

Paper Code :2333

**B.A. HONOURS IN ECONOMICS**  
**SECOND YEAR HONOURS – 2015-16**  
**Paper – VII**  
**QUANTITATIVE TECHNIQUES**

**Unit – I**

Determinants – Properties and their Uses in solving simultaneous equations; Matrices and their types, Inverse of Matrices, Application of the Matrices in solving simultaneous equations.

Differential calculus – First and Higher Order derivatives, Maxima and Minima, Simple Application of Calculus (Profit maximisation and Cost minimisation), Interrelationship among Total, Marginal and Average Cost and Revenues.

Partial and Total Derivatives – Simple Application of Partial and Total Derivatives, Elasticity.

**Unit – II**

Integration – Methods of Integration, Substitution and by Parts, Partial Fraction and Definite Integrals, Application of Integration – Consumers and Producer Surplus.

Concept of Linear Programming – Graphical Methods, Input and Output Analysis.

**Unit – III**

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 and Kurtosis.

**Unit – IV**

Correlation – Simple Coefficient of Correlation, Karl Pearson and Rank Correlation, Regression Analysis – Simple Regression, Least Square Method, Interpretation of Regression Coefficients.

Time Series Analysis – Concept and Components – Determination of Regular Trend and Seasonal Indices.

### **Unit – V**

Index numbers – Concept, Price relative, Quantity relative and Value relative, 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.

Probability: Concept, Rules of Probability (Addition and Multiplication), Theoretical distribution – Binomial, Poisson and Normal, their properties and uses.

### **Basic Reading List**

1. Gupta, S.P. – Statistical Methods.
2. Gupta, S.C. – Fundamentals of Applied Statistics, Sultan Chand and Sons, New Delhi.
3. Rao, N.S., Suthar, S.P., Gupta, S.L. (2008) – Business Statistics, Arvind Prakashan, Udaipur.
4. Mehta and Madnani – Elementary Mathematics in Economics, Educational Publisher, Agra.
- 5<sup>०</sup> कैलाशनाथ नागर – सांख्यिकी के मूल तत्व, मिनाक्षी पब्लिकेशन, मेरठ ।
- 6<sup>०</sup> लक्ष्मीनारायण नाथूरामका – अर्थशास्त्र में गणित के प्रयोग, कॉलेज बुक हाऊस, जयपुर ।