

BIRLA INSTITUTE OF TECHNOLOGY

MASTER OF COMPUTER APPLICATIONS (MCA)

Eligibility for Admission :

1. The candidate must hold a Bachelor's degree with 60% marks of any of the Universities incorporated by an act of the central or state legislatures in India or other educational Institutions established by an act of Parliament or declared to be deemed as an University under section 3 of UGC Act. 1956, or possess an equivalent qualification recognized by the Ministry of HRD, Government of India. This degree must entail a minimum of three years of education after higher secondary schooling (10 + 2) or equivalent.
2. The candidates must have one of the following subjects - Mathematics or Statistics or Business Mathematics or Computer Science or Computer Applications - either at graduation level or at Intermediate / +2 level.
3. In addition, the candidate must have secured at least 60% marks in aggregate at graduate level, relaxable to 55% in aggregate in case of SC/ST candidates.
4. Candidates appearing for final examinations can also apply, and if selected can join the programme provisionally. At the time of the interviews they should bring a certificate from the Principal/Registrar of their College/Institute stating that they will have appeared for examinations in all subjects required for obtaining their bachelor's degree by 30th June .

Pattern of Entrance Test :

The question paper shall comprise of 150 questions to be answered in 2½ hours. Questions will be of objective type with multiple choices out of which only one is correct. A candidate must mark only the correct answer to score full marks. Candidates may see the sample answer sheet on the following pages for the right way to mark the answer sheet. For each correct answer a candidate will earn 4 marks. For every incorrect answer one mark will be deducted. If a question has not been attempted no credit will be given.

Syllabus for MCA Entrance

The questions for the test will distributed into various area as follows :

Mathematics	60
Computer Awareness	40
Analytical Ability & Logical Reasoning	30
General Awareness	20

Syllabus :

Algebra : Fundamental operations in Algebra, expansion, factorization, quadratic equations, Indices, logarithms, arithmetic, geometric and harmonic progression, binomial theorem, permutations and combinations, surds

Set Theory : Sets and subsets, operations on sets, sequences, properties of integers, relations and functions.

Matrix Algebra : Elementary transformations, inverse of a matrix, rank, solution of simultaneous linear equations, eigen values and eigen vectors, quadratic forms.

Co-ordinate Geometry : Rectangular Cartesian co-ordinates, equations of a line, mid-point, intersections etc., equations of a circle, distance formulae, pair of straight lines,

parabola, ellipse and hyperbola, simple geometric transformations such as translation, rotation, scaling.

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 integral application to volumes and surfaces of frustums of a sphere, cone, cylinder, Taylor Series.

Differential Equations : Differential equations of first order and their solutions, linear differential equations with constant coefficients, homogeneous linear differential equations.

Vectors : Position vector, additions 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, inverse function.

Probability and Statistics : Basic concepts of probability theory, averages, dependent and independent events, frequency distributions, and measures of dispersions, skewness and kurtosis, random variable and distribution functions, mathematical expectations, binomial, Poisson, normal distribution, curve fitting and principle of least squares, correlation and regression.

Linear Programming : Formulation of simple linear programming problems, basic concepts of graphical and simplex methods, revised simplex method, transportation and assignment problems, duality and integer programming.

Computer Awareness :

Computer Basics : Organization of a computer, Central Processing Unit (CPU), Structure of Instructions in CPU, input/output devices, computer memory, memory organization, back-up devices.

Data Representation : Representation of characters, integers and fractions, binary and hexadecimal representations, Binary Arithmetic, Addition, Subtraction, division, multiplication, single arithmetic and two complement arithmetic, floating point representation of numbers, normalized floating point representation, Boolean algebra, truth tables, Venn diagrams.

Computer Architecture : Block structure of computers, communication between processor and I/O devices, interrupts

Computer Language : Assembly language and high-level language, Computer Programming in C.

Flow chart and Algorithms

Operating Systems : Evolution of operating systems, types of operating systems, functions of an operating system, Multiprogramming and time-sharing operating systems modern operating systems.

Analytical Ability and Logical Reasoning :

Questions in this section will test logical reasoning, quantitative reasoning, and visio-spatial reasoning.

General Awareness :

Questions in this section will test general awareness about business, finance, industry, transportation, scientific inventions, governance, healthcare and cultural dimensions etc.

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KANPUR

M.C.A. Entrance by RAM GOPAL SINGH

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