

GAUTAM BUDDHA UNIVERSITY, GREATER NOIDA

SYLLABUS FOR MCA and M.Sc. (CS): GBU-ET

Mathematics (Graduate Level)	(50)
Computer Awareness	(20)
English Proficiency	(15)
General Awareness	(15)

MATHEMATICS (Graduate Level)

- **Set Theory:** Concepts 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, equations of a line, intersection of lines, pair of straight lines, equations of a circle, parabola, ellipse, and hyperbola.
- **Calculus:** Limit of functions, Continuous functions, Differentiation of functions, tangents and normals, simple examples of maxima and minima. Integration of function 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, 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 timesharing operating systems.
- Flow chart and Algorithm, Fundamentals of Operating System and Basics of Internet.

ENGLISH PROFICIENCY

Comprehension, Vocabulary, Basic English Grammar (like usage of correct forms of verbs, prepositions and articles), Word power, Synonyms and Antonyms, Meanings of words and phrases, Technical writing

GENERAL AWARENESS

Literature, Current Affairs of National and International Economy, History, Sports News, Science in everyday life, Politics, Geography, Culture, Economics, Trade Awareness, Personalities in News, Indian Constitution