MATHS

Sets, Relations and Functions{
-->Sets and their represention
-->Union
-->Intersection and complement of sets and their algebraic properties
-->Power set
-->Relation
-->Types of relations
-->Equivalence relations
-->Functions
-->One-one, into and onto functions
-->Composition of functions
}

Complex number and Quadratic Equations{
-->Complex numbers as ordered pairs or reals
-->Representation of complex numbers in the form a+ib and their representation in a plane
-->Argand diagram
-->Algebra of complex numbers
-->Modulus and argument of a complex number
-->Square root of a complex number
-->Triangle inequality
-->Quadratic equation in real and complex number system and their solutions
-->Relation between roots and co-efficients
-->Nature of roots
-->Formation of quadratic equations with given roots
}

Permutations and Combinations{
-->Permutation as an arrangement and combination as selection
-->Meaning of P (n,r) and C (n,r). simple applications
}

Mathematical Induction{
-->Principle of Mathematical Induction and its simple applications.
}

Binomial theorem and its simple applications{
-->Binomial theorem for a positive integral index
-->General term and middle term
-->Properties of Binomial coefficients and simple applications
}

Sequences and Series{
-->Arithmetic and Geometric progressions
-->Insertion of arithmetic, geometric means berween two given numbers
-->Relation between A.M. and G.M. Sum upto n terms of special series Sn, Sn2, Sn3
-->Arithmetico-Geometric progression
}

Limit, Continuity and Differentiability{
-->Real
-->Valued functions
-->Algebra of functions

-->Polynomial functions
-->Rational Functions
-->Trigonometric Functions
-->Logarithmic and expotentials functions
-->Inverse functions
-->Graphs of simple functions
-->Limits, continuity and differentiability
-->Differentiation or the sum and difference
-->Product and quotient of two functions
-->Difftrentiation of trigonometric
-->Inverse trigonometric
-->Logarithmic exponential
-->Composite and implicit functions
-->Derivatives of order upto two
-->Rolle's and Lagrange's Mean value Theorems
-->Applications of derivatives
-->Rate of change of quantities
-->Monotonic - increasing and decreasing functions
-->Maxima and minima of functions of one variable
-->Tangents and normals
}

Integrals Calculus{
-->Integral as an anti -derivative
-->Fundamental integrals involving algebraic, trigonometric , Exponential and logarithmic functions
-->Integration by substitution, by parts and by partial fractions
-->Integration using trigonometric identities
-->Integral as limit or a sum
-->Fundamental Theorem of Calculus
-->Properties of definite integrals
-->Evaluation of definite integrals
-->determining areas of the regions bounded by simple curves in standard form
}

Differential Equations{
-->Ordinary differential equations and their order and degree
-->Formation of differential equations
-->Solution of differential equations by the method of seperations of variables
-->Solution of homogeneous and linear differential equations
}

Co-ordinate Geometry{
-->Cartesian system of rectangular co-ordinates 10 in a plane
-->Distance formula
-->Section formula
-->Locus and its equation
-->Translation of axes
-->Slope of a line
-->Parallel and perpendicular lines
-->Intercepts of a line on the coordinate axes
-->Various forms of equations of a straight line
-->Intersection of lines
-->Angles between two lines
-->Conditions for concurmence of three lines
-->Distance of a point from a line

-->Equations of internal and external bisectors of angles between two lines
-->Coordinates of centroid
-->Orthocentre and circumcentre or a triangle
-->Equation of family of lines passing through the point of intersection of two lines
-->Standard form of equation of a circle
-->General form of the equation or a circle, its radius and centre
-->Equation of a circle when the end points of a diameter are given
-->Points of intersection of a line and a circle with the centre a the origin and condirion for a line to be tangent to a circle
-->Equation of the tangent
-->Sections of cones
-->Equation of Conic Sections in standard forms
-->Condition for y = mx + c to be a tangent and point (s) of tangency
}

Three-Dimensional Geometry{
-->Coordinates of a point in space
-->Distance between two points
-->Section formula
-->Direction ratios and direction cosines
-->Angle between two intersecting lines
-->Skew lines and the shortest distance bctween them and its equation
-->Equations of a line and a plane in different forms
-->Intersection of a line and a plane
-->Coplanar lines
}

Vector Algebra{
-->Vectors and scalars
-->Addition of vectors
-->Components of a vector in two dimensions and three dimensional space
-->Scalar and vector products
-->Scalar and vector triple product
}

Statistics and Probability{
-->Measures of Dispersion
-->Calculation of mean and median
-->Mode of grouped and ungrouped data calculation of standard deviation
-->Variance and mean deviation for grouped and ungrouped data
-->Probability of an event
-->Addition and multiplication theorems or probability
-->Baye’s theorem
-->Probability distribution of a random variate
-->Bermoulli trials and Binomial distribution
}

Trigonometry{
-->Trigonometrical identities and equations
-->Trigonometrical functions
-->Inverse trigonometrical functions and their properties
-->Heights and Distances
}

Mathematical Reasoning{

-->Statements
-->Logical operations and, or, implies, implied by, if and only if
-->Understanding ot tautology
-->Contradiction
-->Converse and contrapositive
}