

## **APPENDIX A**

### **Syllabus for the Aptitude Entrance Test for Admissions to Master of**

### **Computer Application (MCA), Goa University**

### **Effective from AY 2022-2023 onwards**

#### **Part 1: Analytical Ability and Logical Reasoning:**

The questions in this section will cover analytical and logical reasoning and are based on Series, Relationships, Classification, Coding, Permutations and Combinations and Inference, Numerical problems.

#### **Part 2: Mathematics:**

Set Theory, Probability and Statistics, Logarithms, Geometric and Harmonic progressions, Determinants and Matrices, Coordinate Geometry & Applications. Basic Calculus: Limit of functions, continuous function, differentiation of function, Integration and their applications. Trigonometry & applications. Vectors: Concepts of vectors & vector algebra, applications of Vectors.

Fundamentals of logic, Relations and Functions, Counting Techniques: Basics of Counting, Pigeonhole Principle, Recurrence relations, Graphs: Basic concepts of Graph and its applications. Introduction to trees, Applications of trees, Boolean Algebra and Circuits.

#### **Part 3: Computer Science:**

##### **Programming and Basic Data Structures:**

Introduction to Algorithms, Flow charts, Assembly language and high-level language, Programming in C: Tokens, Identifiers, Data Types, Sequence Control, Subprogram Control, Arrays, Structures, Functions. Data Structures: Abstract data types, stacks, queues, Singly Linked Lists.

Basic sorting algorithms: bubble sort, selection sort, insertion sort.

##### **Computer Organization & Architecture and Operating Systems:**

Basic functional blocks of a computer, Number Systems, Conversion & Arithmetic, Complements.

Introduction to operating systems, Structure and Basic functions, types of OS, Operating System Services.

##### **Application development:**

Internet and WWW Architecture, The Web browsers, HTML, Structural & formatting tags, Page elements, Tables, forms.