

**Syllabus of S.Y. B.Com. (Statistics) Semester III & Semester IV
effective from June 2012-2013**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

**S.Y. B. COM. SEMESTER- III
STATISTICS PAPER-III (PRINCIPAL & SUBSIDIARY)**

1. MATRICES: (Weightage 30%)

Definition of matrices, Definition of some special types of matrices (transpose, row, column, zero, unit, square, symmetric, skew-symmetric etc.); Addition, subtraction and multiplication of matrices (upto order 3) and laws related to it; Determinant of a square matrix and its evaluations, laws related to determinants; some examples, Inverse of a matrix; Use of matrices in solving system of linear equations (up to 3x3 matrix).

2. MATHEMATICAL EXPECTATION: (Weightage 30%)

Definition, Expectation of a function of a random variable; addition and multiplication theorem of Expectation; Expectation of a linear combination of random variables for discrete case only (no proof required); mean, variance and covariance in terms of Expectations (up to two variables only), some exercises related to discrete random variables.

3. DEMOGRAPHIC METHODS: (Weightage 40%)

A: Sources of demographic data: Census, Register, Ad-hoc Survey, Hospital Records, demographic profiles of Census in India. Measurement of Mortality- Crude Death Rate, Infant Mortality Rate, Age-Specific Death Rate, Standardized Death Rate. Life-tables: Complete life table, its main features, assumption, description and construction of life-tables, Mortality rate and Survival rate; some examples.

B: Measurements of Fertility & Population growth- Crude Birth rate, General Fertility rate, Specific Fertility Rate, Total Fertility rate. Measurements of Population Growth- Gross Reproduction Rate and Net Reproduction Rate.

BOOKS RECOMMENDED :

1. Goon A.M., Gupta M.K. & Dasgupta (1986); Fundamentals of Statistics, Vol- 11; World Press; Calcutta.
 2. Srivastav O.S. (1983); A Text Book of Demography : Vikas Publishing House.
 3. Gupta S.C. & Kapoor V.K.: Fundamentals of Mathematical Statistics; Sultan Chand & Sons
 4. Data K.P.: Matrix & Linear Algebra ; Prentice Hall, India.
 5. Shanti Narayan ; A Text Book of Matrices, S. Chand & Co.
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**S.Y. B. COM. SEMESTER- IV
STATISTICS PAPER-V (PRINCIPAL & SUBSIDIARY)**

1. MOMENTS : **(Weightage 20%)**

Definition, raw & central moments; relation between raw and central moments; measures of central tendency, dispersion, skewness and kurtosis based on moments; some examples.

2. TESTING OF HYPOTHESIS & TESTING OF SIGNIFICANCE: **(Weightage 40%)**

A: Statistical hypothesis (simple & composite), Test of a statistical hypothesis, null and alternative hypothesis, critical region, two types of errors, level of significance and power of the test; some examples.

B: Large Sample Tests: Testing the significance of single mean, difference between two means, difference between two standard deviations, correlation coefficient, single proportion, difference between two proportions.

3. ACCEPTANCE SAMPLING BY ATTRIBUTES: **(Weightage 40%)**

A: Problem of product control and lot acceptance; Principle of acceptance sampling, Concept of good and bad lots, Concepts of A.Q.L., L.T.P.D., Producer's risk, Consumer's risk, Rectifying Inspection Plans, A.O.Q., A.O.Q.L., some examples.

B: Sampling Inspection Plans: Single sampling plan, its O. C., ASN, and ATI curves; Double sampling plan, its A.S.N. and A.T.I. functions (no curve), some examples.

BOOKS RECOMMENDED :

1. Goon A.M., Gupta M.K. & Dasgupta (1986); Fundamentals of Statistics Vol- 11; World Press; Calcutta.
3. Grant E.L.(1964); Statistical Quality Control; Mc Graw Hill.
4. Duncan A.J. (1974); Statistical Control and Industrial Statistics; Taraporewala and Sons.
7. Gupta S.C. & Kapoor V.K.: Fundamentals of Mathematical Statistics ; Sultan Chand & Sons.
- 5.Murthy M.N. (1967); Sampling Theory and Methods; Statistical Publishing Society ; Calcutta.

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VEER NARMAD SOUTH GUJARATA UNI-VERSITY, SURAT
S.Y.B.COM SEMESTER -III
STATISTICS PAPER - IV
(IN FORCE FROM JUNE 2012-2013)

- (I) **TIME SERIES ANALYSIS :** **40 %**
Economics time series, its different components, illustrations. Additive and Multiplicative model. Determination of trend. Analysis of seasonal fluctuations. Construction of seasonal indices.
- (II) **THEORY OF CORRELATION & REGRESSION :** **30 %**
Definition of covariance and correlation coefficient between two variables in terms of mathematical expectation. Effect of change of origin and scale. Properties of correlation coefficient, linear regression. Fitting of regression lines by the method of least squares Derivation and properties. Relationship between correlation coefficient and regression coefficients. Computation of correlation coefficient and regression coefficient from bivariate table.
- (III) **PROBABILITY DISTRIBUTION :** **30 %**
Derivation and important properties of
(1) Hyper Geometrics distribution
(2) Normal distribution
(3) Gamma distribution
(4) Beta first types distribution
(5) Beta second types distribution

BOOK RECOMMENDED :

- (1) Mathematical Statistics : J. N. Kapur
H. C. Saxena
S. Chand & Co. New Delhi.
- (2) Fundamental of Mathematical statistics sultan chand & sons publishers New Delhi.
- (3) Fundamental of statistics Vol. – II
Goon A. M. Gupta M. K. & Das Gupta B (1999)
world press calcutta
- (4) Statistics (Theory & practice)
Dr. B .N. Gupta; St. Sahitya Bhawan Agra.
- (5) Business statistics : C. M. Chikkodi
B. C. Satya prasad
Himaliya publishing house.
- (6) Managerial Statistics N. K. Sharma
Sublime publications. Jaipur.
- (7) Advanced practical statistics S. P. Gupta.
S. Chand & Company Ltd. New Delhi.
- (8) Statistics theory and pratice
M. C. shukla; S.S.Gutshan.
- (9) Mathematical Statistics Hogg & Craig.

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STATISTICS PAPER - VI

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- (I) **MATHEMATICAL ECONOMICS :** **40 %**
Statistical laws of demand and supply, Price equilibrium. Price elasticity of demand & price elasticity of supply. Profit maximization under monopoly and duopoly. Utility function, Cob – Dogglas production function.
- (II) **MULTIPLE AND PARTIAL REGRESSION AND CORRELATION :** **30 %**
Concept of partical regression and partical correlation. Equation of regression plane. Properties of residual. Coefficient of multiple regression and correlation coefficient for three variables, their computation, derivation of their formula and properties with proof and related results.
- (III) **EXACT SAMPLING DISTRIBUTIONS :** **30 %**
Derivation of χ^2 , t and F distributions with their properties and relation between them.

BOOKS RECOMMENDED :

- (1) Mathematical Economics : J. K. Goyal
B. K. Saksena
Goal publishing house Meerut.
- (2) Mathematical Statistics : J. N. Kapur
H. C. Saxena
- (3) Fundamental of Mathematical statistics sultan chand & sons publishers New Delhi.
- (4) Mathematical Statistics.
Hogg & Craig.
- (5) Shanti Narayan (1993) Mathematical Analysis S. Chand & Co. New Delhi.
- (6) Goon A. M. Gupta M. K. & Das Gupta B (1999) Fundamental of Statistics world press calcutta.
- (7) Degroot M H. (1975) probability and statistics Addison wesley.
- (8) Hoal P. G. Port S. C. and Stone C.t. (1991)
Introduction to probabily theory universal book store.