

B.C.A Semester - 2 (CBCS) Examination**June/July-2022 [OLD COURSE]****CS-07 DATA STRUCTURE USING C LANGUAGE(CORE)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

-
- Q.1(A) Attempt all. (04)
1. What is the use of calloc() function?
 2. Array is which kind of data type?
 3. What are the different storage classes?
 4. What is space complexity?
- Q.1(B) Attempt any one. (02)
1. What is Union?
 2. Explain Big-Oh Notation.
- Q.1(C) Attempt any one. (03)
1. Explain Passing parameters to the functions with example.
 2. Explain array of pointers with example.
- Q.1(D) Attempt any one. (05)
1. Explain dynamic allocation and de-allocation of memory.
 2. Explain structure with example.
- Q.2(A) Attempt all. (04)
1. What are the different Graph traversals?
 2. Which sorting technique is used for small lists and mostly sorted lists?
 3. A connected Graph without any cycles is called_____.
 4. List various searching technique.
- Q.2(B) Attempt any one. (02)
1. What is Weighted Graph?
 2. Explain Directed Graph and Undirected Graph.
- Q.2(C) Attempt any one. (03)
1. Write an algorithm of merge sort.
 2. Write an algorithm of binary search.
- Q.2(D) Attempt any one. (05)
1. Write an algorithm and program of selection sort.
 2. Write an algorithm and program of index search.
- Q.3(A) Attempt all. (04)
1. A stack is which type of Data structure?
 2. What is Data Structure?
 3. What is Recursion?
 4. What is the full form of FIFO?
- Q.3(B) Attempt any one. (02)
1. Explain priority Queue?
 2. What is Stack?
- Q.3(C) Attempt any one. (03)
1. Explain primitive and Non Primitive Data Structure.
 2. Write an Algorithm for insertion and deletion from Queue.
- Q.3(D) Attempt any one. (05)
1. Write a C program for insertion and deletion operation for circular Queue.
 2. Write a C program for different stack operations.

- Q.4(A) Attempt all. (04)
1. What are the different types of Linked List?
 2. What is Node in Linked List?
 3. In Linked List each node contains what?
 4. Linked List is which type of Data Structure?
- Q.4(B) Attempt any one. (02)
1. Explain the difference between array and Linked List.
 2. What is the difference between singly Linked List and Doubly Linked List?
- Q.4(C) Attempt any one. (03)
1. Write an algorithm to insert and delete a node in singly Linked List.
 2. Write an algorithm to traverse nodes in Doubly Linked List.
- Q.4(D) Attempt any one. (05)
1. Write a C program to implement Merging of two Linked List.
 2. Write a C program to implement Doubly Linked List with any four operations.
- Q.5(A) Attempt all. (04)
1. What is Leaf Node?
 2. What is Sub tree?
 3. What is Complete Binary tree?
 4. What is Binary Search tree?
- Q.5(B) Attempt any one. (02)
1. What is Ancestor and Descendant Nodes in tree?
 2. Explain height balanced tree.
- Q.5(C) Attempt any one. (03)
1. Write an algorithm of tree traversal techniques of Binary tree.
 2. Write an algorithm of insertion, deletion and search for a key in Binary search tree.
- Q.5(D) Attempt any one. (05)
1. Explain B-Tree.
 2. Write a C Program that implements traversing of Binary tree.
