

**PRESIDENCY UNIVERSITY, KOLKATA**

**DEPARTMENT OF STATISTICS**

**ADMISSION TO B.Sc. STATISTICS ( Major ) ( 2013-2014 Session )**

**SYLLABUS FOR ADMISSION TEST IN STATISTICS**

This examination is designed to test the basic understanding of Mathematics up to the 12th standard level based on the following topics :

**Algebra:** Sets, operations on sets. Prime numbers, factorization of integers and divisibility. Rational and irrational numbers. Permutations and combinations. Binomial theorem. Logarithms. Theory of quadratic equations. Polynomials and remainder theorem. Arithmetic and geometric progressions. Inequalities involving AM, GM, and HM., Complex numbers, Sequences, Series – logarithmic and exponential, Preliminaries of matrices up to order  $3 \times 3$ .

**Geometry:** Plane geometry of class X level. Geometry of two dimensions with Cartesian and polar coordinates. Concept of a locus. Equation of a line, angle between two lines, distance from a point to a line. Area of a triangle. Equations of circle, parabola, ellipse and hyperbola and equations of their tangents and normals.

**Trigonometry:** Measures of angles. Trigonometric and inverse trigonometric functions. Trigonometric identities including addition formulæ, Solutions of trigonometric equations. Properties of triangles. Heights and distances.

**Calculus:** Functions, one-to-one functions, onto functions. Limits and continuity. Derivatives and methods of differentiation. Slope of a curve. Tangents and normals. Maxima and minima. Use of calculus in sketching graph of functions. Methods of integration, definite and indefinite integrals, evaluation of area using integrals.

**Elementary Statistics & Logical Reasoning:** Probability; Consistency of statements, Data Interpretation and Data Sufficiency.