

# BANASTHLI VIDYAPEETH

Banasthli (Rajasthan)

## MASTER OF COMPUTER APPLICATIONS (MCA)

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### Eligibility :

60% aggregate marks in Graduation (Pass/Hons.)

### Admission Procedure :

Admission to the MCA courses run by based on the performance in the qualifying examination and the performance in the Aptitude Test.

### Examination Pattern :

The entrance examination paper shall consists of objective type questions.

### SYLLABUS :

#### Section A : MATHEMATICS

**Algebra** : Arithmetic, Geometric and Harmonic progression, Permutation and Combination, Application of Binomial theorem, Exponential and Logarithmic series, Matrix Algebra and Determinants.

**Trigonometry** : Trigonometrical problems, Height and Distance, Complex numbers and their properties.

**Statistics** : Measures of central tendency, frequency distribution and probability concept.

**Coordinate Geometry** : Straight line, Circle, Ellipse, Parabola and Hyperbola.

**Modern Algebra . Groups** : Definition and simple properties of groups and subgroups, permutation groups, cyclic groups, Cosets, Lagrange's theorem on the order of subgroup of finite group, Morphisms of groups, Cayley's theorem, Normal subgroups and quotient groups, Fundamental theorem of homomorphism of groups.

**Rings** : Definition and examples of ring (integral domain, division rings, fields), Simple properties of rings, subrings and subfields, ring homomorphism and ring isomorphism.

**Vector space** : Definition and simple properties, subspaces, linear dependence and linear independence of vector space, dimension of finitely generated vector space, basis of vector space, dimension of a subspace.

**Calculus and Differential Equations** : Successive differentiation, Leibnitz Theorem, Polar tangent, normal subtangent and subnormal, derivative of an arc (Cartesian and polar). Expansion of functions by Maclaurin's and Taylor's series, Indeterminate forms. Integration of irrational algebraic and trigonometrical functions, Definite integral, Differential equations of first order and first degree, Linear differential equations with constant coefficients, Linear differential equations of any order, Maxima and Minima of one variables, Partial differentiation with Euler's theorem and it's applications.

**Real Analysis** : Description of the real number system as a complete ordered field, Bounded and unbounded sets of real numbers, Supremum and infimum of a bounded set, Neighbourhood of a point. Real sequences and their convergence, Cauchy sequence, Cauchy's general principal of convergence. Convergence of series, comparison test, root test alternating series, Leibnitz test, continuous functions and their properties.

#### Section B : Reasoning Ability.

Verbal and Non-verbal Reasoning.

**NIMS**  
**KANPUR**

**M.C.A. Entrance by RAM GOPAL SINGH**

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