NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL - 575025

DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES

MCA (Self-Financed PG Programmes 2021-2022)

General Instructions for the candidates who are appearing for the MCA (Self-Financed PG Programmes 2021-2022), Written Aptitude Test & Interview:

1. Syllabus for the written aptitude test is provided in annexure.
2. Mode of the written aptitude test is online. Details of examination will be announced in our Institute's Website (https://www.nitk.ac.in/). For any further updates, the candidates are requested to visit our Institute's Website regularly.
3. A written aptitude test consisting of multiple choice questions will be conducted. The candidates are expected to select correct option. Total marks for the test is 30.
4. There is negative marking for wrong answer.
5. Question Paper Type: Sequential. i.e. There won't be any option to go back and answer either the unattempt questions or change the already answered questions.
6. Only single attempt is possible for your technical written test.
7. Time duration is 30 minutes.
8. After the written test, shortlisted candidates will be allowed to attend the MCA interview.
9. Written Test Date and Time: August 30th 2021, 2.45 PM – 3.15 PM. No extra time will be given and your login page will be closed after the test duration.
10. Interview Date and Time: August 31st 2021, 9.00 AM Onwards through online mode using MS Team /Google Meet Link.

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.