QP Code: 1221QP

Seat No.	

Total No. of Pages: 2

January - February (Winter) Examination - 2023

Subject Name: B.C.A. (CBCS)_83376_Data Structure using C_16.01.2023_10.30 AM To 01.30 PM

Subject Code: 83376

Day and Date: Monday, 16-01-2023 (B.C.A. II, SEM - III)

Time: 10:30 am to 01:30 pm

Total Marks: 70

Instructions.:

1) All questions are compulsory

Special Instruction.:

1) Que.No.1 and Que. No.6 are compulsory 2) Attempt any three Questions from Que. No.2 to Que. No. 5.

Q.1. A) Multiple Choice Questions (10 Marks) **[20]**

1) A stack is a linear data structure in which data is stored and retrieved in a :

1. Last out first in
2. Last in first out
3. First in first out
4. Last out lost in

2) A terminal node in a tree is called .....

1. Root
2. Leaf
3. Child
4. Branch

3) Which indicates pre-order traversal?

1. Left sub-tree, Right sub-tree and root
2. Right sub-tree, Left sub-tree and root
3. Root, Left sub-tree, Right sub-tree
4. Right sub-tree, root, Left sub-tree

4) The retrieval of items in a stack is ..... operation.

1. push
2. pop
3. retrieval
4. access

5) Before inserting into stack one must check the condition .....

1. Overflow
2. Underflow
3. Maximum elements
4. Existing elements

6) The operations that can be done in a circular queue is/are .....
1. Insert from the front end
2. Delete from front end
3. Display queue contents
4. All of the above

7) Which of the following is the infix expression?
1. A+B*C
2. +A*BC
3. ABC+*
4. None of the above

8) What is the maximum number of children that a node can have in a binary tree?
1. 3
2. 1
3. 4
4. 2

9) Minimum number of fields in each node of a doubly linked list is ___
1. 2
2. 3
3. 4
4. None of the above

10) A parentheses checker program would be best implemented using
1. List
2. Queue
3. Stack
4. Any of the above

B) Attempt any two questions.(10 Marks)
a) Explain liner search with example.
b) Explain stack as an abstract data type (ADT).
c) Explain insertion function in doubly linked list.

Q.2. Explain Bubble Sort with appropriate example. [10]

Q.3. Write program to evaluate postfix expression. [10]

Q.4. What is tree? Explain tree traversal with appropriate example. [10]

Q.5. What are Data Structures? Explain different types of Data Structures. [10]

Q.6. Write notes on (Any Four) [20]
a) Tree terminologies.
b) Linear linked list
c) Applications of queue
d) Selection sort
e) Data structures operations
f) Application of stack