

Syllabus
Class-11th
Subject: Mathematics

| मास | पुस्तक का नाम | विषय-वस्तु | शिक्षण के पीरियड | दोहराई के पीरियड |
|---------|---------------|---|------------------|------------------|
| अप्रैल | Math Book | 1. Sets 2. Relation and Functions | 19 | 3 |
| मई | do | 6. Linear Inequalities | 20 | 3 |
| जून | | Summer Vacations | | |
| जुलाई | do | 3. Trigonometrical Function | 19 | 3 |
| अगस्त | do | 7. Permutation and Combination | 19 | 3 |
| सितम्बर | do | 5. Complex Number and quadratic equations | 5 | 10 |
| अक्टूबर | do | 9. Sequence and Series 10. Straight Lines | 17 | 3 |
| नवम्बर | do | 11. Conic Section 12. Introduction to Three Dimensional Geometry | 14 | 3 |
| दिसम्बर | do | 13. Limits and derivatives 16. Probability | 15 | 3 |
| जनवरी | do | 15. Statistics | 8 | 3 |
| फरवरी | | Revision | | |
| मार्च | | Examination | | |

Detailed Syllabus

Chapter No.1

SETS:-

Introduction, Sets and their Representations, The Empty Set, Finite and Infinite Sets, Equal Sets, Subsets, Power Set, Universal Set, Venn Diagrams, Operations on Sets, Union of sets, Intersection of sets, Difference of sets, Complement of a sets, Practical problems on Union and Intersection of two sets.

Chapter No.2

Relations and Functions:-

Introduction, Cartesian Products of sets, Relations Functions, some functions & graphs. Algebra of real function.

Chapter No.3

Trigonometric Function:-

Introduction, Angles, Degree measure, Radian measure, Relation between radian and real numbers, Relation between degree and radian, Trigonometric Functions Signs of Trigonometric Function, Domain and range of Trigonometric Functions.

Trigonometric Function of Sum and Difference of two Angles, Trigonometric Equations.

Chapter No.4

Principle of Mathematical Induction:-

Introduction, Motivation, The Principle of Mathematical Induction.

Chapter No.5

Complex Numbers and Quadratic Equations:-

Introduction, Complex numbers, Algebra of Complex numbers, Addition, Difference, multiplication, division of two Complex numbers, Power of i (iota), The square roots of a negative real number, Identities. The modulus and the conjugate of a complex number, Argand Plane and Polar representation, Quadratic Equations.

Chapter No.6

Linear Inequalities:-

Introduction, Inequalities, Algebraic solution of linear Inequalities in one variable and their graphical. Representation, Graphical solution of Linear Inequalities in two variables. Solution of system of Linear Inequalities in two variables.

Chapter No.7

Permutations and Combinations:-

Introduction, Fundamental principle of counting, permutations. Permutations when all the objects are distinct. Factorial notation, Derivation of the formula nPr , Permutations when all the objects are not distinct objects, Combinations.

Chapter No.8

Binomial Theorem:-

Introduction, Binomial Theorem for Positive Integral Indices, General and Middle Terms.

Chapter No.9

Sequences and Series:-

Introduction, Sequences, Series, Arithmetic Progression (A.P.), Sum of n -terms of A.P., Arithmetic Mean, Geometrical Progression (G.P.), General term of G.P., Sum of n terms of a G.P., Geometric Mean (G.M.), Relationship between A.M. and G.M.

Sum of n terms of special series.

Chapter No.10

Straight Lines:-

Introduction, slope of a line, slope of a line when co-ordinates of any two points on the line are given, condition for parallelism and perpendicularity of lines in terms of their slopes, Angles between two lines, collinearity of three points, various Forms of the Equation of a

line, Horizontal and Vertical lines, Point slope form, Two-point form, slope intercept form, intercept form, Normal form.

General Equation of a line, Different form of

$$Ax+bx+c=0$$

Distance of a Point From a Line, Distance between two Parallel lines.

Chapter No.11

Conic Sections:-

Introduction, sections of a Cone, Degenerated Conic sections, Circle, Parabola, Standard equation of Parabola, Lotus rectum, Ellipse, Relationship between semi-major axis semi-minor axis and the distance of focus from the centre of ellipse, special cases of an ellipse, Eccentricity, Standard equations of and ellipse, Lotus rectum, Hyperbola, Eccentricity, Standard equation of Hyperbola Lotus rectum.

Chapter No.12

Introduction to three Dimensional Geometry:-

Introduction, co-ordinate Axes and co-ordinate Planes in three Dimensional space, co-ordinates of a points in space, Distance between two Points, Section Formula.

Chapter No.13

Limits and Derivatives:-

Introduction, Intuitive Idea of Derivatives, Limits Algebra of Limits, Limits of polynomials and rational function, Limits of Trigonometric functions. Derivatives, Algebra of derivative of functions, Derivative of Polynomials and Trigonometric functions.

Chapter No.14

Mathematical Reasoning:-

Introduction, Statements, New Statement from old, Negation of statements Compound statements, Special word/phrases, Quantifiers, Implications, Contra positive and Converse, Validating statements.

Chapter No.15

Statistics:-

Introduction, measures of Dispersion, Range, Mean Deviation, mean deviation for ungrouped data, grouped data, limitations of mean deviation, Variance and standard deviation, standard deviation of a discrete frequency distribution, Standard deviation of a continuous frequency distribution, Shortcut method to find variance and standard deviation, Analysis of Frequency Distributions, Comparison of two frequency distributions with same mean.

Chapter No.16

Probability:-

Introduction, Random Experiments, outcomes and sample space. Event, occurrence of an event, Types of events, Algebra of events, complementary event, The event A or B, The Event A and B, The Event A but not B, Mutually Exclusive events, Exhaustive events.

Axiomatic Approach to Probability. Probability of an events, Probabilities of equally likely outcomes, Probability of the event A or B, Probability of event not A.

Note: deleted syllabus point wise is as under:

1 Unit-1st Sets and Function

Ch-1 Sets

1.10.3 Difference of sets

1.11 Complements of a sets

Ch-2 Relation and function 2.4 Functions

Ch-3 Trigonometric functions 3.5 Trigonometric equations of type

$\sin x = \sin y$, $\cos x = \cos y$,

$\tan x = \tan y$

2 Unit-2 Algebra

Ch.-4 Principle of mathematical induction (Full Chapter)

Ch-5 complex number and quadratic equations

5.5.1 polar representation of complex number

Ch- 7 Permutation and combination

7.3.3 Derivation of the formula for nPr and nCr

Ch-8 Binomial Theorem (Full Chapter)

Ch- 9 Sequence and series 9.7 sum to n -terms of special series Σn , Σn^2 , Σn^3 ,

3 Unit-3 Coordinate Geometry

Ch-10 Straight line Miscellaneous examples, Equations of family of lines passing through the point of intersection of two lines.

Ch-11 Conic Sections 11.6 Hyperbola

4 Unit-5 Mathematical reasoning

Ch-14 Mathematical reasoning (Full Chapter)

5 Unit-6 Statistics and probability

Ch-15 Statistics 15.6 Analysis of frequency distribution

Ch-16 Probability 16.4 Axiomatic approach of probability