SRI VENKATESWARA UNIVERSITY : TIRUPATI

STATISTICS   SYLLABUS (II YEAR)
SEMESTER – III (CBCS With Maths Combination Common to BA/BSc)
Paper – III : Statistical Methods

UNIT - I

Correlation : Meaning, Types of Correlation, Measures of Correlation : Scatter diagram, Coefficient of Correlation , Rank Correlation Coefficient (with and without ties), Bi-variate frequency distribution, correlation coefficient for bi-variate data and simple problems.

UNIT - II

Correlation Ratio : Measurements, Partial and Multiple correlation coefficients with simple problems. Linear Regression: Regression lines, Regression coefficients and it's properties, Regressions lines for bi-variate date and simple problems.

UNIT - III

Curve fitting: Principals of least squares, Fitting of straight line ($y = a + b\,x$), Fitting of Second degree polynomial or parabola ($y = a + b\,x + c\,x^2$), Fitting of power curve ($y = a\,x^b$) and exponential curves of type i) $y = a\,e^{b\,x}$ and ii) $y = a\,b^x$ with problems.

UNIT – IV

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, Contingency table: Square contingency(χ^2**),** Mean square contingency(Φ^2), Coefficient of mean square contingency (C), Tschuprow's coefficient of contingency (τ^2**).**

UNIT - V

Basic concepts: Population, Sample, Parameter, statistic, Sampling distribution, Standard error. Definition and properties of Student t- distribution, F – Distribution, χ^2 Distributions and its applications, interrelationships.

Reference Books:

1.   Fundamentals of mathematical statistics: S.C.Guptha and V.K. Kapoor

2.   Outlines of statistics, Vol II: Goon Guptha, M.K.Guptha and Das Guptha B

3.   Introduction to mathematical Statistical : Hoel P.G

4.   BA/BSc II year statistics- Statistical methods and inference- Telugu Academy

5.   Statistics Made simple Do it yourself on PC By K.V.S. Sarma

6.   Applied Statistics with Microsoft Excel By Gerald Keller

Practical Paper - III

1. Calculation of Correlation coefficient for un groped data (Direct method)

2. Calculation of Correlation coefficient for un groped data (Indirect method)

3. Calculation of Correlation coefficient for Bi-variate data

4. Calculation of Rank correlation coefficient with and without ties

5. Construction of two regressions lines for un grouped data

6. Construction of two regressions lines for Bi-variarte data

7. Calculation of Multiple Correlation coefficients.

8. Calculation of Partial Correlation coefficients.

9. Fitting of straight line $y = a + b\,x$

10. Fitting of second degree polynomial or parabola $y = a + b\,x + c\,x^2$

11. Fitting of exponential curve $y = a\,e^{b\,x}$

12 Fitting of curve $y = a\,b^x$

13. Fitting of power curve $y = a\,x^b$

14. Calculation of Yule's coefficient of association and colligation

15. Calculation of Coefficient of mean square contingency (C), Tschuprow's coefficient of contingency (τ^2).

Note : The above practical are to be done using M S Excel and SPSS Package where ever it is possible

THREE YEAR B.A. / B.Sc DEGREE EXAMINATION
CBCS – THIRD SEMESTER
Part - II - STATISTICS (WM)
Paper III : STATISTICAL METHODS
W.E.F. 2016- 17
MODEL PAPER

Max. Marks: 75   **Times: 3 Hours**

Part – A

Answer any **FIVE** questions, each question carries equal marks   (**5X5=25 marks**)

1. Derive the limits of correlation coefficient.
2. Discuss about correlation ratio.
3. Discuss about multiple correlation.
4. Explain the method of least squares.
5. Write all combinations of classes for 3 attributes.
6. What do you mean by independence of attributes?
7. Define the terms (i) parameter (ii) Statistic with suitable examples.
8. What is standard error (S.E). Write Standard errors of different statistic's.

Part – B

Answer ALL questions, each question carries equal marks   (5X10=50 marks)

UNIT - I

9. If X,Y are independents,U= aX+bY, V= aX-bY then find the correlation coefficient between U and V.

OR

10. Derive the formula of Spearman's rank correlation coefficient.

UNIT - II

11. Derive the regression lines of y on x and x on y.

OR

12. Write the properties of regression coefficients with at least two proofs.

UNIT - III

13. Explain fitting of Exponential curve $y = a\,e^{b\,x}$.

OR

14. Fit a straight line of the given data

X	149	157	142	140	138	142	145	142	144	140	146	144
Y	129	110	126	130	141	129	127	127	119	118	119	131

UNIT -IV

15. Define consistency of the data. Discuss the conditions for consistency of the data?

OR

16. Discuss about association and colligation of two attributes.

UNIT - V

17. What is t- distribution and write down the properties.

OR

18. What is χ^2- distribution and write its applications.