**Galaxy Global Educational Trust’s Group of Institutions**

# Dinarpur-Ambala

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| **BACHELOR OF COMPUTER APPLICATIONS**  **SCHEME OF EXAMINATION – FIRST YEAR(w.e.f. 2013-14)** | | | | | | |
| **Paper**  **No.** | **Title of Paper** | **External**  **Marks** | **Internal Assessment** | **Maximum**  **Marks** | **Pass**  **Marks** | **Exam**  **Duration** |
| **Semester - I** | | | | | | |
| BCA-111 | Computer & Programming Fundamentals | 80 | 20 | 100 | 35 | 3hrs |
| BCA-112 | Window & PC Software | 80 | 20 | 100 | 35 | 3hrs |
| BCA-113 | Mathematical Foundations – I | 80 | 20 | 100 | 35 | 3hrs |
| BCA-114 | Logical Organization of Computer – I | 80 | 20 | 100 | 35 | 3hrs |
| BCA-115 | Communicative English | 80 | 20 | 100 | 35 | 3hrs |
| BCA-116 | Programming in C | 80 | 20 | 100 | 35 | 3hrs |
| BCA-117 | Lab – I Windows, and Power Point  (based on 112) |  |  | 100 | 35 | 3hrs |
| BCA-118 | Lab – II Programming in c(based on 116) |  |  | 100 | 35 | 3hrs |

**BCA-116 Programming in C**

**Maximum Marks: 100 External: 80**

**Minimum Pass Marks: 35 Internal: 20**

**Time: 3 hours**

**Note:** Examiner will be required to set Nine Questions in all. First Question will be

compulsory, consisting of objective type/short-answer type questions covering the entire

syllabus. In addition to that eight more questions will be set, two questions from each Unit.

Student will be required to attempt FIVE questions in all. Question Number 1 will be

compulsory. In addition to compulsory question, student will have to attempt four more

questions selecting one question from each Unit.

**UNIT-I**

Overview of C: History of C, Importance of C, Structure of a C Program. Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant. Input/output: Unformatted & formatted I/O function in C, Input functions ( scanf(), getch(), getche(), getchar(), gets() ), Output functions ( printf(), putch(), putchar(), puts() ).

**UNIT-II**

Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators. Arithmetic expressions, evaluation of arithmetic

expression, type casting and conversion, operator hierarchy & associativity.

Decision making & branching: Decision making with IF statement, IF-ELSE statement,

Nested IF statement, ELSE-IF ladder, switch statement, goto statement.

**UNIT-III**

Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue

statement. Functions: Definition, prototype, passing parameters, recursion.

**UNIT-IV**

Storage classes in C: auto, extern, register and static storage class, their scope, storage, &

lifetime. Arrays: Definition, types, initialization, processing an array, passing arrays to

functions, Strings & arrays.

**TEXT BOOKS**

1. Gottfried, Byron S., Programming with C, Tata McGraw Hill

2. Balagurusamy, E., Programming in ANSI C, Tata McGraw-Hill

**REFERENCE BOOKS**

1. Jeri R. Hanly & Elliot P. Koffman, Problem Solving and Program Design in C,

Addison Wesley.

2. Yashwant Kanetker, Let us C, BPB.

3. Rajaraman,

**BCA – 232 DATA STRUCTURES**

**Maximum Marks: 100 External:80**

**Minimum Pass Marks: 35 Internal:20**

**Time: 3 hours**

**Note:** Examiner will be required to set Nine Questions in all. First

Question will be compulsory, consisting of objective type/short-answer

type questions covering the entire syllabus. In addition to that eight

more questions will be set, two questions from each Unit. A candidate

will be required to answer five questions in all, selecting one question

from each unit in addition to compulsory Question No. 1. All questions

will carry equal marks.

**UNIT – I**

Introduction: Elementary data organization, Data Structure definition,Data type vs. data structure, Categories of data structures, Datastructure operations, Applications of data structures, Algorithms

complexity and time-space tradeoff, Big-O notation.Strings: Introduction, String strings, String operations, Patternmatching algorithms.

**UNIT – II**

Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparce matrics.

Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Garbage collection, Applications of linked lists. Algorithms for Insertion, deletion in array, Single linked list

**UNIT – III**

Stack: Introduction, Array and linked representation of stacks, Operations on stacks, Applications of stacks: Polish notation, Recursion. Queues: Introduction, Array and linked representation of queues, Operations on queues, Deques, Priority Queues, Applications of

queues.

**UNIT – IV**

Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees, Traversal algorithms using stacks and using recursion. Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs.

**TEXT BOOKS**

1. Seymour Lipschutz, “Data Structure”, Tata-McGraw-Hill

2. Horowitz, Sahni & Anderson-Freed, “Fundamentals of Data

Structures in C”, University Press

**REFERENCE BOOKS**:

1. Trembley, J.P. And Sorenson P.G., “An Introduction to Data

Structures With Applications”, Mcgrraw- Hill International Student

Edition, New York.

2. Mark Allen Weiss Data Structures and Algorithm Analysis In C,

Addison- Wesley, (An Imprint Of Pearson Education), Mexico City.

3. Yedidyan Langsam, Moshe J. Augenstein, and Aaron M. Tenenbaum,

“Data Structures Using C”, Prentice- Hall of India Pvt. Ltd., New

Delhi.