NDA Syllabus

tutorialspoint

SIMPLY EASY LEARNING

Table of Content

STRUCTURE OF EXAMINATION

The following table illustrates the examination pattern of Nation Defence Academy (NDA):

Exam	Subject	Time Duration	No. of Question	Marks
Preliminary	Mathematics	150 minutes	120	300
	General Ability	150 minutes	150	600
Intelligence and Personality Test				900

Note

- All questions are objective type and each question carries four choices (3 wrong and 1 correct) and candidates have to select the correct answer.

- There will be penalty (**negative marking**) for wrong answers.

- For each wrong answer (given by the candidate), one third (0.33) of the marks (assigned to that question) will be deducted as penalty.

- If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct.

- If a question is left (unattempted) i.e. no answer is given by the candidate, there will be no penalty for such question.

Following are the important criteria that define the eligibility:

Nationality

a) a citizen of India, or

b) a subject of Bhutan, or

c) a subject of Nepal, or

d) a Tibetan refugee who came over to India before the 1st January, 1962

e) with the intention of permanently settling in India, or

f) a person of Indian origin who has migrated from Pakistan, Burma, Sri Lanka and East African Countries of Kenya, Uganda, the United Republic of Tanzania, Zambia, Malawi, Zaire and Ethiopia or Vietnam with the intention of permanently settling in India.

Age Limit

- The minimum age is – 16 years

- The maximum age is – 19 years

Sex

- Only Male candidates

Marital Status

- Only Unmarried candidate

- Candidates must undertake **not to marry** until they complete their full training.

- A candidate who marries subsequent to the date of his application though successful at this or any subsequent Examination **will not be selected** for training.

- Candidate who marries during training shall be discharged and will be **liable to refund** all expenditure incurred on him by the Government.

Educational Qualifications

- **For Army Wing of National Defence Academy**: 12th Class pass (with the 10+2 pattern) of School Education or equivalent examination conducted by a State Education Board or a University.

- **For Air Force and Naval Wings of National Defence Academy and for the 10+2 Cadet Entry Scheme at the Indian Naval Academy**: 12th Class pass (with the 10+2 pattern) of School Education or equivalent with Physics and Mathematics conducted by a State Education Board or a University.

Physical Standards

Height

- The minimum acceptable height is **157 cms** (162.5 cms. for Air Force).

- **5 cms** is given relaxation is given to Gorkhas and individuals belonging to hills of North-Eastern regions of India, Garhwal and Kumaon.

- **2 cms** is given relaxation to the candidates from Lakshadweep.

Weight

- Weight varies according to height, see the given table I and table II for details:

HEIGHT/WEIGHT STANDARDS FOR ARMY/AIR FORCE			
	Weight in KG		
Height (in CM)	**16-17 years**	**17-18 years**	**18-19 years**
152	42.5	44.0	45.0
155	43.5	45.3	47.0
157	45.0	47.0	48.0
160	46.5	48.0	49.0
162	48.0	50.0	51.0

165	50.0	52.0	53.0
167	51.0	53.0	54.0
170	52.5	55.0	56.0
173	54.5	57.0	58.0
175	56.0	59.0	60.0
178	58.0	61.0	62.0
180	60.0	63.0	64.5
183	62.5	65.0	66.5

Table II

HEIGHT/WEIGHT STANDARDS FOR NAVY			
	Weight in KG		
Height (in CM)	**16 years**	**18 years**	**20 years**
152	44	45	46
155	45	46	47
157	46	47	49
160	47	48	50
162	48	50	52
165	50	52	53
168	52	53	55
170	53	55	57
173	55	57	59
175	57	59	61

178	59	61	62
180	61	63	64
183	63	65	67

- There should be no evidence of weak constitution, bodily defects or underweight.

- The Candidate should not be overweight or obese.

- The candidate must be in good physical and mental health.

- The candidate must be free from any disease/disability which is likely to interfere with the efficient performance of Military duties.

- In case of pilot in the Air Force, candidates have to meet special requirement, as the acceptable measurements of leg length, thigh length and sitting height must be:

Leg Length

- Minimum - 99.00 cms

- Maximum - 120.00 cms

Thigh Length

- Minimum –

- Maximum - 64.00 cms

Sitting Height

- Minimum - 81.50 cms

- Maximum - 96.00 cms

Chest

- Chest should not be less than **81 cms**

- The minimum range of expansion after full inspiration should be **5 cms**

Mode of Application

- Online

- Candidates are required to apply online through the official website i.e. upsconline.nic.in

Fee

- The application fee is – 100 INR

- However, Candidates belonging to SC/ST; Sons of JCOs/NCOs/ORs are exempted from payment of fee.

Mode of Payment

Fee can be paid either by depositing the money in any Branch of SBI by cash, or by using net banking facility of State Bank of India.

Candidates can also pay fee by using Visa/MasterCard Credit/Debit Card.

Preliminary Exam Center

The Preliminary exam is held in the following cities:

City/Center	State
Agartala	Tripura
Ahmedabad	Gujarat
Aizawl	Mizoram
Allahabad	Uttar Pradesh
Bengaluru	Karnataka
Bareilly	Uttar Pradesh
Bhopal	Madhya Pradesh
Chandigarh	Chandigarh
Chennai	Tamil Nadu
Cuttack	Odisha
Dehradun	Uttarakhand
New Delhi	Delhi
Dharwad	Karnataka
Dispur	Assam
Gangtok	Sikkim
Hyderabad	Telangana
Imphal	Manipur
Itanagar	Arunachal Pradesh

Jaipur	Rajasthan
Jammu	Jammu & Kashmir
Jorhat	Assam
Kochi	Kerala
Kohima	Nagaland
Kolkata	West Bengal
Lucknow	Uttar Pradesh
Madurai	Tamil Nadu
Mumbai	Maharashtra
Nagpur	Maharashtra
Panaji	Goa
Patna	Bihar
Port Blair	Andaman and Nicobar Islands
Raipur	Chhattisgarh
Ranchi	Jharkhand
Sambalpur	Odisha
Shillong	Meghalaya
Shimla	Himachal Pradesh
Srinagar	Jammu & Kashmir
Thiruvananthapuram	Kerala
Tirupati	Andhra Pradesh
Udaipur	Rajasthan
Vishakhapatnam	Andhra Pradesh

Examination Center for Personality Test

Following are the SSB Centers for Indian Armed Forces (Army):

- Allahabad: Uttar Pradesh

- Bhopal: Madhya Pradesh

- Bengaluru: Karnataka

Indian Army Training Center

- **Indian Military Academy (IMA) Dehradun**: Uttarakhand

  ➢ It is Permanent Commission for Male

- **Officers Training Academy (OTA) Chennai**: Tamil Nadu

  ➢ It is short Service Commission for both Male & Female

- **Officers Training Academy (OTA) Gaya: Bihar**

  ➢ It is permanent Commission for TES & SCO Male Course

- **National Defense Academy (NDA) Khadakwasla, Pune**: Maharashtra

  ➢ It is permanent Commission

SSB Center for Indian Air Forces

Following are the SSB Centers for Indian Air Forces (Army):

- Coimbatore: Tamil Nadu

- Bangalore: Karnataka

- Bhopal: Madhya Pradesh

Training Centers/Institutes for Indian Air Forces

- **Indian Naval Academy (INA) Ezhimala: Kerala**

  ➢ It is Permanent/Short Commission for both Male & Female

- **National Defense Academy (NDA) Khadakwasla, Pune: Maharashtra**

  ➢ It is Permanent Commission

CATEGORIES OF SERVICES

Following are the major category of services:

- **Indian Army**: The Indian Army is the land-based subdivision and the largest component of the Indian Armed Forces.

- **Indian Navy**: The Indian Navy is the naval (water-based) branch of the Indian Armed Forces.

- **Indian Air Force**: The Indian Air Force is the air-based subdivision of the Indian armed forces.

This exam is conducted as:

- Mathematics &

- General Ability

Mathematics Syllabus

The following table illustrates the detailed syllabus:

Mathematics Syllabus (Paper I)	
Algebra	Concept of set
	Operations on sets
	Venn diagrams
	De Morgan laws
	Cartesian product, relation, equivalence relation
	Representation of real numbers on a line
	Complex numbers—basic properties, modulus, argument, cube roots of unity
	Binary system of numbers
	Conversion of a number in decimal system to binary system and vice-versa
	Arithmetic, Geometric and Harmonic progressions
	Quadratic equations with real coefficients
	Solution of linear in equations of two variables by graphs
	Permutation and Combination
	Binomial theorem and its applications

	Logarithms and their applications
	Types of matrices, operations on matrices
	Determinant of a matrix, basic properties of determinants
Matrices & 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
	Angles and their measures in degrees and in radians
	Trigonometrical ratios
	Trigonometric identities Sum and difference formulae
Trigonometry	Multiple and Sub-multiple angles
	Inverse trigonometric functions
	Applications-Height and distance, properties of triangles
	Rectangular Cartesian Coordinate system
	Distance formula
	Equation of a line in various forms
	Angle between two lines
	Distance of a point from a line
Analytical Geometry of Two and Three Dimensions	Equation of a circle in standard and in general form
	Standard forms of parabola, ellipse and hyperbola
	Eccentricity and axis of a conic
	Point in a three dimensional space, 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
	Angle between two lines and angle between two planes
	Equation of a sphere
Differential Calculus	Concept of a real valued function–domain, range and graph of a function
	Composite functions, one to one, onto and inverse functions
	Notion of limit, Standard limits—examples Continuity of functions—examples, algebraic operations on continuous functions
	Derivative of function at a point, geometrical and physical interpretation of a derivative—applications
	Derivatives of sum, product and quotient of functions, derivative of a function with respect to another function, derivative of a composite function
	Second order derivatives. Increasing and decreasing functions
	Application of derivatives in problems of maxima and minima
Integral Calculus & Differential Equations	Integration as inverse of differentiation
	Integration by substitution and by parts
	Standard integrals involving algebraic expressions
	Trigonometric
	Exponential
	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 a differential equations, solution of first order and first degree differential equations of various types—examples

	Application in problems of growth and decay
Vector Algebra	Vectors in two and three dimensions
	Magnitude and direction of a vector
	Unit and null vectors
	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
Statistics	Classification of data
	Frequency distribution
	Cumulative frequency distribution—examples
	Graphical representation—Histogram, Pie Chart, frequency polygon—examples
	Measures of Central tendency—Mean, median and mode
	Variance and standard deviation—determination and comparison
	Correlation and regression
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 Binominal distribution

General Ability Syllabus

Part 'A' (Paper II)

English	Grammar and usage
	Vocabulary
	Comprehension and cohesion in extended text

Part 'B' General Knowledge

	Physical Properties and States of Matter, Mass, Weight, Volume, Density and Specific Gravity, Principle of Archimedes, Pressure Barometer
	Motion of objects
	Velocity and Acceleration
	Newton's Laws of Motion
Physics	Force and Momentum
	Parallelogram of Forces
	Stability and Equilibrium of bodies
	Gravitation
	Elementary ideas of work, Power and Energy

	Effects of Heat
	Measurement of Temperature and Heat
	change of State and Latent Heat
	Modes of transference of Heat
	Sound waves and their properties, Simple musical instruments
	Rectilinear propagation of Light
	Reflection and refraction
	Spherical mirrors and Lenses
	Human Eye
	Natural and Artificial Magnets
	Properties of a Magnet
	Earth as a Magnet
	Static and Current Electricity
	Conductors and Non-conductors
	Ohm's Law
	Simple Electrical Circuits
	Heating
	Lighting and Magnetic effects of Current
	Measurement of Electrical Power
	Primary and Secondary Cells
	Use of X-Rays
	General Principles in the working of the following: Simple Pendulum, Simple Pulleys, Siphon, Levers, Balloon, Pumps, Hydrometer, Pressure Cooker, Thermos Flask, Gramophone, Telegraphs,

	Telephone, Periscope, Telescope, Microscope, Mariner's Compass; Lightening Conductors, Safety Fuses.
Chemistry	Physical and Chemical changes
	Elements
	Mixtures and Compounds
	Symbols
	Formulae and simple Chemical Equations
	Law of Chemical Combination (excluding problems)
	Properties of Air and Water
	Preparation and Properties of Hydrogen, Oxygen, Nitrogen and Carbon dioxide
	Oxidation and Reduction
	Acids, bases and salts
	Carbon—different forms
	Fertilizers—Natural and Artificial
	Material used in the preparation of substances like Soap, Glass, Ink, Paper, Cement, Paints, Safety Matches and Gun-Powder
	Elementary ideas about the structure of Atom, Atomic Equivalent and Molecular Weights, Valency
General Science	Difference between the living and non-living
	Basis of Life—Cells, Protoplasm and Tissues
	Growth and Reproduction in Plants and Animals
	Elementary knowledge of Human Body and its important organs
	Common Epidemics, their causes and prevention
	Food—Source of Energy for man

		Constituents of food
		Balanced Diet
		The Solar System—Meteors and Comets, Eclipses
		Achievements of Eminent Scientists
History, Freedom Movement		A broad survey of Indian History, with emphasis on Culture and Civilization
		Freedom Movement in India
		Elementary study of Indian Constitution and Administration
		Elementary knowledge of Five Year Plans of India
		Panchayati Raj, Co-operatives and Community Development
		Bhoodan, Sarvodaya, National Integration and Welfare State, Basic Teachings of Mahatma Gandhi
		Forces shaping the modern world
		Renaissance, Exploration and Discovery
		War of American Independence
		French Revolution, Industrial Revolution and Russian Revolution
		Impact of Science and Technology on Society
		Concept of one World United Nations, Panchsheel, Democracy, Socialism and Communism
		Role of India in the present world
Geography		The Earth, its shape and size
		Latitudes and Longitudes
		Concept of time
		International Date Line
		Movements of Earth and their effects

	Origin of Earth
	Rocks and their classification
	Weathering—Mechanical and Chemical
	Earthquakes and Volcanoes
	Ocean Currents and Tides
	Atmosphere and its composition
	Temperature and Atmospheric Pressure
	Planetary Winds
	Cyclones and Anti-cyclones
	Humidity, Condensation and Precipitation
	Types of Climate
	Major Natural regions of the World
	Regional Geography of India—Climate, Natural vegetation
	Mineral and Power resources
	Location and distribution of agricultural and Industrial activities
	Important Sea ports and main sea
	Land and air routes of India
	Main items of Imports and Exports of India
Current Events	Current National events
	Current World events
	Prominent personalities—both Indian and International
	Current cultural activities
	Sports

- The intelligence and Personality Test is conducted in two stages by SSB as:

  - Stage I

  - Stage II

- One who qualifies the first stage is permitted to appear in second stage.

Stage I

- The stage I comprises of Officer Intelligence Rating (OIR) tests and Picture Perception & Description Test (PP&DT).

Stage II

- It includes:

  - Interview

  - Group Testing Officer Tasks

  - Psychology Tests and

  - Conference

- Note: These tests are conducted over 4 days.