MATHEMATICS

Algebra : Algebra of sets : relations and functions, Group, sub-groups, cosets and their properties, Lagrange's theorem on the order of a sub-group of a finite group, normal sub-groups, cylic groups, permutation groups, quotient groups, homomorphism and isomorphism of groups. Rings integral domains and fields, sub-rings and ideals, homomorphism and isomorphism of rings.

Matrices of the field of real numbers, different types of matrices, I addition and scaler in multiplication of matrices of determinant of a square matrices, minor's and co-factors, Jacola's theorem, transpose of matrix, adjoint metrix, reciprocal (inverse) matrix, singular and non-singular matrix multiplication of matrices and determinants, groups and rings of matrices, rank of a matrix, solution of a system of linear equations.

Inequalities, Relation between roots and coefficient of a polynomial equation symetric functions of roots, Cardon's method of solution of cubic.

Convergence and divergence of sequences and series, comparison test and ratio test and Raabe's test for convergence of infinite series.

Calculus : Real-valued functions of a real variable, Bounds, limits and continuity of function inverse functions, properties of continuous functions.

Successive differentiation, Leibnitz's theorem, Rolle's theorem, Lagrange's meanvalue theorem, Taylor's and Maclaurin's theorem with Language's from of remainder indeterminate form.

Functions of two or more variable, partial differentiation, Euler's theorem on homogeneous functions, Maxima and Minima of a function of two variable.

Standard integrals, Properties of definite integrals, Elementary idea of improper integrals.

Tangents and normals, curvature of plane curves, rectification of plane curve, quadrature, surfaces and volumes of solids of Revolution.

Differential Equations, Formation of differential equation, equations of 1st order and 1st degree, clairout's form, linear equation of 2nd and higher orders with constant coefficients, complementary function and particular integrals in standard cases.

Coordinate Geometry, Change of axes, Invarient part of straight lines, General equation of the second degree, Central and non-central conies, tangent, normal hoyd of contact, Pole polar, Polar equation of conic and equations of its chord, tangent and normal.

Polar and cylindrical coordinates in three dimensions, S.D*. between two lines, sphere cone and cylinder.

Vector's : Triple product of Vectors with applications, Vector equations of lines, Planes sphres, Differentiation of Vector functions and simple applications.

Trigonometry: De Mouver's theorem, Gregory's series Expansion of sine and cosine function and Hyperbolic function.