

Recommended Books:

- 1 Physics, Part-I Kumar, Mittal; Nageen Publication, Meerut.
- 2 Concepts Of Physics, Part 1, H C Verma; Bharati Bhawan.
- 3 Concepts of Physics, Part2, H C Verma; Bharti Bhawam.

BCA 105: Basic Mathematics

UNIT-I

Evaluating Algebraic Expressions

Order of operations
Evaluating algebraic expressions

Linear Equations

Translating algebraic expressions
Combining like terms
Solving linear equations: Addition property
Solving linear equations: Multiplication property
Combining rules
Literal equations
Solving linear inequalities

Graphing Linear Equations

Linear equations in two variables
The Cartesian coordinate system
The graph of a linear equation
Slope
Point-slope form of a line
Graphing linear inequalities

UNIT-II

Systems of Linear Equations

Systems of equations in two variables (addition/elimination)

Operations with polynomials

Positive integer exponents
Zero and negative integer exponents
Definition of polynomials
Addition and subtraction of polynomials
Multiplying polynomials

Factoring polynomials

Introduction to factoring
Difference of squares
Quadratic trinomials
Solving equations by factoring
Some word problems involving quadratic equations

UNIT-III

Radical expressions and complex numbers

Introduction to roots and radicals

Simplifying radical expressions [No variables]

Operations with radical expressions [No rationalizing binomials]

Complex Number [i Notation only, No operations]

Quadratic equations and some conics

Special methods, completing the square
The quadratic formula
Parabolas [Graph by table]

UNIT-IV

SETS: Sets, subsets, equal sets, null set, universal set, finite & infinite sets, open & closed sets etc., operations on sets, partition of sets, cartesian product.

DIFFERENTIATION: Derivative, derivatives of sum, differences, product & quotients, chain rule, derivatives of composite functions .

UNIT-V

INTEGRATION Integral as limit of a sum, indefinite & definite integrals, methods of integration substitution, by parts, partial fractions, integration of algebraic and transcendental functions

PLANE CURVES & POLAR COORDINATES: Polar coordinates, curve tracing in polar coordinates, area in polar coordinates, Arc length, area & volume of surface of revolution in Cartesian and polar coordinates.

Text/Reference Books :

1. C. L. Liu.: Elements of Discrete Mathematics , Tata Mac-Graw Hill.



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