



**DCCA103**

Reg. No.

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**I Semester B.C.A. Degree Examination, May/June - 2022**

**COMPUTER SCIENCE**

**Data Structure**

**(NEP Scheme 2021)**

**Paper : CA-C3T**

**Time : 2½ Hours**

**Maximum Marks : 60**

**Instructions to Candidates : Answer all Sections.**

**SECTION - A**

**I. Answer any Four questions. Each question carries Two marks. (4×2=8)**

- 1) Define Abstract Data Type.
- 2) What is sparse matrix?
- 3) Define Linked list.
- 4) Define
  - a) Directed graph
  - b) Weighted graph.
- 5) Define Binary Search.
- 6) Define Hashing.

**SECTION - B**

**II Answer any Four questions. Each question carries Five marks. (4×5=20)**

- 7) Explain traversal of singly linked list
- 8) Explain circular queue with example.
- 9) Write an algorithm for inserting values in circular queue.
- 10) Define Binary search Tree. Give example.
- 11) Explain Linear Search algorithm
- 12) Explain Topological sorting.

**[P.T.O.]**



## SECTION - C

- III. Answer any Four questions. Each question carries Eight marks (4×8=32)**
- 13) a) Explain the different types of data Structures. (4)  
b) Write a note on Asymptotic notations. (4)
- 14) a) Evaluate Postfix expression. Show step clearly 6, 5, 3, +, \*, 12, 3, /, - (4)  
b) Write algorithms for  
i) Push  
ii) Pop operations for stack (4)
- 15) What is Recursion ? Write an algorithm for tower of Hanoi Problem. (8)
- 16) Write short notes on : (8)  
a) Lexicographic Search Trees  
b) B - Trees.
- 17) a) Define Sorting (2)  
b) Write a C Program to sort an array using insertion sort technique. (6)
- 18) Explain hashing techniques and techniques for collision resolution. (8)
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