B.A/B.Sc Part I

Paper I Algebra

Unit I

Unit II
Application of matrices to a system of linear (both homogenous and nonhomogeneous) equations. Theorems on consistency of a system of linear equations.

Relations between the roots and coefficients of general polynomial equation in one variable, transformation of equations, Descarte’s rule of signs. Solution of cubic equations (Cardon’s method). Biquadratic equations.

Unit III

Unit IV
B.A/B.Sc Part I (Paper II)
Differential Calculus & Vector Calculus

Unit I

Unit II
Maclaurin’s and Taylor’s series expansions. Tangents and Normals, Asymptotes.

Unit III

Unit IV
Vector Differentiation. Gradient, Divergence and Curl. Vector Integration. Theorems of Gauss, Green, Stokes and problems based on these.
B.A/B.Sc Part I (Paper III)
Integral Calculus & Trignometry

Unit I

Unit II
Ordinary Differential Equations
Degree and order of a differential equation. Equation of first order and first degree. Equations in which the variables are separable. Homogenous equation. Linear equations and equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for x, y, p. Clairaut’s form and singular solutions. Geometric meaning of a differential equation. Orthogonal trajectories.

Unit III
Linear differential equation with constant coefficients. Homogenous linear ordinary differential equations.
Linear differential equations of second order. Transformation of the equation by changing the dependent variable/the independent variable. Method of variation of parameters.
Ordinary simultaneous differential equations.

Unit IV
Trignometry
Unit I

Unit II
Geometry

Unit III
Plane, The straight line, Sphere, Cone, Cylinder.

Unit IV