Rajarshi Janak University
Faculty of Humanities and Law
Entrance Examination Question Model

Program: Master of Computer Application (MCA)

The entrance examination shall consist of 100 multiple choice questions to be answered in 2 hours time. Each question shall carry 1 mark. Multiple Choice Questions comprises on following areas:

Mathematics (50 questions)

Algebra: Fundamental operations in Algebra, expansion, Factorization, quadratic equations, indices, logarithms, arithmetic, geometric and harmonic progressions, binomial theorem, permutations and combinations, surds.

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

Co-ordinate Geometry: Rectangular Cartesian co-ordinates, equations of a line, midpoint, intersections etc., equations of a circle, distance formulae, pair of straight lines, parabola, elipse 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, and Taylor series.

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

Vector: Position vector, addition and subtraction of vectors, scalar and vector products and their application to simple geometric problems and mechanics.

Trigonometry: Simple identities, trigonometric equations, properties of triangles, solution of triangles, height and distance, inverse functions.

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 distributions, 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.

Logical and Analytical Reasoning (20 questions)

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

Computer Fundamental (20 questions)

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, Boolean algebra, truth tables, Venn diagrams.

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

Computer Language: Assembly Language and high-level language, Multiprogramming and time-sharing operating systems.

Flow chart and Algorithm, Fundamental of Operating System and Basics of Internet.

English (10 questions)

- Use of articles and prepositions
- Idioms and phrases
- Synonyms
- Reading comprehension
- Expansion of an idea
- Sentence sequence (jumbled sentences)
- Completion of a sentence (with choices)
- Choice of appropriate word to fill in the blanks (with options)
- Abridging sentences/paragraphs

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