

# VEER NARMAD SOUTH GUJARAT UNIVERSITY

**M.Com-I.**

**Semester - I**

**Paper No : 104**

**ADVANCED STATISTICS - 1**

**(Syllabus effective from Academic Year 2010-11 onwards)**

**(1) Statistical Inference**

**(50%)**

## **Estimation**

Estimation, Different measures of closeness of an Estimation, some properties of estimators; consistency, unfussiness and efficiency Method of estimation. Maximum Likelihood estimation and it's properties (without proof). Method of maximum likelihood, method of moments, method of chi-squares. Confidence intervals. Method of finding confidence intervals, large sample confidence intervals, confidence intervals for parameter. Elementary distributions.

**(2) Univariate Distributions :-**

**(50%)**

Introduction, important properties and application of (i) Hyper Geometric distribution (ii) Negative Binomial distribution (iii) Cauchy distribution (iv) Laplace distribution (v) Log-Normal distribution.

## **BOOKS :**

1. Johnsons, N .L. and Kotz, S. (1977) : Distribution in Statistics, John Wiley.
2. Ferguson, T.(1967) : Mathematical Statistics; Academic Press.
3. Jaiswal, M.C. (1973) : Statistics Distributions; Guj.Uni. Book Pub. Board, Ahmedabad.
4. Rohatgi, V.K (1984) : Introduction to Probability Theory and Mathematical Statistics; Wiley Eastern.
5. Gibbons, J.D. (1976) : Non-Parametric Methods for Quantitative Analysis; Holt, Rinehart and Winston.
6. Sidney Seigal (1956) : Non-Parametric Methods for Behavioral Sciences; Mac-Graw Hills.

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**M.Com-I.**

**Semester - I**

**Paper No : 105**

**ADVANCED STATISTICS - 2**

**(Syllabus effective from Academic Year 2010-11 onwards)**

**Demography (1):-**

(50%)

Meaning and scope of demography, history and growth of demography, uses, limitation and suggestion of vital statistics, measures of mortality rates: Crude death rate, Specific death rate, Standardized death rate, Comparison of two cities by proper mortality.

Fertility rates : Crude Birth rate (CBR), General fertility rate (GFR), Specific fertility rate (SFR), Total Fertility rates (TFR), Explanation and calculation of fertility rates.

Reproduction rates: Gross Reproduction Rate(GRR), Net Reproduction Rate (NRR), explanation and calculation of reproduction rates, Population projection - methods, importance and limitation.

**Index Numbers:-**

(50%)

Meaning and definition of Index numbers, uses and limitation of Index numbers, basic problem involved in construction of Index numbers. Various types of Index numbers - Simple aggregate, Weighted aggregate, Laspere's price, Paasche's price, Bowley's price, Marshall Edge worth price, Fisher's Index numbers, Measurement of price and quantity Index numbers, Time reversal and Factor reversal tests, Construction and importance of cost of living index numbers.

**BOOKS :**

1. Pathak, K.B. and Ram, R.(1992) : Techniques of Demographic Analysis Himalaya Pub. House, Delhi.
2. Jaiswal, M.C. (1984) : Arth Vishayak ankadashashtra (in Gujarati); University Granth Nirmal Board, Ahmedabad.
- . Srivastava, O.S. (1983) : A Texbook of Demography; Vikas Publishing House.

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**M.Com-I.**

**Semester - I**

**Paper No : 106**

**ADVANCED STATISTICS - 3**

**(Syllabus effective from Academic Year 2010-11 onwards)**

**(1) Mathematical Economics :** (50 %)

Nature, meaning and scope of Econometrics.

Distinction between Statistics & Econometrics.

Concept of utility function and indifference curves.

Demand, Compensated demand function.

Production function, Formulation of a production function.

Elasticity of substitution for two input factors of production, Cobb-Douglas production function, CES production function & methods of estimation of their parameters, Formulation of a consumption function, Leontief's input-output analysis, open and closed models and its importance in inter-industry relations. Cross section and time series. Estimation of their parameters.

**(2) Time Series Analysis :** (50 %)

Concept of Time series analysis. Fitting of curves by method of least squares. Fitting of linear equations. (Theoretically). its applications. Fitting of parabolic,  $y = ab^x$ ,  $y = ae^{bx}$  curves with application (examples). Computation of seasonal variation. Regular and irregular variations by the method Ratio to Trend, by Moving Average, Ratio to trend by straight line, by method of least squares.

## **BOOKS :**

1. Allen R.G.D.:(1973) Mathematical Analysis for Economics.
2. Box and Jenkins.:(1970) Time Series Analysis, Holden-Day publications.
3. Jaiswal M.C.(1964) .: Artha Vishayak Ankdeshashtra (in Gujarati) Uni. Granth Nirmal Board, A'bad.
4. Handerson, M.A. & Quandt (1980).: Micro Economics Theory/Mathematical Economics, Mac-Graw Hills.

5. Gujarati D.(1979).: Basic Economics, Mac-Graw Hills.
6. Johnston J.(1982).: Econometrics method, Mac-Graw Hills and Kogakusha Ltd.
7. Ankdashashtra paper - III by Dr.D.G.Patel and others, S.G.Parthyapak Mandli Ltd, Surat.