



NDA FOUNDATION COURSE 2023-2025

ENTRANCE EXAM SYLLABUS, TEST & INTERVIEW INSTRUCTIONS

Dear Candidate,

Thanks for Choosing **Doon Indian Defence Academy** for your further studies in Foundation Course 2023-25 Batch. This registration confirms your participation in the Entrance test and can be treated as provisional admission to the course basis the result of your test.

The Entrance Test for the said course will be conducted every Sunday **1st Jan, 8th Jan, 15th Jan, 22nd Jan and 29th Jan-2023 (All Sundays) in ONLINE MODE.**

MODE OF TEST: You are required to download the Doon Indian Defence Academy App from the Playstore on your android phone only.

Link to download the App is:

https://play.google.com/store/apps/details?id=co.april2019.dida&hl=en_IN&gl=US

Once downloaded, login with your Mobile phone number registered with us.

Go to Batches, there you will see Foundation Batch 2023-25. Click on the Batch and go to test section.

Here you can start your test at your stipulated time slot.

NO. OF QUESTIONS:	100
TIME ALLOTTED:	2:00 Hours
MARKS OF EACH QUESTION:	1Mark
NEGATIVE MARKING:	None





SYLLABUS FOR ENTRANCE TEST

SCIENCE

METALS AND NON-METALS: Properties of metals and non-metals; Reactivity series; Formation and properties of ionic compounds; Basic metallurgical processes; Corrosion and its prevention.

PERIODIC CLASSIFICATION OF ELEMENTS: Need for classification, Early attempts at classification of elements (Dobereiner's Triads, Newland's Law of Octaves, Mendeleev's Periodic Table), Modern periodic table, gradation in properties, valency, atomic number, metallic and non-metallic properties.

NATURAL PHENOMENA: Reflection of light by curved surfaces; Images formed by spherical mirrors, centre of curvature, principal axis, principal focus, focal length, mirror formula (Derivation not required), magnification.

Refraction; Laws of refraction, refractive index. Refraction of light by spherical lens; Image formed by spherical lenses; Lens formula (Derivation not required); Magnification. Power of a lens.

Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses. Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life.

SOURCES OF ENERGY: Different forms of energy, conventional and non-conventional sources of energy: Fossil fuels, solar energy; biogas; wind, water and tidal energy; Nuclear energy. Renewable versus non-renewable sources of Energy.

OUR ENVIRONMENT: Eco-system, Environmental problems, Ozone depletion, waste production and their solutions. Biodegradable and non-biodegradable substances.

Conservation and judicious use of natural resources. Forest and wild life; Coal and Petroleum conservation. Examples of people's participation for conservation of natural resources. Big dams: advantages and limitations; alternatives, if any. Water harvesting. Sustainability of natural resources.

MATHEMATICS

NUMBER SYSTEM: Euclid's division lemma, Fundamental Theorem of Arithmetic - statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of irrationality of Decimal representation of rational numbers in terms of terminating/non-terminating recurring decimals.

COORDINATE GEOMETRY: The Cartesian plane, coordinates of a point, names and terms associated with the coordinate plane, notations, plotting points in the plane.

QUADRATIC EQUATIONS: Standard form of a quadratic equation $ax^2 + bx + c = 0$, ($a \neq 0$). Solutions of quadratic equations (only real roots) by factorization, and by using quadratic formula. Relationship between discriminant and nature of roots.





DOON INDIAN DEFENCE ACADEMY

"FROM SELF TO SERVICE"

ARITHMETIC PROGRESSIONS: Motivation for studying Arithmetic Progression Derivation of the n th term and sum of the first n terms of A.P. and their application in solving daily life problems.

POLYNOMIALS: Definition of a polynomial in one variable, with examples and counter examples. Coefficients of a polynomial, terms of a polynomial and zero polynomial. Degree of a polynomial. Constant, linear, quadratic and cubic polynomials. Monomials, binomials, trinomials. Factors and multiples. Zeros of a polynomial. Factorization of $ax^2 + bx + c$, $a \neq 0$ where a , b and c are real numbers, and of cubic polynomials using the Factor Theorem.

TRIGONOMETRY

INTRODUCTION TO TRIGONOMETRY: Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined); motivate the ratios whichever are defined at 0° and 90° . Values of the trigonometric ratios of 30° , 45° and 60° . Relationships between the ratios.

TRIGONOMETRIC IDENTITIES: Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given. Trigonometric ratios of complementary angles.

HEIGHTS AND DISTANCES: Angle of elevation, Angle of Depression. Simple problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation / depression should be only 30° , 45° , and 60° .

MENSURATION

AREAS RELATED TO CIRCLES: Motivate the area of a circle; area of sectors and segments of a circle. Problems based on areas and perimeter / circumference of the above said plane figures. (In calculating area of segment of a circle, problems should be restricted to central angle of 60° , 90° and 120° only. Plane figures involving triangles, simple quadrilaterals and circle should be taken.)

SURFACE AREAS AND VOLUMES: Surface areas and volumes of cubes, cuboids, spheres (including hemispheres) and right circular cylinders/cones.

STATISTICS

Mean, median and mode of grouped data (bimodal situation to be avoided). Cumulative frequency graph.

ENGLISH

BASIC CONVERSATION SKILLS: Greetings, and Day today conversations and their beginning.

GRAMMAR: Tenses, Subject Verb Agreement and basic sentence construction.

VOCABULARY: Basic Words meanings, synonyms and antonyms.

GK

General Knowledge: Static GK & Current affairs.

ALL THE BEST!

Team Doon IDA

Website: www.doonida.com

E Mail: info@doonida.com

Main Campus: 14/1, Laxmi Road, Dalanwala, near IBM Tower Dehradun



8384865716
7060584443