\beta 1$ and $\beta 2$ and Sheppard's corrections for groupeddata.
7. Computation of Karl Pearson's coefficients of Skewness and Bowley's coefficients ofSkewness.
8. Fitting of straight line by the method of leastsquares
9. Fitting of parabola by the method of leastsquares
10. Fitting of power curve of the type by the method of leastsquares.
11. Fitting of exponential curve of the type and by the method of leastsquares.
12. Computation of correlation coefficient and regression lines for ungroupeddata
13. Computation of correlation coefficient, forming regression lines for groupeddata
14. Computation of Yule's coefficient ofassociation
15. Computation of Pearson's, Tcherprows coefficient ofcontingency

Note: Training shall be on establishing formulae in Excel cells and derive the results. The excel output shall be exported to MS word for writing inference.

Course Learning Outcomes

Students will acquire

1) knowledge of Statistics and its scope and importance in various areas such as Medical, Engineering, Agricultural and Social Sciences etc.
2) knowledge of various types of data, their organization and evaluation of summary measures such as measures of central tendency and dispersion etc.
3) knowledge of other types of data reflecting quality characteristics including concepts of independence and association between two attributes,
4) insights into preliminary exploration of different types of data.
5) Knowledge of correlation, regression analysis, regression diagnostics, partial and multiple correlations.

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