SYLLABUS FOR MULIPLE CHOICE QUESTIONS (MMA)

Analytical Reasoning.

Algebra: Arithmetic, Geometric and Harmonic Progression. Continued fractions. Permutations and Combinations. Binomial theorem. Theory of equations. Inequalities involving arithmetic mean and geometric mean, Cauchy-Schwarz inequality. Complex numbers and De Moivre's theorem. Elementary Set Theory. Functions and relations. Elementary Number Theory: divisibility, congruence, primality. Matrices: determinant, rank and inverse, properties of symmetric and idempotent matrices, Eigenvalues and eigenvectors, quadratic forms. System of linear equations. Basic properties of a group. Principle of mathematical induction. Theory of polynomials, remainder theorem, factor theorem.

Coordinate geometry: Straight line, Circle, Parabola, Ellipse and Hyperbola.

Calculus: Sequences and its properties. Series: Power series, Taylor series and Maclaurin series, convergence. Limits and continuity of functions of one variable. Differentiation and integration of functions of one variable with applications. Rolle's theorem and Mean value theorem. 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 and applications.

Trigonometric functions and identities.