List of Algebra Topics in TS EAMCET 2025

Functions: Ordered pairs, Types of functions - Definitions - Inverse functions and Theorems - Domain, Range, Inverse of real valued functions.

Mathematical Induction: Principle of Mathematical Induction & Theorems - Applications of Mathematical Induction - Problems on divisibility

Matrices: Types of matrices - Scalar multiple of a matrix and multiplication of matrices - Transpose of a matrix - Determinants - Adjoint and Inverse of a matrix - Consistency and Inconsistency system of Simultaneous equations- Rank of a matrix - Solution of simultaneous linear equations

Complex Numbers: Complex number as an ordered pair of real numbersFundamental operations - Representation of complex numbers in the form a+ib - Modulus and amplitude of complex numbers - Illustrations - Geometrical and Polar Representation of complex numbers in Argand plane- Argand diagram

De Moivre's Theorem: De Moivre's theorem- Integral and Rational indices - nth roots of unity- Geometrical Interpretations – Illustrations.

Quadratic Expressions: Quadratic expressions, equations in one variable - Sign of quadratic expressions - Change in signs - Maximum and minimum values - Quadratic in equations.

Theory of Equations: The relation between the roots and coefficients in an equation - Solving the equations when two or more of its roots are connected by certain relation - Equations with real coefficients, occurrence of complex roots in conjugate pairs and its consequences - Transformation of equations - Reciprocal Equations.

Permutations and Combinations: Fundamental Principle of counting - Linear and Circular permutations- Permutations of 'n' dissimilar things taken 'r' at a time - Permutations when repetitions allowed - Circular permutations - Permutations with constraint repetitions - Combinations - Definitions, certain theorems.

Binomial Theorem: Binomial theorem for positive integral index - Binomial theorem for rational Index - Approximations using Binomial theorem.

Partial Fractions: Rational fraction - Partial fractions of f(x)/g(x) when g(x) contains non–repeated linear factors - Partial fractions of f(x)/g(x) when g(x) contains repeated and/or non-repeated linear factors - Partial fractions of f(x)/g(x) when g(x) contains repeated and non-repeated irreducible factors only.