UNIT I

1. SETS:
   Sets
   Subsets
   Equal Sets Universal Sets
   Finite and Infinite Sets
   Operation on Sets
   Union, Intersection and Complements of Sets
   Cartesian Product
   Cardinality of Set
   Simple Applications.

2. DETERMINANTS: Definition
   Minors
   Cofactors
   Properties of Determinants
   Applications
   of determinants in finding area of triangle
   Solving a system of linear equations.

3. MATRICES: Definition
   Types of Matrices
   Addition
   Subtraction
   Scalar Multiplication
   and Multiplication of Matrices
   Adjoint
   Inverse
   solving system of linear equation Cramer's Rule.

UNIT II

1. RELATIONS AND FUNCTIONS:
   Properties of Relations
   Equivalence Relation
2. Partial Order Relation Function:
   Domain and Range
   Onto
   Into and One to One
   Functions
   Composite and Inverse Functions.

3. LIMITS & CONTINUITY:
   Limit at a Point
   Properties of Limit
   Computation of Limits of
   Various Types of Functions
   Continuity of a function at a Point
   Continuity Over an Interval
   Sum
   product and quotient of continuous functions
   Intermediate Value Theorem
   Type of
   Discontinuities.

UNIT III

1. DIFFERENTIATION:
   Derivative of a function
   Derivatives of Sum
   Differences
   Product
   & Quotient of functions
   Derivatives of polynomial
   trigonometric
   exponential
   logarithmic
   inverse trigonometric and implicit functions
   Logarithmic Differentiation
   Chain Rule and
   differentiation by substitution.

UNIT IV

1. INTEGRATION:
   Indefinite Integrals
   Methods of Integration by Substitution, By Parts
   Partial Fractions
   Integration of Algebraic and Transcendental Functions
   Reduction
   Formulae for simple and Trigonometric Functions
   Definite Integral as Limit of Sum
   Fundamental Theorem of Integral Calculus
   Evaluation of definite integrals by substitution
   using properties of definite integral