

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.



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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