

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B.C.A. Semester – IV
BCA-401 : Data Structure

Teaching Scheme (Per week)		Teaching Scheme (Per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	40	4	30	--	70	--	100	--

Unit - I

[18 Marks]

Introduction to Data Structure.

Data Structure: Primitive and Non-Primitive Data Structure, Linear and Non-Linear Data Structure, Time and Space efficiency of the Algorithm. String Manipulation – String Length, String copy, String Compare, String Concatenation, string find

Unit - II

[17 Marks]

Linear Data Structures

Arrays, Stacks, Queue, Singly Linked List, Circular Linked List, Doubly Linked List, Applications of Linked List, Reverse a List, Merge a List, Concept of Multi linked Structure

Unit - III

[18 Marks]

Non linear Data Structures

Tree Structure, General Tree, Binary Tree, Tree Traversal Algorithms, Copy, Insert & Delete Algorithms, Threaded Tree (Excluding Algorithms), B-Tree and B+ Tree (Excluding Algorithms), AVL Tree (Excluding Algorithms), Height Balanced Tree (Excluding Algorithms), Weight Balanced Tree (Excluding Algorithms), Graph and Networks : Concept, BFS Algorithm, DFS Algorithm

Unit - IV

[17 Marks]

Sorting, Searching and File Structure

Sorting: Selection, Bubble, Insertion, Shell, Quick, and Radix. **Searching:** Sequential and Binary Search. **File Organization:** Introduction, Sequential, Index, Direct, Inverted Organizations and their applications, Hashing Function and Collision Processing

Text Book:

1. **An Introduction to Data Structure with Applications 2nd Edition**, Tremblay J. and Sorenson P., McGraw-Hill international Edition,
2. **Introduction to Data Structure**, Bhagat singh and Thomas Naps: Tata McGraw-Hill Publishing Co. Ltd., 1985.
3. **Expert Data Structure with C**, R. B. Patel, Khanna books.

Question Paper Scheme:

University Examination Duration: 3 Hours.

Q.1 - Unit-I (18 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.2 - Unit-II (17 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.3 - Unit-III (18 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.4 - Unit-IV (17 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Note: All Objective/ Short Questions are compulsory, no option will be given.

Filename: BCA-401
Directory: C:\Documents and Settings\Student\Desktop\VIPUL-
I\BCA\Sem-IV
Template: C:\Documents and Settings\Student\Application
Data\Microsoft\Templates\Normal.dot
Title: HAMCHANDRACHARYA NORTH GUJARAT
UNIVERSITY,, PATAN
Subject:
Author: pln
Keywords:
Comments:
Creation Date: 3/25/2012 7:30:00 AM
Change Number: 17
Last Saved On: 3/26/2012 9:58:00 AM
Last Saved By: VP
Total Editing Time: 102 Minutes
Last Printed On: 6/7/2012 4:22:00 PM
As of Last Complete Printing
Number of Pages: 2
Number of Words: 391 (approx.)
Number of Characters: 2,231 (approx.)