

# **Syllabus and Scheme of Combined Admission Test (CAT)** **for M.C.A.**

For admission to first year of MCA program the CAT will be of 4 papers having 50 objective questions in Mathematics, 50 Questions in Analytical ability and Logical Reasoning, 25 Questions in Computer Awareness and 25 Questions in General English. The duration of examination will be of 2 hours 15 minutes.

## **MATHEMATICS (50 questions)**

- Set Theory: Concepts of sets- Union-Intersection-Cardinality, permutations and Combinations.
- Probability and Statistics: Basic concepts of probability theory, Dependent and independent events, frequency distribution, measures of central tendencies and dispersions.
- Algebra: Fundamental operations in Algebra, Expansions, Factorization, simultaneous linear/quadratic equations, indices, logarithms-Arithmetic, geometric and harmonic progressions, determinants and matrices.
- Coordinate Geometry: Rectangular Cartesian, co-ordinates, distance formulae, equations of line, intersection of lines, pair of straight lines, equations of a circle, parabola, ellipse and hyperbola.
- Calculus: Limit of functions, Continuous functions, Differentiation of functions, tangents and normal, simple examples of maxima and minima, Integration of function by parts, by substitution and by partial fraction, definite integrals, Applications of Definite Integrals to areas.
- Vectors: Position vector, addition and subtraction of vectors, scalar and vector products and their applications to simple geometrical problems and mechanics.
- Trigonometry: Simple identities, Trigonometric equations, Properties of triangles, solution of triangles, height and distance, General solution of trigonometric equations.

## **ANALYTICAL ABILITY AND LOGICAL REASONING (50 questions)**

- The questions in this section will cover logical reasoning and quantitative aptitude. Some of the questions will be on comprehension of a logical situation and questions based on the facts given in the passage.

## **COMPUTER AWARENESS (25 questions)**

- Computer Basics: Organization of a Computer, Central Processing Unit (CPU), Structure of Instructions in CPU, input and output devices, Computer memory, back-up devices.
- Data Representation: Representation of characters, integers and fractions, binary and hexadecimal representations, Binary arithmetic, Addition, Subtraction, multiplication, division, simple arithmetic and two's complement arithmetic, floating point representation of numbers, Boolean algebra, truth tables, Venn diagrams.

## **GENERAL ENGLISH (25 questions)**

- Questions in this section will be designed to test the candidate's general understanding of the English language. There will be questions on the following topics.

- Comprehension, Vocabulary, Basic English Grammar (Like uses of correct forms of verbs Prepositions and articles), word power, synonyms and antonyms, Meanings of words and phrases, Technical writing.

\*\*\*\*\*