

THAPAR INSTITUTE OF ENGINEERING AND TECHNOLOGY

PATIALA

MASTER OF COMPUTER APPLICATIONS (MCA)

Eligibility :

Recognised Bachelors degree of minimum 3 years duration in any discipline with Mathematics atleast at 10 + 2 school level and has also qualified in the Entrance Test to be conducted by TIET Patiala.

OR

Recognised Bachelor's Degree of minimum 3 years duration in any discipline with Mathematics as one of the subjects and has also qualified in the Entrance Test to be conducted by TIET Patiala.

Candidates due to appear in the qualifying examination are also eligible to appear in the Entrance Examination. Such candidates will be placed provisionally in the merit list. They will not be considered for admission if they fail to submit proof of passing the qualifying examination.

Total Intek : 60

Pattern of Examination :

The entrance examination consist of one paper of three hours duration consisting of objective questions in following sections :

- (i) Mathematics
- (ii) Computer Awareness
- (iii) General Knowledge/Analytical Ability

Syllabus :

Sections - I : MATHEMATICS

Geometry : Two-Dimensional ; straight lines, circles and conic sections, Three-Dimensional ; straight lines and spheres.

Algebra : Sets theory, Relations, Mappings and its applications, Permutations and Combinations, Binomial Theorem, Complex numbers and their properties; Demoivre's theorem and its applications.

Calculus : Limits, Continuity and Differentiability, Rolle's and Mean value theorems, Differentiation, Partial Differentiation, Maxima and Minima of functions of one and two variable. Successive differetiation. Integration by using substitution, partial fraction and by parts, Definite integral and its properties, Applications of definite integral to evaluate length and are of simple plane curves.

Vector Analysis : Scalar and vector products including their applications.

Statistics, Probability and Linear Programming Measures of Central tendency, Dispersion, Skewness and Kurtosis. Correlation and Regression. Basic concepts of probability, Conditional probability, Baye's theorem, Discrete and continuous distributions (Binomial, Poisson and normal distributions), Fundamentals of linear programming problems, Graphical solution, Simplex method and its variants.

Matrices : Types of matrices, rank of matrix, solution of system of linear equations, Cayley Hamilton theorem, Inverse of a matrix, Determinant and its properties.

Ordinary Differential Equations : Differential equations of first order and their solutions, Linear differential equations of first and higher order with constant coefficients.

Numerical Analysis : Solution of non-linear equations using iterative methods, Interpolation (Newton's, Lagrange's and Forward Formulae), Numerical Integration (Trapezoid and Simpson Rule).

Section - II : 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, floating point representation of number, normalized floating point representation, Boolean algebra, truth tables, Venn diagrams.

Computer Architecture : Block Structure of computer, communications between processor and I/O devices, interrupts.

Computer Language and Operating System : Flow charts and algorithms, Concepts of low level languages, Computer programming in C (data types, loop and control statements, functions), Fundamentals of operating systems : multiprogramming, multitasking and time sharing systems.

Section - III : General Knowledge / Analytical Ability :

The question in this section will cover logical reasoning, quantitative reasoning, visual-spatial reasoning and also this section shall carry questions to test the general awareness about business, finance, industry, transportation, scientific inventions, information technology, governance, healthcare and cultural dimensions etc.

NIMS
KANPUR

M.C.A. Entrance by RAM GOPAL SINGH

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