

B.Sc.(IT) Semester - 2 (CBCS) Examination
June/July-2022 [OLD COURSE]
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.

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- Q.1(A) Attempt the following. (04)
1. _____ character is used to declare a pointer.
 2. _____ keyword is used to declare structure.
 3. Array index number starts with _____.
 4. _____ function is used to release memory.
- Q.1(B) Attempt the following. (any one) (02)
1. What is array? How can we declare and initialize array?
 2. What is pointer? Explain declaring and initializing pointer.
- Q.1(C) Attempt the following (any one) (03)
1. Explain malloc(), calloc() and free() functions.
 2. Explain passing parameters to a function with example.
- Q.1(D) Attempt the following. (any one) (05)
1. Explain advantages and disadvantages of pointers.
 2. Explain different storage classes.
- Q.2(A) Attempt the following. (04)
1. _____ is the process to arrange data in a particular order.
 2. DFS stands for _____.
 3. _____ search is the fast searching technique.
 4. BFS stands for _____.
- Q.2(B) Attempt the following. (any one) (02)
1. What is searching? List different types of searching.
 2. Explain briefly any one sorting technique.
- Q.2(C) Attempt the following (any one) (03)
1. Write a C function/an algorithm to sort an array using selection sort.
 2. Explain minimal spanning tree.
- Q.2(D) Attempt the following. (any one) (05)
1. Write a C function/an algorithm to search an element using binary search.
 2. Write a C function/an algorithm to sort an array using bubble sort.
- Q.3(A) Attempt the following. (04)
1. FIFO stands for _____
 2. In stack, operations are performed at one end i.e. called _____
 3. LIFO stands for _____
 4. Queue is _____ data structure.
- Q.3(B) Attempt the following. (any one) (02)
1. Explain postfix expression.
 2. Explain prefix expression.
- Q.3(C) Attempt the following. (any one) (03)
1. Write C functions/algorithms to insert and delete element from a stack.
 2. Write C functions/algorithms to insert an element in a queue and delete an element from a queue.
- Q.3(D) Attempt the following. (any one) (05)
1. Write C functions/algorithms to insert and delete element from a circular queue.
 2. Explain different types of data structure.

- Q.4(A) Attempt the following. (04)
1. In singly linked list, next pointer of last node contains_____
 2. We can traverse the _____ Linked list in forward as well as backward direction.
 3. In singly circular linked list, next pointer of last node contains address of _____ node.
 4. There are _____ parts of a node in doubly linked list.
- Q.4(B) Attempt the following. (any one) (02)
1. Explain reversing of linked lists.
 2. What is linked list? List different types of linked lists.
- Q.4(C) Attempt the following. (any one) (03)
1. Write a C function/an algorithm to insert node as first node in doubly linked list.
 2. Write a C function/an algorithm to delete last node from doubly linked list.
- Q.4(D) Attempt the following. (any one) (05)
1. Explain applications of linked list.
 2. Write C functions/algorithms to insert first node and delete last node from singly linked list.
- Q.5(A) Attempt the following. (04)
1. Tree is a _____ data structure.
 2. A node with degree zero is called _____ node.
 3. In binary tree, every node has maximum _____ children.
 4. BST stands for _____
- Q.5(B) Attempt the following. (any one) (02)
1. What is tree? List different types of tree.
 2. Explain properties of a tree.
- Q.5(C) Attempt the following. (any one) (03)
1. Explain binary tree.
 2. Write a C function/an algorithm to insert node in binary tree.
- Q.5(D) Attempt the following. (any one) (05)
1. Write C functions/algorithms for traversing a binary tree.
 2. Explain height balanced tree.
