

COMPUTER APPLICATIONS (CA)

The Computer Applications (CA) test paper comprises of Mathematics, Computer Awareness, and Analytical Ability and General Awareness and they will be in the ratio 4:2:1. The question paper will be fully of objective type. There will be negative marking (one third) for wrong answer.

MATHEMATICS

Algebra: Set theory and its simple applications. Basic concepts of groups, fields and vector spaces.

Matrices: Rank of a matrix. Existence and uniqueness of solution of a system of linear equations. Eigenvalues and Eigenvectors. Inverse of a matrix by elementary transformations.

Differential Calculus: Differentiation, Partial differentiation, Taylor series and approximate calculations. Maxima and minima of functions of one and two variables.

Integral Calculus: Single and multiple integration. Definite integrals, Change of order and change of variables. Applications to evaluation of area, surface and volume.

Differential Equations: First order differential equations, linear differential equations of higher order with constant coefficients.

Vector Algebra: Addition, subtraction, dot product, cross product, triple product and their applications.

Numerical Analysis: Solution of non-linear equations using iterative methods.

Interpolation (Lagrange's formula and Newton's formula for equidistant points). **Numerical differentiation and integration** (Trapezoidal and Simpson's rules).

Probability: Basic concepts of probability theory. Binomial and Poisson distributions.

Linear Programming: Formulation and its graphical solution for two variable problems.

COMPUTER AWARENESS

Elements of computers. Number systems. Basic electronic gates. Boolean algebra. Flip-Flops. Algorithmic approach to solve problems. Fundamentals of C language.

ANALYTICAL ABILITY AND GENERAL AWARENESS

Simple questions will be asked to test the analytical ability and general awareness of candidates.