

# DrGenius Acadmey An Online Platform for Aspirants DSSSB (TGT) | SYLLABUS

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# **SYLLABUS**

## Maths

# Calculus

Derivatives for Graphing and Applications, Sketching and Tracing of Curves, Volume and Area of Surfaces, Vector Calculus and its Applications.

# Algebra

Theory of Equations and Complex Numbers, Equivalence Relations and Functions, Basic Number Theory, Row Echelon Form of Matrices, and Applications

# **Real Analysis**

Real Number System R, Properties of R, Sequences in R, Infinite Series

## **Differential Equations**

Differential Equations and Mathematical Modeling, Population Growth Models, Second and Higher Order Differential Equations, Analysis of Mathematical Models,

#### **Theory of Real Functions**

Limit of Functions, Continuous Functions and their Properties, Derivability and its Applications, Taylor's Theorem and its Applications

# **Multivariate Calculus**

Calculus of Functions of Several Variables, Extrema of Functions of Two Variables, Properties of Vector Fields, Double and Triple Integrals, Green's, Stokes, and Gauss Divergence Theorem.

# **Partial Differential Equations**

First-order PDE and Method of Characteristics, Mathematical Models and Classification of 2nd Order Linear PDE, The Cauchy Problem and Wave Equations, Method of Separation of Variables

**Riemann Integration and Series of Functions** 

Riemann Integration, Improper Integral, Sequence and Series of Functions, Power Series

# **Ring Theory and Linear Algebra-l**

Introduction of Rings, Ring Homomorphisms, Introduction of Vector Spaces, Linear Transformations

#### **Metric Spaces**

Basic concepts of metric spaces, topology of metric spaces, continuity & uniform continuity in metric spaces, connectedness, and compactness.

#### **Group Theory II**

Automorphisms and Properties, External and Internal Direct Products of Groups, Group Action, Sylow Theorems, and Applications

# **Complex Analysis**

Analytic Functions and Cauchy-Riemann Equations, Elementary Functions and Integrals, Cauchy's Theorems and Fundamental Theorem of Algebra, Series and Residues

# **Ring Theory and Linear Algebra - II**

Polynomial Rings and Unique Factorization Domain (UFD), Dual Spaces and Diagonalizable Operators, Inner Product Spaces, Adjoint Operators and Their Properties