

B.C.A Semester - 2 (NEP-2020) Examination**JUNE – 2024****Data Structure using C (Theory) (Major-3)****Time: 2:00 Hours****Marks: 50****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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- Que.1 Attempt following questions.(Attempt any Two) (10)
1. Explain types of Linear and Non Linear data structures in brief.
 2. What is Pointer? Explain Pointer Arithmetic with an example.
 3. What is Sort? Explain bubble sort with an example.
 4. What is Search? Explain Linear search with an example.
- Que.2 Attempt following questions.(Attempt any Two) (10)
1. What is Stack? Explain an algorithm of push(), pop(), peep() operation on static stack.
 2. Explain Reverse polish expression.
 3. What is Queue? Explain applications on Queue.
 4. What is Circular Queue? Explain all operations of Circular queue in brief.
- Que.3 Attempt following questions.(Attempt any Two) (10)
1. Explain Dynamic memory allocation functions in detail.
 2. What is Linked List? Write an algorithm for push() and peep() operation on Dynamic Stack.
 3. Write a program for insert_first, delete_last and delete_specific node in doubly link list
 4. Write an algorithm for delete_first, insert_last and insert_specific node in singly link list.
- Que.4 Attempt following questions.(Attempt any Two) (10)
1. What is tree traversal? Explain tree traversal methods in detail.
 2. Explain types of binary tree in detail.
 3. Explain Graph traversal method in brief.
 4. Define shortest path problem in brief.
- Que.5 Attempt following questions.(Attempt any Two) (10)
1. Explain concept of File Allocation Table in brief.
 2. Explain file system services in detail.
 3. Explain tree structured directory system in brief.
 4. Explain Disk Space Allocation in brief.
