

NDA Syllabus and Exam Pattern 2021

NDA Syllabus 2021: 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 2021

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. GD2. GPE3. PGT4. HGT5. IoT6. Command Task7. Snake race/Group Obstacle Race8. Individual lecture9. FGT
	Personal Interview & conference	–

NDA Syllabus 2021

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

NDA Mathematics Syllabus

The chapters covered for NDA Maths 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	<p>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</p>
Matrices and Determinants	<p>Types of matrices, operations on matrices. Determinant of a matrix, basic properties of determinants. Adjoint 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.</p>

<p>Integral Calculus and Differential Equations</p>	<p>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.</p>
<p>Trigonometry</p>	<p>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.</p>
<p>Vector Algebra</p>	<p>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.</p>

<p>Analytical Geometry Of Two and Three Dimension</p>	<p>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.</p>
<p>Statistics and Probability</p>	<p>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.</p>

The topic-wise question distribution in Maths

Topic	Questions
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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

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
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Physics

NDA Syllabus For Physics	
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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, Protoplasms, 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	
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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 the written exam are permitted to appear for the SSB round. The details SSB exam are given below:

NDA SSB Personality Test	
Stage I	Officer Intelligence Rating (OIR) Picture Perception Description Test (PP&DT).
Stage II	Interview (IO) Group Testing Officer Tasks (GTO) Psychology Tests (Psych) Conference

The various tests of IO, GTO, and Psychological are designed to bring out the presence/absence of Officer Like Qualities and their trainability in a candidate. Accordingly, candidates are Recommended or Not Recommended at the SSB.