

Syllabus

Paper-II: Business Mathematics

Max. Marks : 100

Time : 3 Hours

Note : Ten questions shall be set in the question paper covering the whole syllabi. The candidates shall be required to attempt any five questions in all.

- Unit-I Calculus** (Problems and theorems involving trigonometrical ratios are not to be done).
Differentiation: Partial derivatives up to second order; Homogeneity of functions and Euler's theorem; total differentials Differentiation of implicit function with the help of total differentials.
Manima and Minima; Cases of one variable involving second or higher order derivatives; Cases of two variables involving not more than one constraint.
Integration: Integration as anti-derivative process; Standard forms; Methods of integration-by substitution, by parts, and by use of partial fractions; Definite integration; Finding areas in simple cases; Consumers and producers surplus;
Nature of Commodities learning Curve; Leontiff Input-Output Model.
- Unit-II Matrices and Determinants:** Definition of a matrix; Types of matrices; Algebra of matrices; Properties of determinants; calculation of values of determinants upto third order; Adjoint of a matrix, through adjoint and elementary row or column operations; Solution of system of linear equations having unique solution and involving not more than three variables.
- Unit-III Linear Programming-Formulation of LPP:** Graphical method of solution; Problems relating to two variables including the case of mixed constraints; Cases having no solution, multiple solutions, unbounded solution and redundant constraints.
Simplex Method—Solution of problems up to three variables, including cases of mixed constraints; Duality; Transportation Problem.
- Unit-IV Compound Interest and Annuities:** Certain different types of interest rates; Concept of present value and amount of a sum; Types of annuities; Present value and amount of an annuity, including the case of continuous compounding; Valuation of simple loans and debentures; Problems relating to sinking funds.