

University Centre for Distance Learning



**Syllabi & Scheme of Examination
BCA-2nd Year**

Chaudhary Devi Lal University Sirsa (Haryana)

Website:- www.cdlu.ac.in



SCHEME OF EXMINATION

University Centre for Distance Learning

BCA - II

Paper Code	Course Nomenclature	Ext. Ass.	Inter.Min. Ass.	Pass Marks	Time
BCA - 208	Data Structure using C	70	30	35	3 Hrs
BCA - 209	Computer Organization & Architecture	70	30	35	3 Hrs
BCA - 210	Object Oriented Programming using C++	70	30	35	3 Hrs
BCA - 211	Database Management System	70	30	35	3 Hrs
BCA - 212	System Analysis and Design	70	30	35	3 Hrs
BCA - 213	Software Lab - 1 (based on 201)	100		40	3 Hrs
BCA - 214	Software Lab - 1 (based on 203)	100		40	3 Hrs

Total marks: 700

Eight Questions will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Each theory paper will be of three hours duration. Minimum pass marks are 35 in each theory paper and practical (40 marks) and aggregate 40%.

Paper - 208: Data Structure Using C

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are requires to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Introduction:

Basic Terminology, Data Structure, Data Structure Operations, Development of Algorithms, Algorithms Complexity and Time Space Trade - off.

String Processing:

Storing String, String Operations, Word Processing, Pattern Matching Algorithm.

Arrays:

Linear Array and their representation in memory, Traversal, insertion and deletion in an array, Searching and sorting of an array.

Linked Lists:

Linked Lists and their Representation in Memory, Traversal, Searching, Insertion and deletion in Single Linked List, Concepts of Double Linked List, Circular Linked List

Binary Trees:

Definition of Binary Tree, Representing Binary Trees in Memory, Traversing Binary Trees.

Graphs:

Introduction, Sequential Representation of Graph, Adjacency Matrix, Path Matrix, Wrashall's Algorithm, Operations on Graphy, Traversing Graph.

Sorting:

Sorting Techniques: Selection Sort, Bubble Sort, Quick Sort, Insertion Sort.

Books Suggested:

1. Data Structure - Schaum's Outline Series
2. Data Structure - Tanenbaum
3. Data Structure using C - B. Baluja, Dhanpatrai Publication.

Paper - 209: Computer Organization & Architecture

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are requires to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Combinational and Sequential Circuits

Introduction to Boolean Algebra, Different type of Gates, Law of Bollean; Algebra, Algebrical expressions, Karnaugh - Maps, Flip - Flops, Sequential Circuits,

Introduction to Hardware:

Cycle time of CPU, Register, Accumulator, Arithmetic, Logical Unit, System Bus Introduction, Memory (Hierarchy of memory, features of memory, semiconductor memories)

Instruction Format and Addressing Methods

Processor Organization Register Organization Different Instruction Format, Instruction Length, Introduction of Addressing Mode, Different Addressing Modes, Processor Organization, Register Organization.

Organization of data and I/O System Interrupt

Organization of Data in Memory, Stack, Input, Output Organization, Different I/O techniques. Input/Output Processor, RISC, CISC.

Memory Organization and Peripherals:

Memory, Memory Hierarchy, Various Memory Devices, Cache Memory, Virtual Memory, Secondary Memory, Different Input/Output Devices and their function, Associative Memory, DMA.

Books Suggested:

1. Computer Organization - V.Carl Hamacher & Zvonko G. Vransic - McGraw Hill.
2. Computer architecture & Logic Design - Thomas C. Barty - McGraw Hill.
3. Computer Organization - J.P. Heys
4. Digital Computer - Morris Mano - Pearson.

Paper - 210: Object Oriented Programming using C++

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are requires to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Introduction to OOPs and C++ Element

Introduction to OOPs, Features & Advantages of OOPs Elements of C++ (Tokens, Keywords, Identifiers, Vairable, Constant, Operators Expression, String)

Programe Control Statements

Sequential Constructs, Decision Making Construct, Iteration/Loop Construct, Arrays, Functions (User defined Function, Inline Function, Function Overloading) User Defined Data Types (Structure, Union and Enumeration).

Class, Object, Constructor & Destructor

Class, Modifies (Private, Public & Protected), Data Member, Member function, Static Data Member, Static Member Function, Friend Function, Object, Constructor, (Default Constructor, Parameterized Constructor and Copy Constructor), Destructor.

Pointer, Polymorphism & Inheritance

Pointer (Pointer to Object, this pointer, Pointer to Derive Class), Introuction to Polymorphism (Runtime Polymorphism, Compile time Polymorphism), Operator Overloading, Virtual Function, Inheritance (Single Inheritance, Multiple Inheritance, Multilevel Inhertiance, Hierarchical Inheritance, Hybrid Inheritance), Virtual Base Class , Abstract Class.

Books Suggested:

1. Object Oriented programming with C++: E. Balaguruswami.
2. Success with C++: Kris James
3. Object Oriented programming with C++: David Parsons
4. Programming in C++:D. Ravichandran.
5. Programming in C++: Dewhurst and Stark.
6. Mastering C++: Venugopal, Ravishankar, Rajkumar

Paper - 211: Database Management System

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are requires to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Overview of DBMS

Data Base Definition, Data, Information and knowledge, Advantage and disadvantages of Data Base over file systems, Data Independence, Data Base Administrator, DBMS Architecutre, Users of DBMS, Data Dictionary, Three Schema Architecture.

ER-Model

Entity, Weak Entity Type, Entity Set, Relationship, Relationships Constrints, Strong and Weak Entities, ER-Diagram.

Traditional Database Model over Relational Database Model:

Data Models - Hierarchical Model, Network Model, Relational Model, Concept of Keys (Candidate Keys, Primary Key, Alternate Key, Foreign Key, Super Key), Extensio and intension of a relation Relational Algebra.

Structured Query Language

Concept of Normalization

Normalization, Functional Dependencies, Mutli-Value Dependencies, Join Dependencies, Normal Forms (First, Second and Third)

Books Suggested:

1. The complete reference by Coach and Loney
2. A Beginners guide - By Abbey and Croney
3. Database System - Elmasri and Navathe

Paper - 212: System Analysis and Design

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are requires to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Overview of System Analysis and Design

Introduction to System, Difference between Manual System and Automated System, Types of Systems, System Analyst, System Development Life Cycle.

Designing of a System

Data Flow Diagrams (DFD), Data Dictionary, Pseudocode, The Process of System Design, Difference between Logical Design and Physical Design, Top-Down Design and Functional Decomposition, Forms - Driven Methodology.

File Organization and Data Base Design:

The Major Development Activities in Structured Design, Elements of Design, Introduction of File Organization, Data Base Design, Objectives of Data Base Design, The Role of DBA.

System Testing and Implementation:

System Testing, Need for System Testing, Testing Strategies, Quality Assurance, Implementation.

Maintenance

Maintenance and its categories.

Books Suggested:

1. Systems Analysis & Design: Awad Elias M.
2. Analysis & Design of Information Systems: Sen
James A.
3. Introductory Systems Analysis and Design: Lee.
4. Systems Analysis & Design: Wetherbe James C.