



Road to NDA II 2021

A Course for 12th Students

Score 450+ Marks in NDA II 2021



Syllabus of Mathematics Section for NDA/NA Exam

Name of Topic	Subtopics
Algebra	Set concept, sets operations, Venn diagrams. Laws of De Morgan, Cartesian product, relationship, relationship of equivalence. Real number representation on a line. Complex numbers— basic properties, module, argument, unity cube roots. Binary number system. Conversion to binary system of a number in decimal system and vice versa. Progressions in arithmetic, geometry and harmony. Real-coefficient quadratic equations The solution of linear in equations of two variables by graphs. Permutation and Combination. Binomial theorem and its applications. Logarithms and their applications.
Matrices and Determinants	Matrix types, matrix operations. The determinant of a matrix, determinants ' properties. Application-Solution of a system of linear equations in two or three unknowns by the Cranmer's Rule and by the Matrix method
Trigonometry	Angles and their degree and measurements. Trigonometric ratios. Sum of trigonometric identities and formulas. Multiple angles and sub-multiples. Trigonometric functions & its inverse. Applications-Height and Distance, Triangle Properties.
Analytical geometry of two and three dimensions	The Cartesian Rectangular Coordinate System. Formula of distance. Equation of a line in different shapes. Two lines of angle. A point's distance from a line. Standard and general equation of a circle. Parabola, ellipse and hyperbola are standard forms. A conic's eccentricity and axis. Point the distance between two points in a three-dimensional space. Cosines of direction and ratios of direction. Two points of equation. Cosines of direction and ratios of direction. A plane equation and a line in different forms. Two lines of angle between two planes. Sphere's equation.
Differential calculus	Concept of a valued function—a function's domain, range, and graph. Composite functions, one by one, on and vice versa. Limit notion, default limits — examples. Continuity of functions— examples, continuous functional algebraic operations. Function derivative at a point, geometric and physical interpretation of an application derivative. Summary derivatives, product and function quotient derivatives, function derivatives for another function, 20 composite function derivatives. Derivatives of the second order. Increasing and diminishing functions. Application of derivatives in maxima and minima problems.
Integral calculus and differential equations	Differentiation and integration, standard integrals with algebraic expressions, trigonometric, exponential and hyperbolic functions. Definite integrals — determination of areas of curved plane regions — applications. 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	Two- and three-dimensional vectors, vector magnitude and direction. Unit and null vectors, vector adding, scalar-vector multiplication, scalar product or dot product. vector product or cross product. Applications — work done through force and moment of force and in geometric problems.
Statistics And Probability	<p>Statistics: data classification, distribution of frequencies, the cumulative distribution of frequencies — examples. Examples of graphic representation— histogram, pie chart, polygon frequency. Central tendency measurements — mean, median, and mode. Variance and deviation of standard — determination and comparison. Correlation and regression</p> <p>Sample space, events, exhaustive events & mutually exclusive, impossible and certain events associated with random experiments, results and associated. Union and events intersection. Complementary, composite and elementary events.</p> <p>Probability definition— classical and statistical— examples. Elementary probability theorems — simple issues.</p> <p>The conditional likelihood, the theorem of Bayes — simple problems. Random variable on a sample space as a function. Binomial distribution, examples of random experiments, the binomial distribution.</p>

Syllabus of General Mental Ability Section for NDA/NA Exam 2020

Name of the Topic	Subtopics
English	<ul style="list-style-type: none"> • Vocabulary • Grammar & Usage • Comprehension
Physics	Matter and its properties(mass, weight etc)and specific gravity, Archimedes principle, Motion, Velocity and Acceleration, Newton's Laws of Motion, Force and Momentum, Force Parallelogram, Stability and Body Equilibrium, Gravity, Elementary Work Ideas, Power and Energy. Heat effects, temperature and heat measurement, state change and latent heat, heat transfer modes. Rectilinear light, reflection and refraction propagation. Spherical mirrors and human eye lenses. Natural and artificial magnets, a magnet's properties, earth as a magnet. Electricity, Ohm's Law, conductors and non-conductors, Simple Electrical Circuits, Current Heating, Lighting and Magnetic Effects, Electrical Power Measurement, Primary and Secondary Cells, X-Ray Use.Simple Pendulum, Simple Pulleys, Telegraph, Telephone, Periscope, Telescope, Siphon, Levers,

	Balloon, Pumps, Hydrometer, Pressure Cooker, Thermos Flask, Gramophone,, Microscope, Mariner's Compass.
Chemistry	Changes in physical and chemical conditions. Chemical Combination Law. Air and water properties. Hydrogen, oxygen, nitrogen and carbon dioxide preparation and properties, oxidation and reduction. Acids, bases, salts, etc. Carbon— various forms. Fertilizers— Artificial and Natural. The material used in the preparation of substances such as Soap, Glass, Ink, Paper, Cement, Paints, Gun-Powder and Safety Matches. Basic ideas on Atom, Atomic Equivalent and Molecular Weights structure, Valence.
General Science	Living and non-living difference. Life basis — cells, protoplasts, tissues. Plant and animal growth and reproduction. Human Body's basic knowledge and its important organs. Common epidemics, causes and prevention of them. Food — man's energy source. Food constituents, balanced diet. The Meteors and Comets Solar System, Eclipses. Eminent Scientists ' achievements.
History	A comprehensive survey of Indian History, focusing on culture and civilization. Freedom movement. Indian Constitution and Administration elementary study. The basic knowledge of India's Five Year Plans. Panchayati Raj, Community Development Co-operatives. Bhoodan, Sarvodaya, Mahatma Gandhi's Basic Teachings, National Integration and Welfare State. Modern world forces; Renaissance, Exploration and Discovery; American Independence War. French Revolution, Russian Revolution and the Industrial Revolution. Impact on society of science and technology. One World Concept, UN, Panchsheel, Democracy, Socialism, and Communism. India's role in today's world.
Geography	The shape and size of the Earth. Latitudes, Longitudes, Time Concept. Date-Line International. Earth's movements and effects. Earth's origin. Rocks and their classification; mechanical and chemical weathering, earthquakes and volcanoes. Ocean Currents and Tides Atmosphere and their composition; Temperature and Atmospheric Pressure, Planetary Winds, Cyclones and Anti-cyclones; Humidity; Condensation and Precipitation; Climate Types, World's Major Natural Regions. India's regional geography— climate, natural vegetation. Resources for minerals and power; location and distribution of agricultural and industrial activities. Important seaports and major seaports, land and air routes
Current Events	Knowledge of major events that have occurred in India over the past few years. Current major events in the world. Important personalities around the world including those related to cultural and sports activities

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Why take this course?

- A 100-Day study plan to score better in NDA Exam
- Topics covered through Classes (Live + Recorded), Study Notes & Quiz
- Enhance Speed & Accuracy with Weekly Assessments & Practice Questions
- Mock tests with detailed analysis to get you exam ready

