
INTER SECOND YEAR MATHS SYLLABUS (2020 – 2021)

Maths – IIA

1. Complex numbers

- 1.1 Complex numbers as an ordered pair of real numbers. Fundamental operations
- 1.2 Representation of complex numbers in the form of $a + ib$
- 1.3 **Modulus and amplitude of a complex number - illustration (Deleted)**
- 1.4 **Geometrical and polar representation of complex numbers (Deleted)**

2 De Moivier's Theorem

- 2.1 De Moivier's theorem – integral and radical indices
- 2.2 n^{th} root of unity – geometrical interpretation – illustration

Exercise 2(b): section II on words (Deleted)

3 Quadratic Expressions

- 3.1 Quadratic Expressions, Equation on one variable
- 3.2 Sign of Quadratic expression – Change in signs and maxima and minima values
- 3.3 **Quadratic inequalities (Deleted)**

4 Theory of Equations

- 4.1 Relation between the roots and the coefficients in an equation
- 4.2 Solving an equation when two or more of its roots are connected by certain relations
- 4.3 Equations with real coefficients – occurrence of complex roots in conjugate pairs and its consequences
- 4.4 Transformation of equations – Reciprocal equations

5 Permutations and Combinations

- 5.1 Fundamental principle of counting – linear and circular permutations
- 5.2 Permutations of 'n' dissimilar things taken 'r' at a time
- 5.3 **Permutations when repetitions are allowed (Deleted)**
- 5.4 **Circular permutations (Deleted)**
- 5.5 **Permutations with constraint repetitions (Deleted)**
- 5.6 Combinations – definitions and certain theorems

Exercise 5(e): section III (Deleted)

6 Binomial theorem

- 6.1 Binomial theorem for positive integral index

6.2 Binomial theorem for Rational index

6.3 Approximations using Binomial theorem

Exercise 6(a): section II 5th problem on words and related examples (Deleted)

Exercise 6(b): section II and related examples (Deleted)

Exercise 6(c) (Deleted)

7 Partial fractions

7.0 Rational fractions

7.1 Partial fractions of $f(x) / g(x)$, when $g(x)$ contains non-repeated linear factors

7.2 Partial fractions of $f(x) / g(x)$, when $g(x)$ contains repeated and/or non-repeated linear factors

7.3 Partial fractions of $f(x) / g(x)$, when $g(x)$ contains irreducible factors

Exercise 7(d) (Deleted)

8 Measure of Dispersion

8.1 Range

8.2 Mean deviation

8.2.2 mean deviation for grouped data onwards (Deleted)

Exercise 8(a): Section I – 3rd problem in word (Deleted)

8.3 Variance and standard deviation of ungrouped or grouped data

8.4 Coefficient of variation and analysis of frequency distribution with equal means but different variances

9 Probability

9.1 Random experiment and Events

9.2 Classical definition of probability, Axiomic approach and addition theorem of Probability

9.3 Independent and dependent events, Conditional Probability, Multiplication theorem and Bayes theorem

9.3.9 Baye's theorem and problems on Baye's theorem (Deleted)

10 Random variables and Probability Distribution

10.1 random variables

10.2 Theoretical discrete distributions – Binomial and Poisson distribution

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Maths – IIB

1. Circle

- 1.1 Equation of a circle, Standard form, centre and radius
- 1.2 Position of a point in the plane of a circle – definition of a tangent
- 1.3 Position of a straight line in the plane of a circle, Condition for a line to be tangent
- 1.4 Chord of contact and Polar
- 1.5 Relative position of two circles

2. System of circles

- 2.1 Angle between two intersecting circles
- 2.2 Radical axis of two circles

3. Parabola

- 3.1 Conic sections
- 3.2 **Equation of tangent and normal at a point on the Parabola (Deleted)**

4. Ellipse

- 4.1 Equation of Ellipse in standard form, parametric equations
- 4.2 **Equation of tangent and normal at a point on the Ellipse (Deleted)**

5. Hyperbola

- 5.1 Equation of Hyperbola in standard form, parametric equations
- 5.2 **Equation of tangent and normal at a point on the Hyperbola (Deleted)**
Exercise 5(a): section II on word and related examples (Deleted)

6. Integrations

- 6.1 Integration as the inverse process of differentiation, standard forms and properties of integrals
- 6.2 Method of substitution – Integration algebraic, exponential, logarithmic, trigonometric and inverse trigonometric functions – integration by parts
- 6.3 (A) Integration by the method of substitution – Integration of algebraic and trigonometric functions

6.2 (B) Integration by parts – integration of exponential, logarithmic and inverse trigonometric functions (Deleted)

6.4 Integration – Partial fraction Method (Deleted)

6.5 Reduction Formulae (Deleted)

7. Definite Integrals

7.1 Definite Integral as the limit of sum

7.2 Interpretation of definite integral as an area

7.3 The fundamental theorem of Integral Calculus

7.4 Properties

7.5 Reduction formula (Deleted)

7.6 Application of definite integrals to areas (Deleted)

Exercise 7(b): Section II [8 to 15 problems] (Deleted)

8. Differential Equations

8.1 Formation of differential equations – Degree and order of an ordinary differential equations

8.2 Solving Differential Equations

8.2(a) Variable separable method

8.2(b) Homogeneous Differential equations (Deleted)

8.2(c) Non-Homogeneous Differential equations (Deleted)

8.2(d) Linear Differential equations (Deleted)