Seat No.	

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SHIVAJI UNIVERSITY, KOLHAPUR

B.C.A. Part – II Semester – III (CBCS) (NEP)

Examination Oct/Nov, 2023

Data Structure using C

Sub. Code: 91172

Day and Date: Friday, 10-11-2023 **Total Marks: 80**

Time: 10.30 a.m. to 01.30 p.m.

Instructions: *1) Que.1 and Que. 8 are compulsory*
2) Attempt any three Questions from Que. No.2 to Que. No.7.
3) Figures to the right indicate full marks.

Q 1) Select correct alternative and rewrite the sentence. **[12]**

1) Which one of the following is the size of int arr[9] assuming that int is of 4 bytes?
   a) 9 b) 36 c) 35 d) None of these

2) Which of the following is a linear data structure?
   a) Array b) AVL Trees c) Binary Trees d) Graphs

3) Process of removing an element from stack is called?
   a) Create b) Push c) Evaluation d) Pop

4) Which of the following data structure is non-linear type?
   a) Strings b) Stack c) Tree d) Queue

5) Which data structure allows deleting data elements from front and inserting at rear?
   a) Stack b) Queue c) Deque d) Binary search tree

6) Which of the following data structure is non-linear type?
   a) Strings b) Stack c) Tree d) Queue

7) A normal queue, if implemented using an array of size MAX_SIZE, gets full when?
   a) Rear=MAX_SIZE-1 b) Front=(rear+1)mod MAX_SIZE
   c) Front=rear+1 d) Rear=front

8) Binary Search can be categorized into which of the following?

a) Brute Force technique b) Divide and conquer
c) Greedy algorithm d) Dynamic programming

9) Which one of the following is the process of inserting an element in the stack?

a) Insert b) Push c) Add d) None of these

10) In a Queue, if a user tries to remove an element from empty Queue it is called?

a) Underflow b) Empty collection
c) Overflow d) Garbage Collection

11) What will be the value of the TOP, if there is a size of stack STACK_SIZE is 5?

a) 5 b) 6 c) 4 d) None

12) A variant of linked list in which last node of the list points to the first node of the list is?

a) Singly linked list b) Doubly linked list
c) Multiply linked list d) Circular linked list

Q 2) What is a data structure? Primitive and non primitive data structure? **[16]**

Q 3) What is sorting? Explain how Bubble Sort works? **[16]**

Q 4) What is meant by searching? Mention the various types of searching techniques? **[16]**

Q 5) What is a stack? What are the operations that can be performed on a stack with suitable example? **[16]**

Q 6) What is array? Explain types of arrays with example? **[16]**

Q 7) What is Linked List? Explain types of linked list? **[16]**

Q 8) Write short note on following (Any Four) **[20]**

1. Queue
2. Array Operation
3. Selection Sort
4. Advantages and disadvantages of Linked List.
5. Insertion Sort
6. Application of queue?

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