NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL - 575025

DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES

M.C.A. (Self- Financed PG Programmes 2022-2023)

General Instructions for the candidates who are appearing for the MCA (Self-financed PG Programmes 2022-2023), Written Aptitude Test & Interview:

1. A written aptitude test will be conducted. Syllabus for the written aptitude test is provided in annexure.

2. There is negative marking for wrong answer.

3. Time duration is 60 minutes.

4. After the written test, shortlisted candidates will be called for the interview on the next day.

5. Written Test Date and Time: JULY 12th 2022, 4:00PM – 5:00 PM.

6. Interview Date and Time: JULY 13th 2022, 9.00 AM Onwards

Sd/-

Head of the Department
Mathematical and Computational Sciences

ANNEXURE: Syllabus for the written aptitude test

MATHEMATICS:

- Set Theory: Concept of sets – Union, Intersection, Cardinality, Elementary counting; permutations and combinations.
- Probability and Statistics: Basic concepts of probability theory, Averages, Dependent and independent events, frequency distributions, 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 coordinates, distance formulae, equation of a line, and intersection of lines, pair of straight lines, equations of a circle, parabola, ellipse and hyperbola.
- Calculus: Limit of functions, continuous function, differentiation of function, tangents and normals, simple examples of maxima and minima. Integration of functions 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, heights and distances, general solutions of trigonometric equations.

COMPUTER AWARENESS:

- Computer Basics: Organization of a computer, Central Processing Unit (CPU), structure of instructions in CPU, input/output devices, computer memory, and 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.