

MATHEMATICAL TECHNIQUES II
(Marks 100)

- I. MATHEMATICS OF FINANCE: (15 MARKS-8 LECTURES)**
- Laws of logarithms and Common Logarithms (No question to be asked).
 - Simple interest
 - Compound interest- compounded annually, six monthly, quarterly, monthly and daily.
 - Effective rate of interest
 - Present value of compounded amount after n years
 - Ordinary annuity, Present value of ordinary annuity, sinking fund.
- II. THE STRAIGHT LINE: (25 MARKS-15 LECTURES)**
- Rectangular Cartesian Co-ordinate System
 - Section Formula, Distance Formula (simple Problems Only).
 - Slope and Intercept of straight lines.
 - Equations of lines parallel to the axes.
 - Equations of lines (slope– point form).
 - General Equations of a line - Parallel and Perpendicular lines. I
 - Intersection of two lines.
 - Graphs of linear programming problems with two variables.
- III. RELATION AND FUNCTIONS: (5 MARKS-5 LECTURES)**
- Ordered pair.
 - Cartesian product .
 - Relation - Domain, Co-Domain and range.
 - Functions – types of functions. Algebra of functions.
- IV. LIMITS AND CONTINUITY: (5 MARKS-5 LECTURES)**
- Definition
 - Operations of finding limits
 - Algebra of limits, examples
 - Concept of continuity and examples.
- V. DERIVATIVES AND THEIR APPLICATIONS: (25 MARKS-20 LECTURES)**
- Concept of derivatives.
 - Standard forms
 - Algebra of derivatives.
 - Derivatives of composite functions.
 - Higher order derivatives.
 - Applications- Total cost function, total revenue function, Elasticity of demand and supply
 - Increasing and decreasing function/ sign of derivatives (economic applications)
 - Maxima and Minima(economic applications)

**VI. INTEGRATION AND APPLICATIONS:
LECTURES)**

(20 MARKS-16

- Definition.
- Standard forms x^n , e^x , a^x , $1/x$. Integral of $f(x)+g(x)$ and $kf(x)$.
- Integral of $(ax+b)^n$, e^{ax+b} , k^{ax+b} , $1/ax+b$.
- Applications-Economic application: total cost function, Total revenue function.
- Definite Integration.
- Area under a curve (formula only).
- Consumer surplus and producer's surplus.

**VII. PARTIAL DERIVATIVES:
LECTURES)**

(5 MARKS-6

- Definition.
- Partial derivative of first and second order.
- Economic application: Demand function, Utility function, Production

function.

- **Book for study and Reference:**

1. A text book in Mathematical Techniques
2. By A.G.Jumde, M.E.Rebello e Abranches, S.G.Chitale. N.A.Joshi.
Publishers: Sheth Publishers
3. Business Mathematics by M.L.Vaidya and A.V.Deshpande
Publishers: manishaPrakashan
4. Business Mathematics by A.N.Bapat, D.L.Rana
Publishers: MenenPrakashan
5. Business Mathematics by FaiyazGawal and S.V.Kelkar
Publishers: Reliable Publication
6. Basic Mathematics for Commerce by N.K.Shah
Publishers: Sheth Publishers
7. Business Mathematics by S.Shah(for ICWAI International Course)
Publishers: New Central Book Agency
8. Business Mathematics by Dr. Amarnath Dikshit and Dr.Jinendra Kumar Jain
Publishers: Himalaya Publishing House
9. Mathematics and Statistics by Ajay Geol and AlkaGoel
10. Business Mathematics by M. E. Rebello Abranches