24CS-BCAP-MA-02-03001

Seat No. _____

BACHELOR OF COMPUTER APPLICATION-CS Examination

BCA - CS SEMESTER-2 APRIL 2026 (NEP) APRIL - 2026

CS-08: DATA STRUCTURE USING C LANGUAGE

Faculty Code : 11

Subject Code : 24CS-BCAP-MA-02-03001

Time : 2 Hours] **[Total Marks : 50**

Q.1 (A) Attempt the following. 3

(1) Time complexity of linear search in the worst case is _____.

(2) The function used to move file pointer is _____.

(3) Command line arguments are passed using _____and _____.

Q.1 (B) Attempt any one of the following. 2

(1) What is an algorithm? List any two characteristics.

(2) Explain file handling.

Q.1 (C) Atempt any one of the following. 5

(1) Explain time and space complexity with suitable examples.

(2) Discuss file handling functions in C with examples.

Q.2 (A) Attempt the following. 3

(1) Bubble sort compares _____ elements.

(2) Quick sort uses a _____ technique.

(3) Shell sort is an extension of _____ sort.

Q.2 (B) Attempt any one of the following. 2

(1) Differentiate: linear search vs binary search.

(2) What is sorting? Explain it.

Q.2 (C) Attempt any one of the following. 5

(1) Describe Merge Sort with example and its complexity

(2) Discuss Quick Sort algorithm with an example.

Q.3 (A) Attempt the following. 3

(1) Stack insertion operation is called _____.

(2) Queue deletion operation is called _____ .

(3) Stack follows _____ principle.

Q.3 (B) Attempt any one of the following. 2

(1) Explain recursion.

(2) Define queue and explain.

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Q.3 (C) Attempt any one of the following. 5

(1) Explain circular queue with a suitable diagram and algorithm.

(2) Write a C program to implement a stack using an array.

Q.4 (A) Attempt the following. 3

(1) Linked list uses _____ memory allocation.

(2) Doubly linked list has _____ pointers.

(3) In singly linked list, last node points to _____.

Q.4 (B) Attempt any one of the following. 2

(1) Define and explain linked list.

(2) List types of linked lists.

Q.4 (C) Attempt any one of the following. 5

(1) Describe insertion and deletion operations in singly linked list.

(2) Write an algorithm for reversing a singly linked list.

Q.5 (A) Attempt the following. 3

(1) Tree is a _____ data structure.

(2) In binary tree, maximum children are _____.

(3) DFS uses _____ data structure.

Q.5 (B) Attempt any one of the following. 2

(1) Describe binary tree.

(1) What is a Graph? Explain it.

Q.5 (C) Attempt any one of the following. 5

(1) Explain BST insertion and deletion with examples.

(2) Explain BFS and DFS traversal with suitable example.

::: END OF EXAM :::

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