

**ISC · CLASS 12**

# Mathematics

Official CISCE ISC Class XII curriculum with compulsory Section A (Relations, Functions, Algebra, Calculus, Probability) and specialized optional Section B (Vectors & 3D Geometry) or Section C (Applications of Calculus in Commerce).

**Board:** Council for the Indian School Certificate Examinations (Higher Secondary)**Theory:** 80 Marks**Internal/Practical:** 20 Marks (Project)**Exam Duration:** 3 Hours

## UNIT-WISE SYLLABUS & MARKS BREAKDOWN

| UNIT                    | CHAPTERS & PRESCRIBED TOPICS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | MARKS |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Section A               | <b>Relations, Functions &amp; Inverse Trigonometry</b><br>Relations: Reflexive, symmetric, transitive, equivalence; Functions: Injective, surjective, bijective, composite, invertible; Inverse Trigonometric Functions: Graphs, domain, range, principal values                                                                                                                                                                                                                                                                                                                                                                      | 10    |
| Section A               | <b>Algebra (Matrices &amp; Determinants)</b><br>Matrices: Types, operations, transpose, symmetric and skew-symmetric matrices; Determinants: Properties, minors, cofactors, adjoint and inverse of a matrix, solving systems of linear equations using matrix method and Cramer's rule                                                                                                                                                                                                                                                                                                                                                | 10    |
| Section A               | <b>Differential &amp; Integral Calculus</b><br>Continuity & Differentiability: Continuity at a point, differentiability, derivative of inverse trigonometric, implicit, and parametric functions, logarithmic differentiation, second order derivative; Applications of Derivatives: Tangents and normals, rate of change, increasing and decreasing functions, Maxima and Minima; Integrals: Indefinite integrals, integration by substitution, parts, and partial fractions, Definite integrals and properties; Differential Equations: Formation, order and degree, variable separable, homogeneous, linear differential equations | 32    |
| Section A               | <b>Probability</b><br>Conditional probability, multiplication theorem, independent events, total probability law, Bayes' theorem, Random variable, probability distribution, binomial distribution                                                                                                                                                                                                                                                                                                                                                                                                                                    | 13    |
| Section B<br>(Option 1) | <b>Vectors and 3-Dimensional Geometry</b><br>Vectors: Scalar and vector products of two vectors, scalar triple product; Three-Dimensional Geometry: Direction cosines and direction ratios, Cartesian and vector equations of a line, angle between lines, shortest distance between skew lines; Equation of a plane, angle between planes, distance of a point from a plane                                                                                                                                                                                                                                                          | 15    |
| Section C<br>(Option 2) | <b>Application of Calculus in Commerce &amp; Economics</b><br>Cost function, revenue function, profit function, marginal cost, marginal revenue, average cost; Linear Programming: Graphical method, unbounded and bounded feasible regions; Application of regression lines                                                                                                                                                                                                                                                                                                                                                          | 15    |

## INTERNAL / PRACTICAL ASSESSMENT SCHEME (20 MARKS (PROJECT))

| EVALUATION COMPONENT                                                                                                    | MARKS WEIGHTAGE |
|-------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Two Internal Project Assignments</b><br>Mathematical modeling, statistical survey or commercial optimization project | <b>20 Marks</b> |

## RECOMMENDED REFERENCE LITERATURE

**Prescribed Textbooks:** OP Malhotra & SK Gupta ISC Mathematics Class 12, ML Aggarwal Understanding ISC Mathematics, Excellence Advanced Calculus Workbook

### The Excellence Tuition Edge

Every unit in this curriculum is taught with structured conceptual lectures, followed by weekly speed-testing, detailed mistake analysis, and dedicated 1:1 doubt-clearing sessions to build board exam confidence.

Excellence Tuition Centres: Sarsuna (Opp. High School) · Joka · Chatterjee Para (Behala)

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