NDA SYLLABUS

NDA EXAM PATTERN MATHS & GAT 2025		
Subject	**Mathematics**	**General Ability Test**
Total Number of Questions	120	150
Maximum Marks	300	600
Marks for Correct Answer	2.5 mark	4 mark
Marks for Incorrect Answer	-0.83 mark	-1.33 mark
Duration	2.5 hours	2.5 hours
NDA EXAM PATTERN SSB TEST/INTERVIEW 2025		
Subject	**Total**	
SSB TEST/INTERVIEW	900	

NDA MATHEMATICS SYLLABUS

NDA MATHEMATICS SYLLABUS 2025
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 inequations of two variables by graphs. Permutation and Combination. Binomial theorem and its applications. Logarithms and their applications.
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.
Trigonometry
Angles and their measures in degrees and in radians. Trigonometrical ratios. Trigonometric identities Sum and difference formulae. Multiple and Sub-multiple angles. Inverse trigonometric functions. Applications-Height and distance, properties of triangles.

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 in 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.

Differential 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-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 concerning 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 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. A 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

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. Application work done by a force and moment of a force and in geometrical problems

Statistics and Probability

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

NDA GENERAL ABILITY TEST SYLLABUS

NDA GENERAL ABILITY TEST (GAT) SYLLABUS 2025
English

- Spotting Errors
- Comprehension
- Selecting Words
- Synonyms
- Antonyms
- Sentence Improvements
- Ordering of Words in a Sentence, etc.

Physics

- Physical Properties and States of Matter, Mass, Weight, Volume, Density, and Specific Gravity, the Principle of Archimedes, and the Pressure Barometer.

- Motion of objects, Velocity and Acceleration, Newton's Laws of Motion, 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 Nonconductors, 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

- The difference between living and nonliving things. The basis of Life-cells, Protoplasm's, and Tissues. Growth and Reproduction in Plants and Animals.

- Elementary knowledge of the Human Body and its vital organs. Common Epidemics, their causes, and prevention.

- Food is a source of Energy for man. Its constituents include a balanced Diet. The Solar System includes meteors, comets, and Eclipses. Eminent Scientists have achieved many achievements.

History, Freedom Movement, etc.

- A broad survey of Indian History, with emphasis on Culture and Civilisation.

- 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

- Knowledge of Important events that have happened in India in recent years. Current important world events.

- Prominent personalities-both Indian and International including those connected with cultural activities and sports

NDA SYLLABUS INTELLIGENCE AND PERSONALITY TEST 2025

NDA SYLLABUS SSB 2025

Stage I

- Officer Intelligence Rating (OIR) tests
- Picture Perception Description Test (PP&DT)

Stage II

- Interview
- Group Testing Officer Tasks
- Psychology Tests
- Conference