**CDS Exam Syllabus (Combined Defence Services)**

**Exam Pattern (Written Test)**

1. **For IMA, INA, AFA:**

   **English** – 40 Marks
   **General Knowledge** – 30 Marks
   **Elementary Mathematics** – 40 Marks
   **Total = 110 Marks (100 Minutes)**

1. **For OTA (Officers' Training Academy):**

   **English** – 40 Marks
   **General Knowledge** – 30 Marks
   **Total = 70 Marks** (60 Minutes)

Each Correct Answer =1 Marks

Each Wrong Answer= **-** ⅓ Marks (-0.33 Marks)

- Personal Interview: 40 Marks (IMA/INA/AFA)
- Personal Interview: 30 Marks (OTA)

**1. English (40 Marks)**

To test a candidate's understanding of the language and usage.

- Vocabulary (synonyms, antonyms, idioms, phrases)
  Grammar (parts of speech, tenses, prepositions, articles)
  Sentence structure & formation
  Ordering of words/sentences
  Fill in the blanks
  Reading comprehension passages

**2. General Knowledge (30 Marks)**

Covers general awareness, current events, and subject knowledge.

**Current Affairs & Defence Awareness**

- National & International events
  Defence exercises, ranks, commands, awards, sports
  Important government schemes

**History**

- Indian history, ancient to modern
  Freedom struggle & independence movement
  Indian National Congress, important leaders, events

**Geography**

- Earth, latitude & longitude, time zones
  Physical features: mountains, rivers, oceans
  Agriculture, minerals, industries
  Climate, monsoons, resources
  World geography basics

**Polity**

- Constitution of India
  Fundamental Rights & Duties
  Parliament, President, Prime Minister, Governors, CMs
  Panchayati Raj, democracy, governance

**Economics**

- Basic concepts: GDP
  Indian economy overview
  Economic planning, sectors of economy

**Science**

- Physics: Motion, force, gravitation, work, energy, electricity, optics
  Chemistry: Elements, compounds, acids, bases, salts, hydrocarbons

Biology: Human body, health & diseases, nutrition, reproduction, genetics
Environmental science & ecology

### 3. Elementary Mathematics (40 Marks – Only for IMA/INA/AFA)

#### Arithmetic

- Number system, integers, rational & real numbers
  HCF, LCM, factors, multiples
  Ratio & proportion, variation
  Percentages, averages
  Simple & compound interest
  Profit & loss, time & work, time & distance
  Speed, distance, relative motion

#### Algebra

- Basic operations & laws
  Simple equations, linear equations
  Quadratic equations
  Polynomials

#### Geometry

- Lines, angles, triangles, quadrilaterals, circles
  Mensuration: areas, surface areas, volumes of solids (cone, sphere, cylinder, cube, cuboid)

#### Trigonometry

- Trigonometric ratios & identities
  Heights & distances
  Simple problems on angles

### ☑ Key Points:

- **Negative Marking**: 1/3rd mark deducted for wrong answers.

- Correct Answer: 1 Mark for Correct answers

**NDA Shaurya Exam Syllabus**

For Class 12th Appearing or 12th Pass Out Students

**Exam Pattern (Written Test)**

- **For NDA:**

  **English** – 40 Marks
  **General Knowledge** – 30 Marks
  **Mathematics** – 40 Marks
  **Total = 110 Marks (100 Minutes)**

Each Correct Answer =1 Marks

Each Wrong Answer= - ⅓ Marks (-0.33 Marks)

**1. Mathematics (40 Marks, 40 Questions)**

**Algebra**

Concept of sets, operations on sets, Venn diagrams
De Morgan laws
Cartesian product, relation, equivalence relation
Real numbers, complex numbers, and their representation
Modulus, argument, cube roots of unity
Binary system of numbers, conversion of a number in decimal to binary and vice versa
Arithmetic, Geometric, and Harmonic progressions
Quadratic equations with real coefficients
Permutation and Combination
Binomial theorem and its applications
Logarithms and their applications

**Matrices & Determinants**

- Types of matrices, operations on matrices
  Determinants, properties of determinants
  Adjoint and inverse of a matrix
  Applications – solution of simultaneous linear equations

**Trigonometry**

- Angles and their measures (degrees & radians)
  Trigonometric ratios and identities
  Multiple and sub-multiple angles
  Inverse trigonometric functions
  Solutions of trigonometric equations
  Applications of sine and cosine rules

**Analytical Geometry (2D & 3D)**

- Rectangular Cartesian coordinate system
  Distance formula, equation of a line in various forms
  Angle between two lines, distance of a point from a line
  Equation of a circle, parabola, ellipse, and hyperbola
  Equation of a line & plane in 3D
  Angle between two lines/planes

**Differential Calculus**

- Concept of a function, domain, range, and graph
  Composite functions, one-to-one, onto functions
  Limit and continuity
  Differentiation of standard functions
  Product and quotient rule, chain rule
  Maxima and minima of functions

**Integral Calculus & Differential Equations**

- Integration as inverse of differentiation
  Standard integrals, integration by parts, substitution
  Definite integrals and their applications (areas)
  Differential equations – order, degree, formation
  General and solutions
  First-order linear differential equations

**Vector Algebra**

- Vectors in 2D and 3D
  Scalar and vector product
  Applications in geometry and physics

**Statistics & Probability**

- Statistics: Collection, classification, tabulation, graphical representation of data
  Measures of central tendency: Mean, median, mode
  Measures of dispersion: Variance and standard deviation
  Probability: Simple problems on random experiments, events, independent and dependent events, Bayes' theorem

**2. General Ability Test (70 Marks, 70 Questions)**

The GAT paper has two parts:

**Part A – English (30 Marks, 30 Questions)**

- Vocabulary, grammar, and usage
  Comprehension and cohesion
  Fill in the blanks, synonyms & antonyms
  Ordering of sentences/words
  Idioms and phrases
  Reading comprehension passages

**Part B – General Knowledge (40 Marks, 40 Questions)**

**Section A – Physics (Class 9th & 10th Level)**

- Laws of motion, force, gravitation
  Work, energy, and power
  Properties of matter
  Heat, sound, light (reflection, refraction, optics)
  Electricity and magnetism
  Motion of objects, velocity, acceleration
  Atomic and nuclear physics

**Section B – Chemistry (Class 9th & 10th Level)**

- Elements, compounds, and mixtures
  Symbols, formulae, equations
  Acids, bases, salts, oxides
  Air, water, carbon, nitrogen, and their compounds
  Fertilizers, fuels, hydrocarbons
  Metals and non-metals, their properties and uses

**Section C – Biology (Class 9th & 10th Level)**

- Human body – life processes, tissues, organs
  Food, balanced diet, nutrients
  Diseases – communicable & non-communicable
  Solar system, meteors, comets, eclipses
  Growth and reproduction in plants & animals

**Section D – History, Freedom Movement (Class 9th & 10th Level)**

- Indian history and culture
  Freedom movement in India
  Important battles, kings, dynasties
  Constitution of India, democracy, governance

**Section E – Geography (Class 9th & 10th Level)**

- Earth, latitude & longitude, time zones
  Climate, weather, monsoons
  Rivers, mountains, natural resources
  Agriculture, industries, trade & commerce

Location and distribution of major industries

**Section F – Current Events**

- Important national & international events
  Defence-related updates (exercises, acquisitions, ranks, awards)
  Social and cultural events
  Sports and achievements

## ✅ Exam Pattern Quick View

- **Mathematics**: 40 marks
  **GAT**: 70 Marks
  **Total Written Exam** = 110 Marks
  **Personal Interview = 90 Marks**
  **Final Merit** = 200 markS

**Exam Pattern**

**Mode:** Pen & Paper (OMR based)

**Class:** 10th Pass or 11th Appearing

**Duration:** 100 minutes

**Type:** Objective (MCQs)

**Subjects & Marks:**

- **Maths: 40 Marks, 40 Questions (Class 9th & 10th Level)**
- **English :30 Marks, 30 Questions (Class 9th & 10th Level)**
- **General Studies :40 Marks, 40 Questions (Class 9th & 10th Level)**

**1. Mathematics (40 Marks, 40 Questions)**

Based on **Class 8 NCERT syllabus** + Some higher-order topics.

**Number System & Arithmetic**

- Real Numbers (Euclid's Division Lemma, Fundamental Theorem of Arithmetic, LCM & HCF)
  Rational & Irrational Numbers, Decimal Expansions
  Surds & Indices, Logarithms
  Arithmetic Progression (AP) & Geometric Progression (GP)

**2. Algebra**

- Polynomials (factorization, remainder & factor theorem)
  Linear Equations in Two Variables (solutions by substitution, elimination, cross multiplication)
  Quadratic Equations (factorization, quadratic formula, nature of roots, word problems)
  Identities ($a^3+b^3$, $(x+a)(x+b)$, expansions)
  Binomial Theorem (simple applications, coefficients)
  Sequence & Series

**3. Geometry & Coordinate Geometry**

- Similarity of Triangles, Pythagoras Theorem
  Circles (tangent properties, length of tangent, chords)
  Constructions (division of line segment, tangent to circle)
  Coordinate Geometry (distance, section, midpoint, slope of line, equation of line, parallel & perpendicular lines)

**4. Mensuration**

- Surface Area & Volume of Solids (cube, cuboid, sphere, cone, cylinder, hemisphere, frustum)
  Areas related to Circles (sector, segment, chord properties)
  2D Geometry (areas of polygons, triangles using Heron's formula, trigonometric applications)

**5. Trigonometry**

- Trigonometric Ratios & Identities
  Heights & Distances (word problems)
  Trigonometric Equations (simple)

Applications of Trigonometry in Geometry

**6. Probability & Statistics**

- Probability (classical definition, simple problems)
  Mean, Median, Mode
  Histograms, Bar Graphs, Frequency Polygon, Ogive
  Data Interpretation (tables, charts, case studies)

**8. Higher Order Thinking**

- Modular Arithmetic (remainders, divisibility tests beyond NCERT)
  Inequalities, AM ≥ GM basics
  Complex word problems involving Algebra & Geometry
  Simple Combinatorics (permutations, combinations basics)
  Functional Equations (f(x+y), f(xy) type)
  Graphical reasoning (quadratic curves, inequalities on coordinate plane)

**3. English (30 Marks, 30 Questions)**

Tests in grammar, comprehension & vocabulary.

- Comprehension Passage
  Vocabulary (synonyms, antonyms, one-word substitution)
  Grammar (tenses, subject-verb agreement, voice, narration, prepositions, determiners, conjunctions)
  Sentence Types & Transformation
  Error Spotting, Sentence Improvement
  Idioms & Phrases

**GAT (40 Marks, 40 Questions)**

Based on **NCERT Class 6–8 Science**.

- Motion, Force, Friction, Pressure
  Work, Energy, Simple Machines
  Sound, Light, Heat, Electricity & Magnetism
  Matter (elements, compounds, mixtures, states of matter)
  Physical & Chemical Changes
  Metals & Non-Metals

Cells, Tissues, Reproduction in plants & animals
Human body (organs, systems, health & hygiene, diseases)
Microorganisms, Nutrition, Food & Agriculture
Environment, Natural Resources, Pollution

Based on **NCERT Class 6–8 Social Science**.

- **History:**

  Ancient, Medieval & Modern History of India
  Revolt of 1857, Freedom Struggle, National Movement, Independence
  Social Reformers & Constitution-making

- **Geography:**

  Solar System, Earth, Latitudes & Longitudes
  Landforms, Climate, Soil, Agriculture
  Natural resources (water, minerals, forests)
  Industries & Transportation

- **Civics/Polity:**

  Indian Constitution, Democracy, Fundamental Rights & Duties
  Government structure (Legislature, Executive, Judiciary)
  Panchayati Raj, Local Self Government, Elections
  UN & International Organisations (basic awareness)