

2023

COMPUTER SCIENCE — HONOURS — PRACTICAL

Paper : CC-3P

(Data Structure using C)

Full Marks : 30

Set - 3

Marks Distribution

Algorithm :	5
Source Code :	10
Output :	5
Laboratory Notebook :	4
Viva voce :	6

Answer *any one* question.

1. Write a menu driven program in C to perform the following functions on an array as input is given by user :
 - (a) Delete an element from a position (as per user's choice).
 - (b) Print the 2nd largest number without sorting .
 - (c) Display the array.

2. Write a program in C to implement matrix transpose and find whether the transposed matrix has any saddle point. If so, print the element along with its row and column number.
[Saddle point → an element which is both the largest in its column, and smallest in its row]

3. Write a program in C to create a singly linked list, after taking the number of elements as an input from the user. Then perform the following operations :
 - (a) Search for a particular item.
 - (b) Insert a new element at a specific location (user dependent)
 - (c) Display the list.

4. Write a program in C to perform merging of two singly linked list. The two input lists need to be created after taking the necessary details from the user.

 5. Write a program in C to implement circular queue using array, and perform insertion and deletion operations (handle all possible exception / error cases.).

 6. Write a program in C to evaluate a prefix expression. The numbers may be multi-digit in nature.

 7. Write a program in C to input a list of integers and sort the list using algorithm.

 8. Write a program in C to create a Binary Search Tree (BST) and incorporate the following operations :
 - (a) Inserting a new item.
 - (b) Searching for a specific item.

 9. Write a program in C to create a singly linked list. Now perform the following operations :
 - (a) Searching for a specific item (also print the number of comparisons).
 - (b) Delete a particular item from the list.

 10. Write a program in C to implement Heap Sort on a list of integers.
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