VEER NARMAD SOUTH GUJARAT UNIVERSITY

T.Y. B.A.

PAPER IV (A)

QUANTITATIVE TECHNIQUES

Module I : Basic Concepts

Variables, Sets ,Function, Equations, Identities, System of equations, Application of straight line System, Slope of the line, Homogeneous function.

Module II : Calculus

Differentiation of a function, Maxima and Minima, Elasticities, Equilibrium of a firm and consumer, Inter – relationships among total , marginal and average cost and revenues, Integration of a function, consumer's and producer's surplus.

Module III : Matrix and Determinants

Various types of matrices, Determinants, Inverse of a matrix, Crammer's rule, Input –output analysis, Simple static model, Concept of linear programming, Graphic Methods.

Module IV : Introduction to Statistics

Basic Concept : Population, Sample, Parameter, Frequency Distribution, Cumulative frequency, Graphic and diagrammatic representation of data, Techniques of data collection, Sampling Vs. Population, Primary and secondary data.

Module V : Central Tendency and Dispersion

Measures of central tendency , Mean, Median, Mode, Geometric, Mean and Harmonic mean, Measures of dispersion, Range, Mean Deviation, Standard deviation, Coefficient of variation , Quartile deviation, Skewness.

Module VI: Correlation and Regression

Correlation, Simple, Coefficient of correlation – Karl Pearson and Rank Correlation,
Regression analysis – Estimation of regression line in a bivariate distribution – interpretation of regression coefficients.

Module VII : Time Series and Index Numbers

Time series analysis –Concept and components – Determination of regular, trend and seasonal indices, index numbers – Concept, price relative, quantity relative, value relative, Laspeyer's Passche's and Fisher, Family budget method, Problems in the construction and limitations of index numbers.

Module VIII : Probability and Distribution

Probability , Concept, Rules of probability (Addition and Multiplication) , Random Variables, Mathematical expectations, Theoretical distribution – Binomial , Poisson and Normal, their properties and uses.

Note: Those who have offered higher statistics at F.Y and S.Y. B.A level, they have to offer Mathematical Economics Paper IV [B] instead of Quantitative Paper IV [A]

References:

1. Allen, R.G.D (1974) , Mathematical Analysis for Economists, Macmillan Press London.
2. Black , J. and J.F.Bradely (1973) , Essential Mathematics for Economics, John Wiley and Sons.
3. Chiang. A.C (1986), Fundamental Methods of Mathematical Economics (3rd Ed.) McGraw Hill, New Delhi.
4. Croxton , F.E., D.J. Cowden and S.Klein (1973) , Applied General Statistics, Prentice Hall, New Delhi.
5. Gupta S.C and V.K.Kapoor (1993) , Fundamentals of Applied Statistics, S.Chand and Sons. New Delhi.
6. Speigal, M.R (1992), Theory and Problems of Statistics, McGraw Hill Book, London.
7. Dave M B and Pandya K M (2000), Quantitative Techniques (In Gujarati), Popular Prakashan
8. Modi R J, Quantitative methods in Economics, (In Gujarati), Anada Prakashan