

NIMCET Syllabus

Mathematics:

- Trigonometry

- Heights and distances
- Solution of triangles
- Simple identities
- General solutions of trigonometric equations
- Trigonometric equations properties of triangles

- Calculus

- Simple examples of maxima and minima
- Differentiation of function
- Definite integrals
- Limit of functions
- Tangents and Normal
- Applications of definite integrals to areas
- Continuous function
- Integration of functions by parts, by substitution, and by partial fraction

- Vectors

- Scalar and vector products and their applications to simple geometrical problems and mechanics
- Position Vector
- Addition and subtraction of vectors

- Algebra

- Fundamental operations in algebra
- Geometric and harmonic progressions
- Expansions
- Logarithms
- Simultaneous linear/quadratic equations
- Determinants and matrices
- Factorization
- Indices
- Arithmetic

- Set Theory

- Concept of sets – Union, Intersection, Cardinality, Elementary counting
- Permutations and combinations

- Coordinate Geometry

- Equations of a circle
- Ellipse
- Equation of a line
- Rectangular Cartesian coordinates
- Parabola
- Hyperbola
- Distance formulae
- Intersection of lines
- Pair of straight lines

- Probability and Statistics

- Basic concepts of probability theory
- Averages

- Frequency distributions
- Dispersions
- Dependent and independent events
- Measures of central tendencies

General English:

- Basic English Grammar
- Word Power
- Comprehension
- Vocabulary
- Meaning of words and phrases
- Technical Writing
- Synonyms and Antonyms

Analytical Ability and Logical Reasoning:

- Logical situation and questions based on the facts given in the passage

Computer Awareness:

- **Data Representation**
 - Venn diagrams
 - Binary and hexadecimal representations
 - Simple arithmetic and two's complement arithmetic
 - Representation of characters
 - Truth tables
 - Integers and fractions

- Boolean algebra
- Binary arithmetic: addition, subtraction, multiplication, division
- Floating-point representation of numbers

- **Computer Basics**

- Central Processing Unit (CPU)
- Input/output devices
- Organization of a computer
- Back-up devices
- Structure of instructions in CPU
- Computer memory