MMA (Objective type)

SYLLABUS

Analytical Reasoning

Algebra — Arithmetic, geometric and harmonic progression. Continued fractions. Elementary combinatorics: Permutations and combinations, Binomial theorem. Theory of equations. Inequalities. Complex numbers and De Moivre's theorem. Elementary set theory. Functions and relations. Elementary number theory: Divisibility, Congruences, Primality. Algebra of matrices. Determinant, rank and inverse of a matrix. Solutions of linear equations. Eigenvalues and eigenvectors of matrices. Basic group theory: subgroups, cosets, cyclic groups,homomorphisms, normal subgroups, quotient groups, isomorphism ofgroups.

Coordinate geometry — Straight lines, circles, parabolas, ellipses and hyperbolas.

Calculus — Sequences and series: Power series, Taylor and Maclaurin series. Limits and continuity of functions of one variable. Differentiation and integration of functions of one variable with applications. Definite integrals. Maxima and minima. Functions of several variables - limits, continuity, differentiability. Double integrals and their applications. Ordinary linear differential equations.

Elementary discrete probability theory — Combinatorial probability, Conditional probability, Bayes theorem. Binomial and Poisson distributions.