

An Ideal Platform to Crack the Exam for Leading Institutions in India!

Mathematical Academy

IIT JAM|CSIR-NET|GATE|PG EXAM|TGT|PGT|OTHER

Website : www.mathematicalacademy.com

Contact Number : 6393098754 , 7081400353

NTA CUET PG EXAM

Mathematics

PART - A

Part - A will consist of 25 objective questions (MCQs) and will include English , General Awareness , Mathematical Aptitude and Analytical Skills.

PART - B

Part - B will consist of 75 objective questions (MCQs) from the following syllabus.

Abstract Algebra :-

Groups , subgroups , Abelian groups , non-abelian groups , cyclic groups , permutation groups , Normal subgroups , Lagrange's Theorem for finite groups , group homomorphism and quotient groups , Rings , Subrings , Ideal , Prime ideal. maximal ideals , Fields , Quotient field.

Linear Algebra :-

Vector spaces , Linear dependence and Independence of vectors , basis , dimension , linear transformations , matrix representation with respect to an ordered basis , Range space and null space , rank-nullity theorem , Rank and inverse of a matrix , determinant , solutions of systems of linear equations , consistency conditions , Eigenvalues and eigenvectors , Cayley-Hamilton theorem , Symmetric , Skew symmetric , Hermitian , Skew-Hermitian , Orthogonal and Unitary matrices.

Download the Mathematical Academy from Play Store | Join the Course

Real Analysis :-

Sequences and series of real numbers , Convergent and divergent sequences , bounded and monotone sequences , Convergence criteria for sequences of real numbers , Cauchy sequences , absolute and conditional convergence , Tests of convergence for series of positive terms - comparison test , ratio test , root test , Leibnitz test for convergence of alternating series.

Functions of one Variable :-

Limit , continuity , differentiation , Rolle's Theorem , Cauchy's Taylor's theorem , Power series of (real variable) including Taylor's and Maclaurin's, domain of convergence , term-wise differentiation and integration of power series.

Point Set Topology :-

Interior points , limit points , open sets , closed sets , bounded sets , connected sets , compact sets , completeness of \mathbb{R} .

Functions of two real variable :-

Limit , continuity , partial derivatives , differentiability, maxima and minima , Method of Lagrange multipliers , Homogeneous functions including Euler's theorem.

Complex Analysis :-

Functions of a complex Variable , Differentiability and analyticity , Cauchy Riemann Equations , Power series as an analytic function , properties of line integrals , Goursat Theorem , Cauchy theorem , consequence of simply connectivity, index of a closed curves , Cauchy's integral formula , Morera's theorem , Liouville's theorem , Fundamental theorem of Algebra , Harmonic functions.

Integral Calculus :-

Integration as the inverse process of differentiation , definite integrals and their properties , Fundamental theorem of integral calculus , Double and triple integrals , change of order of integration , Calculating surface areas and volumes using double integrals and applications , Calculating volumes using triple integrals and applications.

Vector Calculus :-

Scalar and vector fields , gradient , divergence , curl and Laplacian , Scalar line integrals and vector line integrals , scalar surface integrals and vector surface integrals , Green's, Stokes and Gauss theorems and their applications.

Differential Equation :-

Ordinary differential equations of the first order of the form $y' = f(x, y)$, Bernoulli's equation , exact differential equations , integrating factor , orthogonal trajectories , Homogeneous differential equations-separable solutions , Linear differential equations of second and higher order with constant coefficients , method of variation of parameters , Cauchy-Euler equation.

Linear Programming :-

Convex sets , extreme points , convex hull , hyper plane & polyhedral Sets , convex function and concave functions , Concept of basis , basic feasible solutions , Formulation of Linear Programming Problem (LPP) , Graphical Method of LPP , Simplex Method.