

NDA Syllabus and Exam Pattern

National Defence Academy (NDA) is the Joint Services academy of the Indian Armed Forces. The Union Public Service Commission (UPSC) conducts the National Defence Academy (NDA) Exam every year.

NDA is a national-level exam conducted twice a year. This is one of the most sought-after defence jobs in India to join the Defence Forces as an Officer by the male candidates.

The selection into NDA is on the basis of the written test followed by the Personality Test.

NDA written examination is divided into two papers namely

1. Mathematics and
2. General Ability Test (GAT).

NDA Syllabus: Overview

Check the important points of the NDA Syllabus and Exam Pattern in the table below.

Name of the Exam	National Defence Academy (NDA)
Conducting Body	Union Public Service Commission, UPSC.
Frequency Of Exam	Twice in a Year
Selection Process	<ol style="list-style-type: none">1. Written Test consisting of Objective Type Questions2. Intelligence & Personality Test (SSB)
Mode of exam	Offline
Papers in NDA Exam	<ol style="list-style-type: none">1. Mathematics2. General Ability Test
Marks Segregation	<ol style="list-style-type: none">1. Mathematics: 300 Marks2. GAT: 600 Marks
Total No. of Questions	<ol style="list-style-type: none">1. Mathematics: 1202. GAT: 150
Negative Marking	<ol style="list-style-type: none">1. Mathematics: -0.83

	2. GAT: -1.33 marks
Exam Duration	2.5 Hours For Each Paper (5 hours total)
Language of Question Paper	English & Hindi English Language paper has to be attempted in English.

NDA Exam Pattern

Before getting into the NDA Syllabus let us have a look at the NDA Exam Pattern. The mathematics paper have 120 questions of 300 marks and GAT will have English and GK Papers of 200 & 400 marks respectively.

NDA Mathematics Exam Pattern

Paper I- Mathematics	
Total Marks	300 Marks
Total No. of Questions	120
Marks awarded for Correct answer	2.5 marks
Marks deducted for the wrong answer	-0.83
Exam Duration	2.5 Hours

General Ability Test Exam Pattern

Paper-II- General Ability Test	
Total Marks	600 marks
Total No. of Questions	150
No. of questions in English Section	50
No. Of questions in General knowledge Section	100
Maximum Marks for English	200 marks
Maximum Marks for G.K.	400 marks
Marks for Correct Answer	4 marks in both sections

Marks for Incorrect Answer	-1.33 marks in both sections
Exam Duration	2.5 Hours

NDA Exam Pattern for SSB Interview

After clearing the written exam of NDA, candidates have to appear for the SSB Interview rounds. The pattern of NDA Interview is as mentioned below:

NDA – SSB Interview Pattern		
Stage 1	Screening Test	<ol style="list-style-type: none"> 1. Verbal and non-verbal tests. 2. PPDT
Stage 2	Psychological Test	<ol style="list-style-type: none"> 1. Thematic Apperception Test (TAT) 2. Word Association Test (WAT) 3. Situation Reaction Test (SRT) 4. Self-Description Test (SD)
	Group Testing Officers Test	<ol style="list-style-type: none"> 1. GD 2. GPE 3. PGT 4. HGT 5. IoT 6. Command Task 7. Snake race/Group Obstacle Race 8. Individual lecture 9. FGT
	Personal Interview & conference	–

NDA Syllabus

After getting to know the NDA Exam Pattern it is important for the candidates to know the Syllabus of NDA Exam. The NDA Syllabus is discussed below.

NDA Mathematics Syllabus

The chapters covered for NDA Math's Syllabus are given in the table below.

Mathematics

Topic	Topic-wise Syllabus
Algebra	Sets, Venn diagrams, De Morgan laws, Cartesian product, relation, equivalence relation. Real numbers, Complex numbers, Modulus, Cube roots, Conversion of a number in Binary system to Decimals, and vice-versa. Arithmetic, Geometric and Harmonic progressions. Quadratic equations, Linear inequations, Permutation and Combination, Binomial theorem, and Logarithms.
Calculus	Concept of a real-valued function, domain, range, and graph of a function. Composite functions, one-to-one, onto, and inverse functions. The notion of limit, Standard limits, Continuity of functions, algebraic operations on continuous functions. Derivative of function at a point, geometrical and physical interpretation of a derivative-application. Derivatives of sum, product, and quotient of functions, a derivative of a function concerning another function, the derivative of a composite function. Second-order derivatives. Increasing and decreasing functions. Application of derivatives in problems of maxima and minima
Matrices and Determinants	Types of matrices, operations on matrices. Determinant of a matrix, basic properties of determinants. Adjoin and inverse of a square matrix, Applications-Solution of a system of linear equations in two or three unknowns by Cramer's rule and by Matrix Method.
Integral Calculus and Differential Equations	Integration as inverse of differentiation, integration by substitution and by parts, standard integrals involving algebraic expressions, trigonometric, exponential, and hyperbolic functions. Evaluation of definite integrals—determination of areas of plane regions bounded by curves—applications. Definition of order and degree of a differential equation, formation of a differential equation by examples. General and particular solution of differential equations, solution of the first order, and first-degree differential equations of various types—examples. Application in problems of growth and decay.

Trigonometry	Angles and their measures in degrees and radians. Trigonometric ratios. Trigonometric identities Sum and difference formulae. Multiple and Sub-multiple angles. Inverse trigonometric functions. Applications- Height and distance, properties of triangles.
Vector Algebra	Vectors in two and three dimensions, magnitude, and direction of a vector. Unit and null vectors, the addition of vectors, scalar multiplication of a vector, scalar product, or dot product of two vectors. Vector product or cross product of two vectors. Applications—work done by a force and moment of a force and in geometrical problems.
Analytical Geometry Of Two and Three Dimension	Rectangular Cartesian Coordinate system. Distance formula. Equation of a line in various forms. The angle between two lines. Distance of a point from a line. Equation of a circle in standard and a general form. Standard forms of parabola, ellipse, and hyperbola. Eccentricity and axis of a conic. Point in a three-dimensional space, the distance between two points. Direction Cosines and direction ratios. Equation two points. Direction Cosines and direction ratios. Equation of a plane and a line in various forms. The angle between two lines and the angle between two planes. Equation of a sphere.
Statistics and Probability	Probability: Random experiment, outcomes, and associated sample space, events, mutually exclusive and exhaustive events, impossible and certain events. Union and Intersection of events. Complementary, elementary, and composite events. Definition of probability—classical and statistical—examples. Elementary theorems on probability—simple problems. Conditional probability, Bayes' theorem—simple problems. Random variable as function on a sample space. Binomial distribution, examples of random experiments giving rise to Binomial distribution.

The topic-wise question distribution in Maths

Topic	Questions
Calculus	20-25
Quadratic equation	20-15

Matrices & Determinants	30
Probability	10
Trigonometry	30
Complex number	10-15

NDA General Ability Test Syllabus

The General ability test comprises two papers English and General Knowledge. The English paper consists of 200 Marks while the General Knowledge is of 400 Marks.

English

The question paper in English will be designed to test the candidate's understanding of English. The syllabus covers various aspects like as given below:

Topic	No. of Questions	No. of Marks
Spotting Errors	5	20
Comprehension	6	24
Selecting Words	10	40
Ordering of Words in a Sentence	9	36
Sentence Improvement	10	40
Antonyms	5	20
Synonyms	5	20

Total	50	200
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General Knowledge

Check the topic-wise number of questions and marks distribution in the table below.

Topic	No. of Questions	No. of Marks
Physics	23	92
Chemistry	16	64
General Science	11	44
History & Freedom Movement	16	64
Geography	17	68
Current Events	17	68
Total	100	400

Physics

NDA Syllabus For Physics

- Physical Properties and States of Matter
- Modes of transference of Heat
- Mass, Weight, Volume, Sound waves and their properties
- Simple musical instruments
- Rectilinear propagation of Light
- Density and Specific Gravity
- Reflection and refraction
- Principle of Archimedes
- Spherical mirrors and Lenses

- Pressure Barometer
- Human Eye
- Motion of objects
- Natural and Artificial Magnets
- Velocity and Acceleration
- Properties of a Magnet
- Newton's Laws of Motion
- Earth as a Magnet
- Force and Momentum
- Static and Current Electricity
- Parallelogram of Forces
- Conductors and Non-conductors
- Stability and Equilibrium of bodies
- Ohm's Law
- Gravitation
- Simple Electrical Circuits
- Elementary ideas of work
- Heating, Lighting, and Magnetic effects of Current
- Power and Energy
- Measurement of Electrical Power
- Effects of Heat
- Primary and Secondary Cells
- Measurement of Temperature and Heat
- Use of X-Rays
- General Principles in the working of Simple Pendulum, Simple Pulleys, Siphon, Levers, Balloon, Pumps, Hydrometer, Pressure Cooker, Thermos Flask, Gramophone, Telegraphs, Telephone, Periscope, Telescope, Microscope, Mariner's Compass; Lightning Conductors, Safety Fuses.

Chemistry

NDA Syllabus For Chemistry

- Preparation and Properties of Hydrogen, Oxygen, Nitrogen and Carbon Dioxide, Oxidation and Reduction.
- Acids, bases and salts.
- Carbon— different forms
- Physical and Chemical Changes
- Fertilizers—Natural and Artificial
- Elements

- Material used in the preparation of substances like Soap, Glass, Ink, Paper, Cement, Paints, Safety Matches, and Gunpowder
- Mixtures and Compounds
- Elementary ideas about the structure of Atom
- Symbols, Formulae, and simple Chemical Equation
- Atomic Equivalent and Molecular Weights
- Law of Chemical Combination (excluding problems)
- Valency
- Properties of Air and Water

General Science

NDA Syllabus For General Science

- Common Epidemics, their causes, and prevention
- Difference between the living and non-living
- Food—Source of Energy for man
- Basis of Life—Cells, Protoplasm's, and Tissues
- Constituents of food
- Growth and Reproduction in Plants and Animals
- Balanced Diet
- Elementary knowledge of the Human Body and its important organs
- The Solar System—Meteors and Comets, Eclipses. Achievements of Eminent Scientists

History, Freedom Movement

NDA Syllabus For History

- Forces shaping the modern world;
- Renaissance
- Exploration and Discovery;
- A broad survey of Indian History, with emphasis on Culture and Civilisation
- Freedom Movement in India
- French Revolution, Industrial Revolution, and Russian Revolution
- War of American Independence,
- Impact of Science and Technology on Society
- Elementary study of Indian Constitution and Administration

- Concept of one World
- Elementary knowledge of Five Year Plans of India
- United Nations,

- Panchsheel,
- Panchayati Raj, Democracy, Socialism and Communism
- Role of India in the present world
- Co-operatives and Community Development
- Bhoodan, Sarvodaya,
- National Integration and Welfare State
- Basic Teachings of Mahatma Gandhi

Geography

NDA Syllabus For Geography

- The Earth, its shape and size
- Ocean Currents and Tides Atmosphere and its composition
- Latitudes and Longitudes
- Temperature and Atmospheric Pressure, Planetary Winds, Cyclones, and Anticyclones; Humidity; Condensation and Precipitation
- Concept of time
- Types of Climate
- International Date Line
- Major Natural Regions of the World
- Movements of Earth and their effects
- Regional Geography of India
- Climate, Natural vegetation. Mineral and Power resources;
- Location and distribution of agricultural and Industrial activities
- Origin of Earth. Rocks and their classification
- Important Sea ports and main sea, land, and air routes of India
- Weathering—Mechanical and Chemical, Earthquakes and Volcanoes
- Main items of Imports and Exports of India

Current Events

NDA Syllabus For Current Events

Knowledge of Important events that have happened in India in recent years Prominent personalities of both Indian and International level, Cultural activities and sports activities, Current important world events.

Intelligence and Personality Test

The SSB procedure consists of two stages. Only those candidates who clear written exam are permitted to appear for SSB round. The details o SSB exam are given below:

NDA SSB Personality Test

Stage I	<ul style="list-style-type: none">• Officer Intelligence Rating (OIR)• Picture Perception Description Test (PP&DT).
Stage II	<ul style="list-style-type: none">• Interview (IO)• Group Testing Officer Tasks (GTO)• Psychology Tests (Psych)• Conference