Preparatory course for MCA entrance exam

[2 Credits 30 hours]

Course Objective:

The course is intended to prepare the students for entrance examinations for post-graduation courses in Computer Science.

Learning Outcome:

The students will be able to solve logical, analytical, mathematical, reasoning, problems that are part of various competitive examinations.

Course Content

1. Analytical Geometry: Cartesian and polar coordinate, straight line, circle, ellipse, parabola, hyperbola, translation & rotation of axes. (4)

2. Algebra: Complex number, De Movier's theorem, Solution of equations , Determinants, Matrices, Summation of series, Addition of vectors, Scalar and vector products, Inequation, Sets and diagram, Union and intersection of sets, Complements, Algebra of sets, Finite sets, Class of sets, partitions, cross product, Group, Ring and Field.(5)

3. Calculus: Limit, Continuity, Differentiation, Maxima and minima; Taylor & Maclaurin's series; Definite and indefinite integrals; First and second order differential equations; Functions of several variables; partial differentiation. (4)

4. Probability & Statistics: Permutation , Combination; Probability distribution; Mean ; Median ; Mode; Standard deviation; Correlation coefficient.(5)

5. Computer Basics: Organization of a computer, Central Processing Unit (CPU), structure of instructions in CPU, input/output devices, computer memory, and back-up devices.(3)

6. 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, (6)

7. Boolean algebra, truth tables, Venn diagrams.(3)

Ms Shilpa Naik

References

1.Dr Sakti Pada Nanda, Guide to MCA Entrance