

# **NDA Coaching**

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## **Exam Pattern & Syllabus**

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# Examination Pattern

**NDA selection process is divided into two stages-**

- 1. Written Examination**
- 2. SSB Interview**

**Written exam of NDA itself is divided into two parts i.e.**

- NDA written exam for Mathematics**
- NDA written exam for General Ability Test (GAT)**

**General Ability Test (GAT) is further subdivided into two parts:**

- Part A – English Test**
  - Part B – General Awareness or General Knowledge Test**
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# Marks distribution: GAT section

NDA General Ability Test	Sections	Maximum marks
Part A – English	–	200
Part B – General Awareness	Physics	100
	History, Freedom Movement, etc.	80
	Geography	80
	Chemistry	60
	General Science	40
	Current Events	40
	Total	600

# Structure: Exam Pattern

NDA Written Exams	Subject	Maximum marks	Number of Questions	Duration
Paper 1	Mathematics	300	120	
Paper 2	GAT	600	150	2 hrs 30 mins
Total		900	270	5 hours

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## **NDA Selection Process Important pointers-**

- 1.All the questions in the NDA exam will be objective i.e., Multiple Choice Questions.
- 2.The medium of the exam will be bilingual (English & Hindi) with a total of 900 marks.
- 3.Total 270 questions are asked of which 120 questions are from Mathematics and 150 questions from GAT section.
- 4.The NDA syllabus covered in the exam is 10+2 standards
- 5.There is negative marking for wrong answers which is given in detail below-

### **NDA Marking Scheme**

The UPSC formulates the NDA marking scheme. As per the scheme, no marks are deducted if a question is left unanswered but there is a provision of negative marking for wrong answers. Candidates will lose 1/3rd of marks allotted to each question for incorrect answers.

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# Maths

Mathematics Topic	NDA 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. 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, 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
Matrices and Determinants	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.
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 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 in 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, 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. Angle between two lines. Distance of a point from a line. 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.
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.

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# NDA Syllabus General Ability Test is in Two Parts

## Part A

tests candidate's proficiency in English while

## Part B

tests candidates General Knowledge on questions from Physics, Chemistry, General Science, History, Geography and Current Events.

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# General Ability Test: Part A- English

## NDA Syllabus GAT English

The English syllabus of NDA covers topics like vocabulary, grammar and usage, comprehension and cohesion.

To start with the English part of NDA syllabus refer to the links of relevant English language topics that are asked frequently in the examination:

- [List of One Word Substitutions](#)
  - [Adjective Degree Of Comparison Rules](#)
  - [List of Homophones/Homonyms](#)
  - [List of Synonyms and Antonyms](#)
  - [Active And Passive Voice Rules](#)
  - [Tenses Questions And Answers](#)
  - [Direct & Indirect Speech Questions & Answers](#)
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# **General Ability Test: Part B- General Knowledge**

The General Knowledge comprises questions from Physics, Chemistry, General Science, History, Geography and Current Events.

The topic-wise syllabus of each subject is in subsequent slides.

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# GAT - 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

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# GAT-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
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  - 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.
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# **GAT - Current Affairs**

- 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.**
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# GAT-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
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# GAT-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 and Tissues
  - Constituents of food
  - Growth and Reproduction in Plants and Animals
  - Balanced Diet
  - Elementary knowledge of Human Body and its important organs
  - The Solar System—Meteors and Comets, Eclipses. Achievements of Eminent Scientists
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# GAT-CHEMISTRY

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| <ul style="list-style-type: none"><li>•Preparation and Properties of Hydrogen, Oxygen, Nitrogen and Carbon Dioxide, Oxidation and Reduction.</li><li>•Acids, bases and salts.</li><li>•Carbon— different forms</li><li>•Physical and Chemical Changes</li><li>•Fertilizers—Natural and Artificial</li><li>•Elements</li><li>•Material used in the preparation of substances like Soap, Glass, Ink, Paper, Cement, Paints, Safety Matches and Gunpowder</li><li>•Mixtures and Compounds</li><li>•Elementary ideas about the structure of Atom</li><li>•Symbols, Formulae and simple Chemical Equation</li><li>•Atomic Equivalent and Molecular Weights</li><li>•Law of Chemical Combination (excluding problems)</li><li>•Valency</li><li>•Properties of Air and Water</li></ul> |  |
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# SSB Interview Pattern

## Screening Test

- 1.Verbal and non-verbal tests.
- 2.PPDT

## Psychological Test

- 1.Thematic Apperception Test (TAT)
- 2.Word Association Test (WAT)
- 3.Situation Reaction Test (SRT)
- 4.Self Description Test (SD)

## Group Testing Officers Test

- 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

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