

VEER NARMAD SOUTH GUJARAT UNIVERSITY

T.Y. B.A.

PAPER IV (B)

MATHEMATICAL ECONOMICS

Module I : Quantitative Methods

Variable, Constants and parameters, Simple functional relationship and their graphs, Elementary ideas of differential and integral calculus, Matrix and determinants, Solution of simultaneous equations, Quadratic equations, Difference and difference equations.

Module II : Consumer Theory

Utility function, budget line, Constrained optimization, Consumer's equilibrium, Income effect, substitution effect and price effect, Slutsky equation, Derivation of demand curve, Elasticity of demand, Consumer's surplus.

Module III : Theory of Production

Properties of production function – Homogeneous and non – homogeneous, Cobb-Douglas, CES, Returns to scale, Technology progress and production function, Choice of optimal combination of factors of production, Cost and revenue function, Derivation of cost curves, Relation between total, average and marginal cost and revenue. Producer's surplus , Production possibility curve, Adding up theorem.

Module IV : Market Structure / Pricing

Concept of equilibrium , Equilibrium of the firm under perfect competition, Monopoly, Price discrimination, Monopolistic competition, Subsidies and taxes, Economics of scale , Market equilibrium, Economic interpretation of time lag in function, Cobweb model.

Module V : Input –Output Analysis, Linear Programming

Input- Output analysis, The simple closed and open model, Linkages, Concepts and measurement, Dynamic input – output model, Linear programming- Basic concepts , primal and dual , Basic theorem of linear programming, Graphic and simplex method.

Module VI : Game Theory

Introduction and concepts – simple and mixed strategy, saddle point solution, Prisoner's dilemma, Payoff matrix of a game – two persons-two commodity and zero-sum game.

References:

1. Allen, R.G.D (1974), Mathematical Analysis for Economists., Macmillan Press, London
2. Chiang ,A.C (1986), Fundamental Methods of Mathematical Economics (3rd Ed.), McGraw Hill, New Delhi.
3. Colell, A .Mass et. al. (1991), Microeconomic Theory, Harvard University Press, Cambridge, Mass.
4. Hands, D.W (1991), Introductory Mathematical Economics, D.C.Health
5. Henderson, J. and R.E.Quant (1980), Microeconomic Theory, A Mathematical Approach, McGraw Hill , New Delhi.
6. Handy, S.T (1997), Operations Research, Prentice Hall of India, New Delhi.
7. Mukherji, B. and V.Pandit (1982), Mathematical Method of Economic Analysis, Allied Publishers, New Delhi.