

M.A. (PREVIOUS) ECONOMICS

Compulsory Paper

Paper - III

Quantitative Methods

Unit I

Simple Differentiation- Process of differentiation, Rules of differentiation, Economic application of differentiation in revenue and cost functions and elasticities. Higher order derivatives- maxima minima and its application to simple profit maximisation, partial differentiation and problem of maxima minima under constraints. Simple application to maximise utility and profits.

Linear programming- Basic concepts and solution of LPP through graphical method.

Unit II

Integration- Simple rules of integration, Definite integration- application to cost and revenue functions and consumer and producer's surplus.

Determinants and their properties, solution of simultaneous equations through Cramer's Rule. Matrix- Concept of matrix, their types. Simple operations on matrices. Matrix inversion and rank of a matrix. Application of matrices to the solution of simultaneous equations.

Unit III

Concept of Simple, Partial and Multiple Correlation- Meaning and definition of simple Regression Analysis. Concept of least square method and lines of regression. Estimation of regression equations and Regression Co-efficients. Concept of Multiple Regression.

Unit IV

Definitions of Probability- Laws of addition and multiplication, conditional probability and concept of interdependence. Bay's Theorem and its application, Properties of Binomial, Poisson and Normal distributions (Without derivations).

Unit V

Basic concept of sampling -random and non-random sampling; Simple random and stratified sampling. Formulation of statistical hypotheses - Type I and Type II errors. Hypothesis testing based on t , x^2 and F tests.

BASIC READING LIST

- > Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
- > Gupta, S.C. (1993), Fundamentals of applied Statistics, S. Chand & Sons, New Delhi.
- > Handry, A.T. (1999), Operations Research. Prentice Hall of India, New Delhi.

- Taha, H.A. (1997), Operations Research : An Introduction (6th Edition), Prentice Hall of India Pvt. Ltd., New Delhi.
- Baumol, W.J. (1984), Economic Theory and Operations Analysis, Prentice Hall, Englewood Cliffs, New Jersey.
- Kothari, C.R. (1992). An Introduction to Operations Research, Vikas Publishing House, New Delhi.
- Mustafi. C.K. (1992). Operations Research: Methods and Practice, Wiley Eastern, New Delhi.
- Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
- Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
- Gupta, S.C. (1993), Fundamentals of applied Statistics, S. Chand & Sons, New Delhi.
- Handry, A.T. (1999), Operations Research. Prentice Hall of India, New Delhi.
- Speigal, M.R. (1992), Theory & Problems of Statistics, McGraw Hill Book Co., London.
- Taha, H.A. (1997), Operations Research : An Introduction (6th Edition), Prentice Hall of India Pvt. Ltd., New Delhi.
- Yamane, Taro (1975), Mathematics for Economists, Prentice Hall of India, New Delhi.

ADDITIONAL READING LIST

UNIT I

- Baumol, W.J. (1984), Economic Theory and Operations Analysis, Prentice Hall, Englewood Cliffs, New Jersey.
- Monga, G.S. (1972), Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.
- Vygodsky, G.S. (1971), Mathematical Handbook (Higher Mathematics), Mir Publishers, Moscow.
- Mathur, P.N. and R. Bharadwaj (Eds.) (1967). Economic Analysis in Inout-Output Research, Input-Output Research Association of India, Pune.

Unit II

- Hadley, G. (1962). Linear Programming, Addison Wesley Publishing Co., Massachusetts.
- Kothari, C.R. (1992). An Introduction to Operations Research, Vikas Publishing House, New Delhi.
- Mustafi. C.K. (1992). Operations Research: Methods and Practice, Wiley Eastern, New Delhi.

Unit III

- Chou, Y. (1975), Statistical Analysis, Holt, Reinhart and Winston, New York.