



Bangladesh Mathematical Society - A F Mujibur Rahman Foundation
16th Dhaka South Regional Mathematics Olympiad 2025
Modality of the Olympiad

The competition is planned for the undergraduate students of Dhaka South Region. The problems will cover the fields of Algebra, Analysis (Real and Complex), Analytic Geometry and Combinatorics. The medium of the competition will be English. The short course contents are as follows:

- 1. Algebra:** Real & Complex Number Systems; Polynomials and algebraic equations; Summation of algebraic and trigonometric series; Inequalities; Applications of De Moivre's theorem; Linear Algebra (Matrices and determinants, Basis and Dual basis, Linear transformations, Eigen system, Annihilators, Adjoint, Operators, Applications); Groups, Rings and fields.
- 2. Analysis (Real and Complex):** Infinite series; Convergence; Complex Integration; Bilinear transformations; Single variable Calculus, Multivariable Calculus and Vector Calculus (Theorems of Green, Gauss, Stokes) and their applications (Differentiation and integration). Modelling with first and second order differential equations; Special functions.
- 3. Analytic Geometry:** Second degree equations; Conics; Planes and straight lines in 3D; Conicoids; Applications of geometry.
- 4. Combinatorics:** Permutations and Combinations; Primes; Arithmetic functions; Congruence; Recurrence relations; Generating function; Complexity.

Questions setting & Evaluation

1. There will be 8 problems in the Regional Olympiad, each carrying 10 marks.
2. The total time allocated for the Regional Olympiad is 120 minutes.
3. Students' answer scripts will be evaluated by the Script Evaluation Committee, based on the criteria provided by the NUMO committee.