

Paper Code :1333

B.A. HONOURS IN ECONOMICS
FIRST YEAR HONOURS
Paper – III
QUANTITATIVE TECHNIQUES

Course Outcome:

CO1: This course provides basic knowledge of mathematical technique which are frequently used in economic analysis.

CO2: This course will enable the students to use elementary statistical techniques for data analysis in social researches.

CO2: Being combination of basic mathematical and statistical techniques, this course will enable students to use these techniques to understand the economic theories.

UNIT – I

Simple Differential calculus – First and Higher Order derivatives, Maxima and Minima. Partial and Total Derivatives- First and Higher Order derivatives.
Integration – Methods of Integration, Substitution and by Parts, Partial Fraction and Definite Integrals.

UNIT – II

Matrices and their types, Inverse of Matrices. Determinants and their properties. Application of the Matrices and Determinants in solving Simultaneous Equations. Game theory: Saddle Point Solution, Mixed Strategy, Nash Equilibrium.

UNIT – III

Measures of Central Tendency – Mean, Median, Mode. Measures of Dispersion – Range, Mean Deviation, Standard Deviation, Coefficient of Variation, Quartile Deviation, Skewness and Kurtosis.

UNIT – IV

Correlation – Simple Coefficient of Correlation, Karl Pearson and Rank Correlation, Regression Analysis – Simple Regression, Least Square Method, Time Series Analysis – Concept and Components, Determination of Regular trends: Moving Average Methods and Least Square Method.

UNIT – V

Index numbers – Concept, Index Methods – Laspeyer's, Pasche's and Fisher, Family budget method, Problems in the construction and limitations of Index Numbers, Test for ideal Index Number.

Elementary Probability Theory: concept of permutation and combination, concept of probability, rules of probability (addition and multiplication rules), Conditional Probability and Bayes' rule. Probability Distribution – Binomial, Poisson and Normal Distribution (concept).

Basic Reading List

1. Agrawal, D.R. (2015). Mathematics and Statistics in Economics, Vrinda Publications, Delhi.
2. Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics (3rd Edition), McGraw Hill, New Delhi
3. Croxton, Crowden and Klein (1971) – Applied General Statistics, Prentice Hall of India, New Delhi.
4. Gupta, S.P. (2002) – Statistical Methods, S. Chand and Sons, New Delhi.
5. Madnani, G.M.K.- Arthshastra Me Ganit Ke Prayog .(Hindi Version)
6. Nathuramka L.N. (2016), Arthshastra Me Ganit Ke Prayog, College Book House, Jaipur.(Hindi Version)
7. Nagar, A.L. and Das, R.K. (1993) – Basic Statistics, Oxford University Press, New Delhi.
8. Sydsaeter K. and P. Hammond (2002) *Mathematics for Economic Analysis*, Pearson Educational Asia, Delhi
9. dSyk'kukFk ukxj (2002) & lkaf[;dh ds ewy rRo] feuk{kh ifCyds'ku] esjBA