
INTER FIRST YEAR MATHS SYLLABUS (2020 – 2021)

Maths – IA

1. Functions

1.0 Ordered pairs

1.1 Types of functions – definitions

1.2 **Inverse functions and theorems (Deleted)**

1.3 Real valued functions (Domain, Range and Inverse)

2. Mathematical Induction (Deleted)

3. Matrices

3.1 Types of matrices

3.2 scalar multiple of a matrix and multiplication of matrices

3.3 Types of a matrix

3.4 Determinants **[3.4.8: Properties of determinants related problems and examples (Deleted)]**

3.5 Adjoint and inverse of a matrix

3.6 consistency and in Inconsistency (Deleted) Rank of Matrix

3.7 Solutions of Simultaneous Equations **[Gauss Jordan Method (Deleted)]**

3.7.7 onwards (Deleted)

4. Addition of Vectors

4.1 Vectors as a triad of real numbers, some basic concepts

4.2 Classification of Vectors

4.3 Addition of vectors

4.4 Scalar Multiplication of vectors

4.5 Angle between two non-zero vectors

4.6 Linear combination of vectors

4.7 components of a vector in three dimensions

4.8 Vector equations of a line and plane

5. Product of vectors

5.1 Scalar or dot product of two vectors

5.2 Properties of dot product

5.3 Expressions for scalar product, Angle between two vectors

5.4 Geometrical vector method

5.5 Vector equation of a plane – normal form

5.6 Angle between two planes

5.7 Cross product of two vectors and properties

5.8 Vector product in (i, j, k) system

5.9 Vector areas

5.10 Scalar triple product

5.11 Vector equation of a plane – different forms, skew lines, shortest distance – plane, condition for coplanarity etc (Deleted)

5.12 vector triple product - results (Deleted)

6. Trigonometric Ratios up to Transformations

6.1 Trigonometric ratios – variations – Graphs and Periodicity

6.2 Trigonometric ratios of compound angles

6.3 Trigonometric ratios multiple and submultiple angles

6.4 Sum and Product Transformations

7. Trigonometric Equations (Deleted)

8. Inverse Trigonometric Functions (Deleted)

9. Hyperbolic functions

9.1 Definition of Hyperbolic functions, Graphs

9.2 **Definition of Inverse Hyperbolic functions and graphs (Deleted)**

9.3 Addition formulas of Hyperbolic functions

10. Properties of Triangle

10.1 Relation between the sides and angles of a triangle

10.2 Sin, Cosine and Tangent rules – Projection Rule

10.3 Half angle formulae and area of a triangle

10.4 In circle and Ex circle of a triangle

INTER FIRST YEAR MATHS SYLLABUS (2020 – 2021)

Maths – IB

1. Locus
 - 1.1 Definition of Locus
 - 1.2 Equation of Locus – problems connected to it
2. Transformation of axes
 - 2.1 Transformation of axes - Rules, derivations and illustrations
 - 2.2 Rotation of axes – Derivations - illustrations
3. Straight lines
 - 3.1 Revision of fundamental results
 - 3.2 Straight line – Normal form
 - 3.3 Straight line – symmetric form
 - 3.4 Straight line – Reduction into various forms
 - 3.5 Intersection of two Straight lines
 - 3.6 Family of straight Lines – Concurrent lines
 - 3.7 Condition for concurrent lines
 - 3.8 Angle between two lines
4. Pair of Straight Lines
 - 4.1 Equation of a Pair of lines passing through the origin, angle between a pair of lines
 - 4.2 Condition for perpendicular and coincident lines, bisectors of angles
 - 4.3 **Pair of bisectors of angles [4(a) and related problems (Deleted)]**
 - 4.4 Pair of lines – Second degree general equation
 - 4.5 **Condition for parallel lines – Distance between them, point of intersection pair of lines [4(b) and related problems (Deleted)]**
 - 4.6 Homogenising a second-degree equation with a first-degree equation in x and y
5. Three dimensional Coordinates
 - 5.1 Coordinates
 - 5.2 Section formula
 - 5.3 Solved problems
6. Directions Cosines and Direction Ratios

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- 6.1 Direction Cosines
 - 6.2 Direction Ratios
 - 7. The Plane
 - 7.1 Cartesian equation of a plane – Simple illustrations

Exercise 7(a): Section II and III related Examples (Deleted)

- 8. Limits and Continuity
 - 8.1 Interval and Neighbourhoods
 - 8.2 Limits
 - 8.3 Standard limits
 - 8.4 **Continuity (Deleted)**
- 9. Differentiation
 - 9.1 Derivative of a function
 - 9.2 Elementary properties
 - 9.3 Trigonometric, inverse Trigonometric, Hyperbolic, Inverse hyperbolic functions – Derivatives

Problems of inverse Trigonometric functions (Deleted)

Exercise 9 (c): section III (Deleted)

- 9.4 Methods of Differentiation
- 9.5 Second order derivatives
- Exercise 9 (c) (Deleted)**
- 10. Application of Derivatives
 - 10.1 Errors and approximations
 - 10.2 Geometrical interpretation of the derivative
 - 10.3 Equations of a Tangent and Normal to a curve
 - 10.4 Length of tangent, normal, subtangent and subnormal
 - 10.5 Angle between two curves and condition for orthogonality of curves
 - 10.6 **Derivative as a rate of change (Deleted)**
 - 10.7 **Rolle's and Lagrange's mean value theorem (Deleted)**
 - 10.8 **Increasing and Decreasing functions (Deleted)**
And related problems and examples
 - 10.9 Maxima and Minima