

M.SC. (COMPUTER SCIENCE) ENTRANCE SYLLABUS-2017-18

SECTION – A (MATHEMATICS)

REAL NUMBERS, SEQUENCES AND SERIES : Real Numbers, Sequences- Monotonic Sequences, Limit of Sequence, Convergence of Sequence , infinite series, Tests of Convergence, Absolute and Conditional convergence.

GROUP THEORY: Groups, Semi-Groups, Coset, Index of a Sub-Group, cyclic Group, Quotient group Homomorphism, Auto-morphisms, Permutation Group, Symmetric Group, Alternate Groups.

RINGS AND FIELDS: Types of Rings, Integral domain, Skew field, field, ideals, Maximal ideal, Prime ideal, Quotient rings, Euclidean rings.

LINEAR ALGEBRA: Vector space, sub-space, Quotient spaces, Linear dependence and independence, Algebra of linear transformations, Matrix of a linear transformation, Eigen values, Eigen Vectors, Rank, Inner product spaces, normal of vector space, Orthonormal vectors.

THREE-DIMENSIONAL GEOMETRY: Direction cosines, Direction ratios, Projections, Plane, Pair of planes, Line and Plane, Skew-lines, Transformation of Co-ordinates, Spheres, Plane section of sphere, Tangent planes, Polar line, Conjugate planes, Orthogonal spheres, Power of a point, Radical planes, Co-axial system of spheres.

SECTION –B (COMPUTER SCIENCE)

FUNDAMENTALS OF COMPUTERS: Types of Computer –Logical Organization of a Computer Memory: Main Memory, RAM, ROM and Cache, Types of Secondary Memory, Input devices, Output devices.

Operating Systems: Functions of an operating system, Types of Operating systems, batch processing, Multi Programming, multitasking, time sharing, real time operating systems, Types of Networks, Internet, WWW .

PROGRAMMING CONCEPTS: Programming Concepts, Variables, Constants, Expressions, Control Structures, Arrays and functions, Files, Structures and Unions, Pointers.

DATA STRUCTURES: Linear Data Structures-Ordered Lists, Queues, Stacks, Non-Linear Data Structures-Tress, Sorting and Searching.

DATABASE MANAGEMENT SYSTEMS: Relations, Relational Algebra, Relational Calculus, ER Model, Normalization, Integrity Constraints, Transaction Management and Concurrency Control.

OBJECT ORIENTED PROGRAMMING: Object oriented features of Java, Classes and Objects, Constructors, Inheritance, Interfaces, Polymorphism, Exception Handling, Multithreading.

MODEL QUESTION PAPER

Maximum Max – 100

Time: 90 minutes

SECTION-A

MATHEMATICS (40 QUESTIONS)
(Each question is of multiple choice type with four options)

Marks: 50

SECTION-B

COMPUTER SCIENCE (60 QUESTIONS)
(Each question is of multiple choice type with four options)

Marks: 50

MODEL QUESTION PAPER

Time: 90 minutes

Max: Marks: 100

ANSWER ALL QUESTIONS

SECTION-A: MATHEMATICS (50 QUESTIONS)

Marks: 50

Which of the following is a subset of $\{b, c, d\}$?

- | | |
|------------------|------------------|
| A. $\{\}$ | C. $\{a\}$ |
| B. $\{1, 2, 3\}$ | D. $\{a, b, c\}$ |

In coordinate geometry, the equation of the x -axis is

- | | |
|------------|------------|
| A. $y=x$ | C. $y = 0$ |
| B. $x = 0$ | D. $y = 1$ |

SECTION-B: COMPUTER SCIENCE (50 QUESTIONS)

Marks: 50

The statement that transfers control to the beginning of the loop is called

- | | |
|-----------------------|-------------------|
| A. Break statement | B. Exit statement |
| C. Continue statement | D. Goto statement |

Each attribute of an entity has a defined set of values. This set of values is called

- | | |
|---------------|------------|
| A. Range | B. Domain |
| C. Entity Set | D. Mapping |