

UPSC CDS (I) Syllabus 2023 for Elementary Mathematics

Subjects	Topics
Number System	Natural numbers, Integers, Rational and Real numbers. Fundamental operations, addition, subtraction, multiplication, division, Square roots, Decimal fractions. Unitary method,

	time and distance, time and work, percentages, applications to simple and compound interest, profit and loss, ratio and proportion, variation
Elementary Number Theory	Division algorithm. Prime and composite numbers. Tests of divisibility by 2, 3, 4, 5, 9 and 11. Multiples and factors. Factorisation Theorem. H.C.F. and L.C.M. Euclidean algorithm. Logarithms to base 10, laws of logarithms, use of logarithmic tables
Algebra	Basic Operations, Simple Factors, Remainder Theorem, HCF & LCM, Theory of Polynomials, Simultaneous linear equations in two unknown-analytical and graphical solutions, Rational Expressions and Conditional Identities, Law of Indices
Trigonometry	Sine \times , cosine \times , Tangent \times when 0° , Simple trigonometric identities, Use of trigonometric tables, Simple cases of heights and distances
Geometry	Lines and Angles, Plane and plane figures, Theorems on Properties of angles at a point, Parallel lines, Sides and angles of a triangle, Congruency of triangles, Similar triangles, Concurrence of medians and altitudes, Properties of angles, sides and diagonals of a parallelogram, rectangle and square, Circles and its properties including tangents and normal and Loci.
Mensuration	Areas of squares, Rectangles, Parallelograms, Triangle and Circle, Areas of figures which can be split up into these figures (Field Book), Surface area and volume of cuboids, Lateral Surface, Volume of Right Circular

	Cones, cylinders and Surface, Area and volume of spheres.
Statistics	Collection and Tabulation of Statistical Data, Graphical Representation Frequency Polygons, Histograms, Bar charts and Measures of Central Tendency.